DRAFT

Draft Environmental Impact Report

# Golden State Natural Resources Forest Resiliency Demonstration Project

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# Executive Summary

The Golden State Finance Authority has prepared this Draft Environmental Impact Report (EIR) to inform the community, responsible agencies, trustee agencies, and other interested agencies and organizations, of the potential significant environmental effects resulting from implementation of the Golden State Natural Resources Forest Resiliency Demonstration Project. This Executive Summary lists the potentially significant environmental impacts and feasible mitigation measures or project alternatives that would avoid or substantially reduce those impacts. This Draft EIR was prepared in compliance with the California Environmental Quality Act (CEQA) (California Public Resources Code Section 21000-21189.3) and the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.).

## ES.1 Project Overview

1. **Feedstock Acquisition.** Feedstock generally consists of the underutilized and unmarketable forest material used to produce industrial wood pellets. As described in greater detail in Section 2.4, feedstock will typically consist of low or negative value woody biomass, such as brush, small trees designated as undesirable ladder fuels, slash piles that would otherwise be open-burned, and dead or dying trees with little or negative value as timber. Feedstock may include otherwise marketable roundwood resulting from forest fuels reduction and restoration activities, subject to the conditions and criteria discussed in Section 2.4. Feedstock would be sourced from approved salvage, prescribed green tree thinning, fuel-reduction, community wildfire protection, or other forest resiliency projects in California and adjoining forests. Section 2.4 further describes the mandatory Project Design Features established for these projects, which set significant constraints upon these activities. Feedstock sources for the project fall into three categories: (1) "GSNR Biomass Only Thinning Projects" are wildfire fuel reduction operations undertaken by GSNR, or on GSNR's behalf, and which would not occur without GSNR's proposed project; (2) "Harvest Residuals" are residual biomass material resulting from timber harvest, vegetation management, and forest management operations undertaken by third-parties unaffiliated with GSNR and which would occur regardless of GSNR's proposed project; and (3) "Mill Residuals" are residual biomass materials, including residual chips, sawdust, planer shavings, bark and other byproducts, of commercial lumbermills operated by third-parties unaffiliated with GSNR. The feedstock is transported by truck from the forest or mill to the wood pellet processing facility.
2. **Wood pellet production.** Feedstock is received at wood pellet production facilities located in the Central Sierra Nevada foothills (Tuolumne County) and Northern California (Lassen County) regions. In general, any feedstock received in roundwood form is processed through a debarker and chipper. The processed chips are conveyed to a radial stacker reclaimer where they will be combined with material that is received in residual (size reduced) form for the next processing phase. The bark from any roundwood is conveyed separately to a storage pile for use as fuel for the furnace used to heat the dryer. The wood chips are then screened for the appropriate size and transferred to the dryer. Chips that do not pass through the screens are directed to an array of hammer mills to be reduced to the appropriate size. The chips are then dried and can go through another stage of size reduction by way of hammer mills and are then sent through the pellet mill. The pellets are cooled to ambient air temperature and sent through a final screen, after which they are stored in silos awaiting loading for off-site transportation. Additional information regarding production facility design is set forth in Chapter 2 and subsequent chapters of this EIR, including mandatory Site Design Features established for these facilities.

3. **Transport to market.** The pellets are loaded onto railcars for transport to a dedicated, purpose-built export terminal at the Port of Stockton, California. At the terminal, the pellets are unloaded and stored in large domes, where they are continuously monitored while awaiting final ship load out. The domes feed covered conveyors by gravity, which transport the pellets to a shiploader, where the pellets are loaded into dedicated cargo ships for delivery to international energy markets. Additional information regarding port facility design is set forth in Chapter 2 and subsequent chapters of this EIR, including mandatory Site Design Features established for this facility.

## ES.2 Summary of Impacts

Table ES-1 presents a summary of the potential environmental impacts that could result from the project, their level of significance, proposed mitigation measures, and the level of significance of the impact after the implementation of the mitigation measures.

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| **Aesthetics** | | | |
| **AES-1.** The project would not have a substantial adverse effect on a scenic vista. | LTS *(Feedstock Acquisition and Port of Stockton)*<br><br>NI *(Lassen Facility and Tuolumne Facility)* | N/A | LTS |
| **AES-2.** The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. | LTS *(Feedstock Acquisition and Lassen Facility)*<br><br>NI *(Tuolumne Facility and Port of Stockton)* | N/A | LTS |
| **AES-3**. In nonurbanized areas, the project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. In an urbanized area, the project would not conflict with applicable zoning and other regulations governing scenic quality. | LTS | N/A | LTS |
| **AES-4.** The project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. | PS *(Lassen Facility and Tuolumne Facility)* | **MM-AES-1:** GSNR shall install shielded, downward directed lights at the pellet facilities. GSNR shall install the minimum number of lights and intensities for the intended use and use timer or motion-controlled lighting where feasible. All exterior lighting shall be retained on-site and shall be designed not spill onto adjacent properties or illuminate directly on any surface other than | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | LTS *(Feedstock Acquisition and Port of Stockton)* | the area required to be lighted. A photometric plan shall be prepared and submitted as part of the building permit application for the pellet facilities to demonstrate compliance with this measure. | |
| **Air Quality** | | | |
| **AQ-1.** The project would potentially conflict with or obstruct implementation of the applicable air quality plan. | SU | **MM-AQ-1: Operational Equipment Exhaust Minimization – Tier 4 Final – Feedstock Acquisition**. During operation of feedstock acquisition activities, California Air Resources Board (CARB)-certified Tier 4 Final engines shall be used for all diesel-powered equipment pieces that are 50 horsepower or greater.<br><br>In the event of changed circumstances (e.g., changes in the availability of specific types of equipment), GSNR may submit a request to the Executive Director of GSFA to apply an equivalent method that, at a minimum, would meet the anticipated criteria air pollutant emission levels after implementation of this mitigation measure (i.e., estimated criteria air pollutants assuming all diesel-powered equipment pieces that are 50 horsepower or greater equipped with CARB-certified Tier 4 Final engines). Documentation using industry-standard emission estimation methodologies supporting the alternative method request shall be furnished to the Executive Director of GSFA. The Executive Director of GSFA may approve the alternate method request at their discretion.<br><br>In addition, before an exemption may be granted, GSNR shall demonstrate that at least three vendors in County of activity were contacted and that those vendors confirmed Tier 4 Final equipment could not be located within the applicable County. Required equipment fleet | SU |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | and methodologies approved by the Executive Director of GSFA shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.<br><br>**MM-AQ-2: Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility**. GSNR shall reduce idling time of heavy-duty trucks either by requiring them to be shut off when not in use or limiting the time of idling to no more than 3 minutes (thereby improving upon the 5-minute idling limit required by the state airborne toxics control measure, 13 CCR 2485). These requirements shall be included as enforceable terms in any contract or subcontract by GSNR for these activities and GSNR shall post clear signage reminding workers to limit idling of construction equipment and heavy-duty trucks.<br><br>**MM-AQ-3: Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton**. Use renewable diesel fuel in diesel-powered off-road equipment and diesel trucks during construction and operation whenever commercially available. Renewable diesel fuel must meet the following criteria:<br>▪ Meet California's Low Carbon Fuel Standards and be certified by CARB Executive Officer;<br>▪ Be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100% biomass material (i.e., non-petroleum sources), such as animal fats and vegetables;<br>▪ Contain no fatty acids or functionalized fatty acid esters; and | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Have a chemical structure that is identical to petroleum-based diesel and complies with American Society for Testing and Materials D975 requirements for diesel fuels to ensure compatibility with all existing diesel engines.<br>Commercially available is herein defined as renewable diesel fuel sourced within 50 vehicle miles of the project/activity site and within 10% of the cost of the equivalent nonrenewable fuel. GSNR or its contractor or subcontractor performing these services must contact at least three vendors within the county of activity and submit to GSFA justification if the renewable diesel fuel is not commercially available. These requirements shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.<br>**MM-AQ-4: Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton**. GSNR or its designee will provide or cause to be provided educational materials to encourage workers to carpool to work sites and/or use public transportation for their commutes.<br>**MM-AQ-5: Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility**. Prior to the commencement of construction activities for the project, GSNR shall require its construction contractor to use California Air Resources Board (CARB)-AQ-9.-certified Tier 4 Final engines for all diesel-powered equipment pieces that are 50 horsepower or greater throughout all phases of construction. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | In the event of changed circumstances (e.g., changes in the availability of specific types of construction equipment), GSNR may submit a request to the Executive Director of GSFA to apply an equivalent method of achieving project-generated construction emissions that fall below the numeric emissions standards established by the Lassen County Air Pollution Control District (Lassen County APCD) Rule 6:4 Best Available Control Technology (BACT) Requirements and the Lassen County APCD cancer risk threshold. Documentation using industry-standard emission estimation methodologies supporting the alternative method request shall be furnished to the Executive Director of GSFA. The Executive Director of GSFA may approve the alternate method request at their discretion.<br><br>In addition, before an exemption may be granted, the construction contractor shall demonstrate that at least three construction fleet owners/operators in Lassen County were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within Lassen County during the desired construction schedule. Required construction equipment fleet and methodologies approved by the Executive Director of GSFA shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.<br><br>**MM-AQ-6: Construction Lower-VOC Paints – Lassen Facility**. During construction, the project shall use lower volatile organic compound (VOC) paint, defined as 200 grams per liter VOC or less for the purposes of this mitigation measure, for all interior and exterior paint applications for nonresidential land uses. These | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | requirements shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.<br><br>**MM-AQ-7: Construction Activities Notification – Lassen Facility, Tuolumne Facility, and Port of Stockton.** Prior to the commencement of any construction activities, GSNR or its designee shall designate a construction relations officer who will address community concerns regarding on-site construction activity. GSNR shall provide public notification in the form of a visible sign containing the contact information of the construction relations officer, who shall document complaints and concerns regarding on-site construction activity. The sign shall be placed in easily accessible locations along nearby roadways and noted on grading and improvement plans.<br><br>**MM-AQ-8: Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockon.** California Air Resources Board (CARB)-certified Tier 4 Final engines shall be used for all diesel-powered equipment pieces that are 50 horsepower or greater.<br><br>In the event of changed circumstances (e.g., changes in the availability of specific types of equipment), GSNR may submit a request to the Executive Director of GSFA to apply an equivalent method that, at a minimum, would meet the anticipated criteria air pollutant emission levels, including exhaust coarse particulate matter ($PM_{10}$) used as a surrogate for diesel particulate matter, after implementation of this mitigation measure (i.e., estimated criteria air pollutants assuming all diesel-powered equipment pieces that are 50 horsepower or | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | greater equipped with CARB-certified Tier 4 Final engines). Documentation using industry-standard emission estimation methodologies supporting the alternative method request shall be furnished to the Executive Director of GSFA. The Executive Director of GSFA may approve the alternate method request at their discretion.<br><br>In addition, before an exemption may be granted, GSNR shall demonstrate that at least three vendors in the county of activity (i.e., Lassen County for Lassen Facility, Tuolumne County for Tuolumne Facility, and San Joaquin County for the Port of Stockton) were contacted and that those vendors confirmed Tier 4 Final equipment could not be located within the county of activity. Required construction equipment fleet and methodologies approved by the Executive Director of GSFA shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.<br><br>**MM-AQ-9: Operational Switcher Locomotive Exhaust Minimization – Lassen Facility.** During operation of the Lassen Facility, California Air Resources Board (CARB)-certified Tier 4-Final engine shall be used for the on-site switcher locomotive at the Lassen Facility.<br>This measure can also be achieved by using battery-electric locomotive as it becomes commercially available in Lassen County.<br><br>**MM-AQ-10: Construction Equipment Exhaust Minimization – Tier 4 Final – Tuolumne Facility.** Prior to the commencement of construction activities for the project, GSNR shall require its construction contractor to | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | use California Air Resources Board (CARB)-certified Tier 4 Final engines for all diesel-powered equipment pieces that are 50 horsepower or greater throughout all phases of construction.<br><br>In the event of changed circumstances (e.g., changes in the availability of specific types of construction equipment), GSNR may submit a request to the Executive Director of GSFA to apply an equivalent method that, at a minimum, would meet the anticipated criteria air pollutant emission levels, including exhaust coarse particulate matter ($PM_{10}$) used as a surrogate for diesel particulate matter, after implementation of this mitigation measure (i.e., estimated criteria air pollutants assuming all diesel-powered equipment pieces that are 50 horsepower or greater equipped with CARB-certified Tier 4 Final engines). Documentation using industry-standard emission estimation methodologies supporting the alternative method request shall be furnished to the Executive Director of GSFA. The Executive Director of GSFA may approve the alternate method request at their discretion.<br><br>In addition, before an exemption may be granted, GSNR shall demonstrate that at least three fleet owners/operators in Tuolumne County were contacted and that those fleet owners/operators confirmed Tier 4 Final equipment could not be located within Tuolumne County during the desired construction schedule. Required construction equipment fleet and methodologies approved by the Executive Director of GSFA shall be included as enforceable terms in any contract or subcontract by GSNR for these activities. | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| **AQ-2.** The project would potentially result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. | SU | **MM-AQ-1** through **MM-AQ-4**<br>**MM-AQ-7** through **MM-AQ-9**<br><br>**MM-AQ-11 Operational Switcher Exhaust Minimization – Port of Stockton**. If approved by the Port and its rail operator, GSNR will use a California Air Resources Board (CARB)-certified Tier 4-Final engine for the on-site switcher at the Port of Stockton.<br><br>This measure can also be achieved by using battery-electric switchers as it becomes available. | SU |
| **AQ-3.** The project would potentially expose sensitive receptors to substantial pollutant concentrations. | LTS<br>(*Feedstock Acquisition, Port of Stockton*)<br><br>PS<br>(*Lassen Facility, Tuolumne Facility*) | **MM-AQ-2** through **MM-AQ-5**<br>**MM-AQ-8** through **MM-AQ-11**<br><br>**MM-AQ-12: Operational Valley Fever Exposure Minimization – Feedstock Acquisition**. Prior to any ground disturbance activities within Madera, Merced, Fresno, and Tulare Counties, which are counties of potential project activity where Valley Fever is highly endemic, GSNR shall implement the following Valley Fever Provisions:<br>1) Between June 1 and November 30, when Valley Fever rates of infection are the highest, additional dust suppression measures (such as additional water or the application of additional soil stabilizer) will be implemented prior to and immediately following ground disturbing activities if wind speeds exceed 15 mph or temperatures exceed 95°F for 3 consecutive days. The additional dust suppression will continue until winds are 10 mph or lower and outdoor air temperatures are below 90°F for at least 2 consecutive days. The additional dust suppression | SU |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | measures will be incorporated into the Dust Control Plan.<br>2) Prior to any project forest treatment activity, GSNR will prepare and implement a worker training program that describes potential health hazards associated with Valley Fever, common symptoms, proper safety procedures to minimize health hazards, and notification procedures if suspected work-related symptoms are identified during operation. The worker training program will identify safety measures to be implemented by GSNR or its contractor during operation. Safety measures will include the following:<br>▪ Provide HEPA-filtered air-conditioned enclosed cabs on heavy equipment. Train workers on proper use of cabs, such as turning on air conditioning prior to using the equipment.<br>▪ Provide communication methods, such as two-way radios, for use by workers in enclosed cabs.<br>▪ Provide personal protective equipment (PPE), such as half-mask and/or full-mask respirators equipped with particulate filtration, to workers active in dusty work areas.<br>▪ Provide separate, clean eating areas with hand-washing facilities for workers.<br>▪ Clean equipment, vehicles, and other items before they are moved off site to other work locations.<br>▪ Provide training for workers so they can recognize the symptoms of Valley Fever and promptly report suspected symptoms of work-related Valley Fever to a supervisor.<br>▪ Direct workers that exhibit Valley Fever symptoms to immediately seek a medical evaluation. | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | **MM-AQ-13: Construction Asbestos, Serpentinite, and Ultramafic Rock Management Plan (ASUR Plan) – Tuolumne Facility.** Prior to any grading activities, a geologic evaluation shall be conducted to determine if naturally occurring asbestos is present within the area that will be disturbed. If naturally occurring asbestos is not present, a notice of exemption must be filed with the Tuolumne County Air Pollution Control District. If naturally occurring asbestos is found at the site, GSNR must comply with all requirements outlined in the Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. These requirements shall include but are not limited to:<br><br>1) Development of an Asbestos Dust Mitigation Plan, which must be approved by the Tuolumne County Air Pollution Control District before operations begin; and<br>2) Development and approval of an Asbestos Health and Safety Program. | |
| **AQ-4.** The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. | LTS | None | LTS |
| **Biological Resources** | | | |
| **BIO-1a.** The project may have a substantial adverse effect, either directly or through habitat modifications, on special-status plant species or substantially reduce the number or restrict the range of a rare or endangered plant. | PS (*Feedstock Acquisition, Tuolumne Facility*)<br><br>NI | **MM-BIO-1: Compensate for Mortality, Injury, Disturbance, or Unavoidable Loss of Special-Status Plants**. If avoidance of take of plants species that U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), and/or U.S. Forest Service (USFS) list as rare, endangered, threatened, or candidate | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | (*Lassen Facility, Port of Stockton*) | is not possible, GSNR will sufficiently compensate for such impacts. GSNR will initiate consultation with USFWS, CDFW, and/or USFS, as appropriate based on the identified species. Depending on whether the species are state and/or federally listed, the following steps will be associated with consultation and implementation of mitigation.<br><br>**Federal Listed Species:** If the proposed action may affect only federally listed species or critical habitat, and the action has a federal nexus (via other federal agency permit, funding, or approvals), consultation pursuant to Section 7 of the Federal Endangered Species Act (FESA) would apply. Under FESA Section 7, GSNR will need to prepare a Biological Assessment (BA) to assist the USFWS or USFS in its determination of the project's effect on species and/or critical habitat. If the action is not likely to adversely affect the listed species, no further mitigation is necessary.<br><br>If the action is likely to adversely affect a listed species, then the USFWS or USFS will prepare a Biological Opinion (BO). The conclusion of the BO will state whether or not the proposed action is likely to: 1. Jeopardize the continued existence of the listed species; and/or 2. Result in the destruction or adverse modification of critical habitat that appreciably diminishes the value of critical habitat as a whole for the conservation of the listed species. If the action is reasonably certain not to jeopardize the continued existence of the listed species or diminish the value of critical habitat as a whole for the species, then the BO will include an incidental take statement with the BO. Incidental take is subject to the terms and conditions provided in the incidental take | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | statement. Examples of terms and conditions included within a typical BO are include:<br>▪ Monitoring<br>▪ Worker environmental awareness program (WEAP) training<br>▪ Minimization of construction-related impacts<br>▪ Preconstruction clearance surveys<br>▪ Weed management and monitoring<br>▪ Compensation for loss of habitat<br>▪ Protection of lands in perpetuity<br>▪ Mitigation ratios for impacts (e.g., no less than 1:1 mitigation for suitable habitat)<br>▪ Permanent protection and management of compensation lands<br>▪ Costs to acquire and manage lands<br>▪ Financial assurances<br>If the action has no associated federal action, permitting pursuant to FESA section 10(a)(1)(B) will apply. A Habitat Conservation Plan (HCP) will be prepared by GSNR and an application for an Incidental Take Permit (ITP). An applicant-prepared HCP will include, at a minimum, the following measures:<br>▪ Preservation (via acquisition or conservation easement) of existing habitat<br>▪ Enhancement or restoration of degraded or former habitat<br>▪ Creation of new habitat<br>▪ Establishment of buffer areas around existing habitats<br>▪ Restrictions to access | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | **Both State and Federal Listed Species:** If a plant species is listed by both FESA and the California Endangered Species Act (CESA), Fish and Game Code Section 2080.1 allows an applicant who has obtained a federal incidental take statement (FESA Section 7 consultation) or a federal ITP (FESA § 10(a)(1)(B)) to request that the Director of CDFW find the federal documents consistent with CESA via a consistency determination per Section 2080.1 of CESA. If a consistency determination is issued, no further authorization or approval is necessary under CESA. If a consistency determination is not feasible, the process for "State Only Listed Species," as described below, will be implemented.<br><br>**State Listed Species:** For species that are listed by CDFW, but not the USFWS, as endangered, threatened, candidate, or a rare plant, and where take would occur, GSNR will apply for a State ITP under Section 2081(b) of the Fish and Game Code. When an ITP is issued, included terms and conditions will ensure that the items 1 through 5 below are met.<br><br>1. The authorized take must be incidental to an otherwise lawful activity.<br>2. The impacts of the authorized take must be minimized and fully mitigated.<br>3. The measures required to minimize and fully mitigate the impacts of the authorized take:<br>a. Are roughly proportional in extent to the impact of the taking on the species;<br>b. Maintain GSNR's objective to the greatest extent possible; and | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | c. May be successfully implemented by GSNR.<br>4. Adequate funding is provided to implement the required minimization and mitigation measures and monitor compliance with the effectiveness of the measures.<br>5. Issuance of the permit will not jeopardize the continued existence of the CESA-listed species.<br>**Non-Listed Rare Species:** For rare species that are not listed by the USFWS or CDFW, GSNR will implement a Compensatory Mitigation Plan (Plan), prepared by a qualified botanist, that outlines at least one or a combination of the following:<br>▪ The protection, through land acquisition or a conservation easement, of land that supports an equal or greater number of plants of similar health; and/or,<br>▪ The creation of a new population on suitable unoccupied habitat through the salvage and relocation or propagation of impacted plants, or acquisition of similar plants/seed from local genetic stock, at no less than 1:1 mitigation ratio. Plant relocation, propagation, or establishment will be subject to the following requirements:<br>- The Plan will be prepared by a qualified biologist and include at a minimum: (1) seed/propagule collection methods, (2) identification of receiver sites or locations for relocated or propagated plants and rationale for their selection, (3) success criteria for population establishment, including a not-to-exceed threshold for invasive species cover, (4) 5 years of maintenance and | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | monitoring, (5) the adaptive management approaches that would be used to evaluate monitoring results and adjust management actions, if necessary, and (6) financial assurances for the funding of special-status plant mitigation.<br><br>**MM-BIO-9: Special-Status Plant Focused/Protocol Surveys and Avoidance at the Tuolumne Facility Site.** According to CDFW (2018), plant communities dominated by short-lived perennials and annuals may require multiple surveys to adequately document baseline conditions. Focused rare plant surveys were conducted at the site in May 2021. Since construction at the Tuolumne site will occur more than 3 years from the date the rare plant surveys were last conducted, GSNR will take the following actions:<br><br>▪ A qualified RPF or botanist will conduct protocol-level surveys for special-status plant species prior to initiation of ground-disturbance. Six non-listed special-status plant species will be targeted during the survey: Beaked clarkia (Clarkia rostrate), Tuolumne button-celery (Eryngium pinnatisectum), spiny-sepaled button-celery (Eryngium spinosepalum), forked hare-leaf (Lagophylla dichotoma), veiny monardella (Monardella venosa), and Patterson's navarretia (Navarretia paradoxiclara). The survey will follow the most current and relevant agency survey protocols and guidelines for special-status plants (e.g., CDFW 2018; USFWS 2000; CNPS 2001). The protocol surveys will be conducted in suitable habitat that could be affected by the project and timed to coincide with the blooming or other appropriate | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | phenological period of the target species (as determined by a qualified RPF or botanist), or all species in the same genus as the target species will be assumed to be special-status.<br>▪ Should rare plants be documented within 50 feet of the construction footprint, the following actions will be implemented to avoid and minimize impacts to individual plants:<br>▪ Wherever feasible, adjustments will be made to the limits of grading boundaries to confine work to avoid populations of special-status plants by at least 50 feet or as otherwise determined by a qualified botanist and in consideration of the type and extent of ground disturbance, potential for indirect impacts following ground disturbance activities, topography, and other factors.<br>▪ Prior to construction activities, a qualified botanist will flag or fence the location of special-status plant populations and the corresponding avoidance setback. This flagging will be in addition to, and distinguished apart from, any required construction boundary fencing. The construction contractor will be responsible for maintaining the flagging through the duration of construction. The flagging (or similar) will be removed immediately following construction.<br>▪ If avoidance of rare plants is not feasible, a Rare Plant Salvage and Translocation Plan will be prepared by a qualified botanist prior to implementation. The Rare Plant Salvage and Translocation Plan will be approved by the County and/or CDFW and will include, at a minimum, the | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | following components: identification of occupied habitat to be preserved and removed; identification of on-site or off-site preservation, restoration, enhancement, or translocation locations; methods for preservation, restoration, enhancement, and/or translocation; goals and objectives; replacement ratio and success standard of 1:1 for impacted to established acreage; a monitoring program to ensure mitigation success; adaptive management and remedial measures in the event that the performance standards are not achieved; and financial assurances and a mechanism for conservation of any mitigation lands required in perpetuity.<br><br>**MM-BIO-16: Invasive Plant Control at the Tuolumne Facility Site.** To prevent the spread of non-native and invasive plant species and pathogens, the project will implement the following measures:<br>▪ The contractor will clean all construction vehicles and equipment prior to entering undeveloped portions of the site (overland travel).<br>▪ Rock, sand, and any other material used for erosion control purposes will originate from a weed-free source if available. Refer to the following sources for more information:<br>- https://www.cal-ipc.org/solutions/prevention/weedfreeforage/<br>- https://www.cal-ipc.org/solutions/prevention/weedfreegravel/<br>▪ Areas temporarily disturbed by construction will be revegetated and reseeded. Revegetation will | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | incorporate local native species to the extent practicable or sterile non-native species to reduce the spread of invasive plants in the project area. Seed collection source and species diversity will be selected to maintain the genetic integrity and diversity of native plants used for revegetation. | |
| **BIO-1b.** The project may have a substantial adverse effect, either directly or through habitat modifications, on special-status wildlife species or substantially reduce the number or restrict the range of a rare or endangered animal. | PS (*Feedstock Acquisition, Tuolumne Facility, Port of Stockton)*<br><br>LTS *(Lassen Facility)* | **MM-AES-1**<br><br>**MM-BIO-2: Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife.** If avoidance of take of wildlife species that U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), and/or U.S. Forest Service (USFS) list as rare, endangered, threatened, or candidate is not possible, GSNR will sufficiently compensate for such impacts. GSNR will initiate consultation with USFWS, CDFW, and/or USFS, as appropriate, based on the identified species. Depending on whether the species are state and/or federally listed, the following steps will be associated with consultation and implementation of mitigation.<br><br>**Federally Listed Species:** If the proposed action may affect only federally listed species or critical habitat, and the action has a federal agency nexus, then consultation pursuant to Section 7 of the Federal Endangered Species Act (FESA) would apply. Under FESA Section 7, GSNR will need to prepare a Biological Assessment (BA) to assist the USFWS or USFS in its determination of the project's effect on species and/or critical habitat. If the action is not likely to adversely affect the listed species, no further mitigation is necessary.<br><br>If the action is likely to adversely affect a listed species, then the USFWS or USFS will prepare a Biological Opinion | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | (BO). The conclusion of the BO will state whether or not the proposed action is likely to: 1. Jeopardize the continued existence of the listed species; and/or 2. Result in the destruction or adverse modification of critical habitat that appreciably diminishes the value of critical habitat as a whole for the conservation of the listed species. If the action is reasonably certain not to jeopardize the continued existence of the listed species or diminish the value of critical habitat as a whole for the species, then the BO will include an incidental take statement with the BO. Incidental take is subject to the terms and conditions provided in the incidental take statement. Examples of terms and conditions included within a typical BO are include:<br>▪ Monitoring<br>▪ Worker environmental awareness program (WEAP) training<br>▪ Minimization of construction-related impacts<br>▪ Preconstruction clearance surveys<br>▪ Weed management and monitoring<br>▪ Compensation for loss of habitat<br>▪ Protection of lands in perpetuity<br>▪ Mitigation ratios for impacts (e.g., no less than 1:1 mitigation for suitable habitat)<br>▪ Permanent protection and management of compensation lands<br>▪ Costs to acquire and manage lands<br>▪ Financial assurances<br>If the action has no federal agency nexus, permitting pursuant to FESA Section 10(a)(1)(B) will occur. A Habitat Conservation Plan (HCP) will be prepared by GSNR and an application for an Incidental Take Permit (ITP). An | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | applicant-prepared HCP will include, at a minimum, the following measures:<br>▪ Preservation (via acquisition or conservation easement) of existing habitat<br>▪ Enhancement or restoration of degraded or former habitat<br>▪ Creation of new habitat<br>▪ Establishment of buffer areas around existing habitats<br>▪ Restrictions to access<br>**Both State and Federal Listed Species:** If a species is listed by both FESA and the California Endangered Species Act (CESA), Fish and Game Code Section 2080.1 allows an applicant who has obtained a federal incidental take statement (FESA Section 7 consultation) or a federal ITP (FESA § 10(a)(1)(B)) to request that the Director of CDFW find the federal documents consistent with CESA via a consistency determination per Section 2080.1 of CESA. If a consistency determination is issued, no further authorization or approval is necessary under CESA. If a consistency determination is not feasible, the process for "State Only Listed Species," as described below, will be implemented.<br>**State Listed Species:** For species that are listed by CDFW, but not the USFWS, as endangered, threatened, candidate, or a rare species, and where take would occur, GSNR will apply for a State ITP under Section 2081(b) of the Fish and Game Code. When an ITP is issued, included terms and conditions will ensure that the items 1 through 5 below are met. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | 1. The authorized take must be incidental to an otherwise lawful activity.<br>2. The impacts of the authorized take must be minimized and fully mitigated.<br>3. The measures required to minimize and fully mitigate the impacts of the authorized take:<br>a. Are roughly proportional in extent to the impact of the taking on the species;<br>b. Maintain GSNR's objective to the greatest extent possible; and<br>c. May be successfully implemented by GSNR.<br>4. Adequate funding is provided to implement the required minimization and mitigation measures and monitor compliance with the effectiveness of the measures.<br>5. Issuance of the permit will not jeopardize the continued existence of the CESA-listed species.<br>**Non-Listed Rare Species:** For rare species that are not listed by the USFWS or CDFW, GSNR will implement a Compensatory Mitigation Plan (Plan), as-needed and prepared by a qualified biologist, through at least one or a combination of the following:<br>▪ Preserving existing species habitat outside of the treatment area in perpetuity; this may entail purchasing lands and/or mitigation credits from a CDFW- and/or USFWS-approved entity in sufficient quantity to offset the residual significant impacts to habitat. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Restoring or enhancing existing species habitat within or outside of the treatment area (e.g., decommissioning roads, installing perching or roosting structures, or removing movement barriers or other existing features that are adversely impacting the species).<br>Prior to finalizing the Plan, GSNR will consult with any applicable responsible agencies to ensure that the Plan will satisfy responsible agency requirements (e.g., permits and approvals):<br>▪ For California Fully Protected Species, GSNR will submit the Plan to CDFW for review and comment.<br>▪ For other special-status wildlife species, GSNR may consult with CDFW and/or USFS regarding the availability and applicability of compensatory mitigation and other related technical information. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | **MM-BIO-8: Worker Environmental Awareness Program at the Tuolumne Facility Site.** GSNR will require crew members and contractors to receive worker environmental awareness program (WEAP) training from a qualified biologist prior to project commencement. The training will describe the appropriate work practices necessary to effectively implement all relevant mitigation measures and to comply with applicable environmental laws and regulations regarding biological resources. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats present or with the potential to occur in the work area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during work activities to leave the area unharmed and to report encounters to the project biologist. The project biologist will immediately contact USFWS, USFS, and/or CDFW (as appropriate) if a special-status species is encountered and cannot leave the site on its own (without being handled). All attendees of the training will be required to sign a log documenting attendance and completion of the training.<br><br>**MM-BIO-10: Nesting Bird Surveys and Avoidance at the Tuolumne Facility Site.** Tree and vegetation removal at the Tuolumne Facility site will be conducted outside of the nesting season (February through September) as feasible. If not feasible, the following measures will be implemented to avoid or minimize impacts to nesting birds: | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ A qualified biologist shall conduct a pre-construction survey for nesting birds no more than 7 days prior to vegetation or structure removal or ground-disturbing activities conducted during the nesting season (February through September). The survey shall cover the limits of construction and suitable nesting habitat within 500 feet for raptors and 100 feet for other nesting birds, as feasible and accessible.<br>▪ If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance shall typically range from 50 to 500 feet and shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground-disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers, and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.<br>▪ If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be halted until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the birds have fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.<br><br>**MM-BIO-11: Northwestern Pond Turtle Protection at the Tuolumne Facility Site**. Northwestern pond turtles have been documented in the perennial pond in the northern portion of the Tuolumne site. Thus, GSNR will take the following actions:<br>▪ No ground-disturbance will be permitted within 1,640 feet (500 meters) of suitable aquatic habitat for northwestern pond turtle during the turtle overwintering period from October to March.<br>▪ No ground-disturbance will be permitted within 656 feet (200 meters) of aquatic habitat occupied by northwestern pond turtle.<br>▪ GSNR will implement applicable Best Management Practices (BMPs) for northwestern pond turtle in accordance with the most recent and agency-accepted guidelines available at the time of project implementation (e.g., Department of Defense (DOD) Legacy Resource Management Program 2020 and Oregon Department of Fish and Wildlife 2015). | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | - If ground-disturbance within 1,640 feet (500 meters) of suitable aquatic habitat from October to March or 656 feet (200 meters) of occupied aquatic habitat is not feasible GSNR will consult with USFWS on appropriate measures to identify and avoid take of any northwestern pond turtles nesting in the construction footprint as part of its federally listed species consultation described under MM-BIO-2. These measures may include all or a combination of the following to avoid take of nesting pond turtles: Qualified biologists shall conduct visual encounter surveys for pond turtle nests or evidence of nesting from May to June prior to any ground disturbance within the above buffers. A minimum 50-foot-radius exclusion zone shall be established around any pond turtle nests or suspected nests found during the visual encounter surveys using high-visibility fencing. The exclusion zone shall remain in effect until the biologist has verified that the nest is no longer active. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | - Occupied aquatic habitat shall be isolated from adjacent upland nesting habitat within the construction footprint before April in the year of construction. The intent of this measure is to ensure that once hatchling pond turtles leave their upland nests in April, no additional nests will be established in the construction footprint during the following season. Unclimbable, smooth fencing (e.g., Animex HDPE#2 material or wooden fencing) will be installed at the interface between aquatic and upland habitat. The fencing will be maintained between its installation and project start with regular monitoring (1 to 2 hours of observation every monitoring period) to ensure that turtles and other special-status species are not being entrapped by the fencing.<br><br>**MM-BIO-12: Tricolored Blackbird Protection at the Tuolumne Facility Site.** Wetlands and riparian areas in the northern portion of the Tuolumne site provide nesting habitat for tricolored blackbird. Thus, the GSNR will take the following actions:<br>▪ As feasible, vegetation removal activities will be conducted outside of the nesting season for tricolored blackbird (estimated to be March through June), and ground disturbance at the site will avoid suitable nesting habitat and areas within 50 to 300 feet of suitable nesting habitat. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ A qualified biologist will conduct a pre-construction survey for nesting tricolored blackbirds no more than 7 days prior to vegetation or structure removal or ground-disturbing activities conducted during the species' nesting season (estimated to be March through June). The survey will be conducted in accordance with MM-BIO-10.<br>▪ If an active tricolored blackbird nesting colony is encountered during the pre-construction survey, the GSNR will postpone any work with a potential to impact the colony and implement MM-BIO-2 as appropriate.<br>▪ Tricolored blackbird will be included in the worker environmental awareness program, which will educate staff on the presence of special-status wildlife species and ways to avoid and minimize impacts.<br><br>**MM-BIO-13: Habitat Assessment, Focused Surveys, and Avoidance of California Red-legged Frog and California Tiger Salamander at the Tuolumne Facility Site**. The Tuolumne facility site is located within the known geographic range of California red-legged frog and California tiger salamander. Thus, GSNR will take the following actions: | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ To determine if any aquatic habitat features in the northern portion of the site are occupied by California red-legged frog, a qualified biologist will conduct a single breeding season survey in accordance with USFWS' Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005). After the survey, the biologist will report the results to the appropriate USFWS office to determine if additional surveys are warranted. If the survey is negative and the USFWS determines that further surveys are unnecessary because the site is unoccupied by California red-legged frog, no additional actions would be necessary.<br>▪ If the California red-legged frog survey results are inconclusive and the USFWS determines that additional surveys are necessary, the biologist will conduct up to seven additional breeding surveys in accordance with USFWS (2005). If these surveys are negative, the site will be assumed to be unoccupied by California red-legged frog and no additional actions would be necessary.<br>▪ If California red-legged frogs are found occupying any aquatic features at any time during the above surveys, MM-BIO-2 would be implemented. Compensatory mitigation for impacts on California red-legged frog habitat will be provided at a minimum 2:1 ratio. Replacement habitat will be in-kind and located on site, if feasible. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ To address uncertainty on the status of California tiger salamander in the site vicinity, a qualified biologist will prepare a formal site assessment for California tiger salamander in accordance with USFWS' and CDFW's Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (USFWS and CDFG 2003). If the site assessment determines and USFWS and CDFW agree that California tiger salamander occurrence on the site is not expected, no additional actions would be necessary.<br>▪ If the site assessment and/or USFWS or CDFW determine that formal surveys are needed to determine California tiger salamander presence or absence on the site, GSNR may conduct multi-year aquatic larval and upland drift fence surveys in accordance with USFWS and CDFW (2003), or assume that California tiger salamanders are present and mitigate accordingly as part of the Section 7 consultation process described under MM-BIO-2.<br>▪ If California tiger salamanders are found occupying the site during surveys or are assumed present, compensatory mitigation for impacts on California tiger salamander habitat will be provided at a minimum 2:1 ratio. Replacement habitat will be in-kind and located on site, if feasible<br><br>**MM-BIO-14: Native Bat Roost Protection at the Tuolumne Facility Site.** Riparian vegetation and various human-made structures at the Tuolumne site may provide | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | roosting habitat for native bats. Thus, GSNR will take the following actions:<br>▪ If feasible, any structure demolition and tree removal activities will be conducted outside of the bat maternity season (March 1 – August 31) to avoid potential impacts to maternity colonies.<br>▪ If structure demolition and tree removal activities must occur during the bat maternity season, a qualified biologist will conduct a pre-construction survey for maternity roosts within 14 days prior to construction. The survey will include a visual inspection of potential roosting features (bats need not be present) and presence of guano in the construction footprint and within 50 feet. Potential roosting features found during the survey will be flagged or marked.<br>▪ If bats (individuals or colonies) are detected and cannot be completely avoided, GSNR will implement measures to safely evict bats under the direction of a qualified biologist. If individuals cannot be safely evicted due to factors such as lack of alternative roosting sites, as determined by the qualified bat biologist, ground-disturbing activities within a specified distance of the roost (specified distance to be determined by the qualified biologist, based on surroundings and vulnerability of roost site, etc.) will be postponed or halted until conditions are suitable for safe eviction or the roost has vacated naturally.<br><br>**MM-BIO-17: Worker Environmental Awareness Program at the Port Site.** GSNR will require crew members and contractors to receive worker environmental awareness program (WEAP) training from a qualified biologist prior | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | to project commencement. The training will describe the appropriate work practices necessary to effectively implement all relevant mitigation measures and to comply with applicable environmental laws and regulations regarding biological resources. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats present or with the potential to occur in the work area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during work activities to leave the area unharmed and to report encounters to the project biologist. The project biologist will immediately contact USFWS, USFS, and/or CDFW (as appropriate) if a special-status species is encountered and cannot leave the site on its own (without being handled). All attendees of the training will be required to sign a log documenting attendance and completion of the training.<br><br>**MM-BIO-18: Nesting Bird Surveys and Avoidance at the Port Site.** Tree and vegetation removal at the Port site will be conducted outside of the nesting season (February through September) as feasible. If not feasible, the following measures will be implemented to avoid or minimize impacts to nesting birds: | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ A qualified biologist shall conduct a pre-construction survey for nesting birds no more than 7 days prior to vegetation or structure removal or ground-disturbing activities conducted during the nesting season (February through September). The survey shall cover the limits of construction and suitable nesting habitat within 500 feet for raptors and 100 feet for other nesting birds, as feasible and accessible.<br>▪ If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance shall typically range from 50 to 500 feet and shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground-disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers, and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.<br>▪ If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be halted until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the birds have fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.<br><br>**MM-BIO-19: Protocol-Level Surveys for Swainson's Hawk at the Port Site.** A qualified biologist will conduct surveys for Swainson's hawk prior to ground-disturbing activities at the Port site, if undertaken during the Swainson's hawk nesting season (March 1 – August 31). The surveys will be conducted in accordance with the Swainson's Hawk Technical Advisory Committee (TAC) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (TAC 2000). The survey will cover the limits of construction and suitable nesting habitat within 500 feet, to the extent feasible. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ If an active nest is observed in the survey area, construction within 500 feet of the nest will be delayed until young hawks have fledged and are independent of the nest, as determined by a qualified biologist. The qualified biologist, in consultation with CDFW, may reduce the 500-foot buffer based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the nest. Construction within 500 feet of the nest may reinitiate once all young have fledged and are no longer dependent upon the nest.<br>▪ If no active nests are identified during the survey no additional action is needed.<br><br>**MM-BIO-20: Protocol-Level Surveys for Burrowing Owl at the Port Site**. A qualified biologist will conduct surveys for burrowing owl within 30 days prior to ground-disturbing activities at the Port site. The survey will cover the limits of ground disturbance and potentially suitable nesting habitat within 300 feet, to the extent feasible. If ground-disturbing activities are delayed, then additional surveys will be conducted such that no more than 7 days elapse between the survey and ground-disturbing activities. If no potential burrowing owl nests are detected during the survey, no additional actions are needed, and ground-disturbing activities may proceed. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ If nesting burrowing owls are observed during the survey, ground-disturbing activities within 300 feet of occupied burrows will be delayed until young owls have fledged and are independent of the burrow, as determined by a qualified biologist. The qualified biologist may reduce the 300-foot buffer based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the burrow. Once all young have fledged and are no longer dependent upon the nest burrow, the burrow exclusion procedure described below will be implemented prior to resuming construction activities in the area.<br>▪ If overwintering burrowing owls are observed in or adjacent to the construction footprint during the survey, construction will be postponed until the qualified biologist can fully implement a California Department of Fish and Wildlife-approved burrow exclusion plan (to be prepared by the qualified biologist). The exclusion plan will be conducted in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). Once owls have been successfully excluded and unoccupied burrows evacuated, construction in the area may proceed.<br>▪ If no active nests or overwintering burrowing owls are identified during the survey no additional action is needed | |
| **BIO-2.** The project may substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community. | PS<br>(*Feedstock Acquisition)*<br><br>LTS | **MM-BIO-1**<br>**MM-BIO-2**<br>**MM-BIO-8**<br>**MM-BIO-9**<br>**MM-BIO-10** | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | *(Lassen Facility, Tuolumne Facility, Port of Stockton)* | **MM-BIO-11**<br>**MM-BIO-12**<br>**MM-BIO-14**<br><br>**MM-BIO-15: Native Tree Protection at the Tuolumne Facility Site.** The project applicant will minimize damage to existing native trees on the Tuolumne Facility site from construction activities and potential soil compaction in the root zone. GSNR or construction contractor(s) will implement the below measures in addition to those required for compliance with the goals and policies in the Natural Resources Chapter of the Tuolumne County General Plan.<br>▪ No construction vehicles, construction equipment, mobile offices (e.g., trailer), or materials will be permitted within the driplines of any native trees to be retained by the project.<br>▪ If work or temporary traffic must proceed within the driplines, one of the following techniques will be followed: (1) place 6–12 inches of mulch in the work or traffic area; (2) place at least 4 inches of mulch in the work or traffic area and then place sheets of 0.75-inch-thick plywood or road mats with 4-inch-thick layer of mulch; or (3) place 4 to 6 inches of gravel with staked geotextile fabric beneath.<br>▪ Soil surface removal greater than 1 foot will not be permitted within the driplines of retained trees. No cuts will occur within 5 feet of their trunks.<br>▪ To the extent feasible, earthen fill greater than 1 foot deep will not be placed within the driplines of retained trees, and no fill will be placed within 5 feet of their trunks. | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | Trenching will not occur within the driplines of retained native trees. If it is absolutely necessary to install trenches within the driplines of preserved trees, the trench will be either bored or drilled, but not within 5 feet of the trunk.<br><br>MM-BIO-16 | |
| **BIO-3.** The project may have a substantial adverse effect on riparian habitat or other sensitive natural community. | PS<br>*(Feedstock Acquisition, Lassen Facility)*<br><br>LTS<br>(Port of Stockton)<br><br>NI<br>(Tuolumne Facility) | **MM-BIO-3: Compensate for Unavoidable Loss of Sensitive Natural Communities and Oak Woodlands.** If significant impacts to sensitive natural communities or oak woodlands cannot feasibly be avoided, GSNR will sufficiently compensate for such impacts. Compensation shall include: | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ A qualified botanist will conduct a pre-construction survey to identify and quantify the number of plants that could be potentially removed or disturbed within the sensitive natural community or oak woodland. The botanist will prepare a mitigation plan to address implementation and monitoring requirements to ensure that project activities would result in no net loss of habitat functions and values and to offset the loss of any vegetation/plants to be removed or disturbed. The plan will contain, at a minimum: goals and objectives; a description of the extent of plants/vegetation to be removed or disturbed; plant collection, propagation, and planting methods; locations on site in which the plants will be transplanted; monitoring methods and timing; invasive species eradication methods; interim and final success criteria/performance standards; measures to be taken in the event that the propagation and planting is not successful; identification of responsible entities; and reporting requirements. The plan will be approved by the appropriate County. Propagation and planting will occur at a minimum 1:1 basis to ensure no net loss of the sensitive natural community or oak woodland.<br>▪ Natural areas temporarily impacted by project activities will be restored with appropriate native vegetation. Restored areas will be identified and determined to feasibly support the proposed native revegetation to adequately mitigate project impacts. Feasibility of native revegetation is primarily based on suitable soils, slopes, and aspect as well as the presence of similar native vegetation adjacent to the proposed mitigation areas. | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| **BIO-4.** The project may have a substantial adverse effect on federally or state-protected wetlands. | PS<br>*(Feedstock Acquisition, Lassen Facility, Tuolumne Facility, Port of Stockton)* | **MM-BIO-4: Compensate for Unavoidable Loss of Wetlands and Other Aquatic Resources.** If temporary or permanent loss of protected wetlands and other aquatic resources cannot feasibly be avoided, GSNR will implement the following actions:<br>▪ Prior to project activities, GSNR will coordinate with the appropriate USACE district and RWQCB regional staff to assure conformance with permitting requirements of Section 401 and 404 of the Clean Water Act and the Porter–Cologne Water Quality Control Act. Prior to activity within CDFW-jurisdictional lake or streambed or associated riparian habitat, GSNR will coordinate with the appropriate CDFW regional staff to assure conformance with California Fish and Game Code Section 1600 permitting requirements.<br>▪ As part of the permit application process, GSNR will sufficiently mitigate to ensure no-net-loss of waters at a minimum of 1:1 with establishment or re-establishment for impacts on aquatic resources as a part of an overall strategy to ensure no net loss, or at a higher ratio if establishment or re-establishment mitigation is not available. Final mitigation ratios and credits will be a minimum of 1:1 and determined in consultation with USACE, RWQCB and/or CDFW based on agency evaluation of current resource functions and values and through each agency's respective permitting process. | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Should applicant-sponsored mitigation be implemented, a mitigation and monitoring plan (Plan) will be prepared in accordance with resource agency guidelines and approved by the agencies in accordance with the proposed permits. The Plan will include but is not limited to a conceptual planting plan including planting zones, grading, and irrigation, as applicable; a conceptual planting plant palette; a long-term maintenance and monitoring plan; annual reporting requirements; proposed success criteria; legal and funding mechanisms; and parties responsible for long-term management and monitoring of the restored or enhanced habitat. Any off-site applicant-sponsored mitigation shall be conserved and managed in perpetuity.<br><br>**MM-BIO-5: Worker Environmental Awareness Program at the Lassen Facility Site.** GSNR will require crew members and contractors to receive worker environmental awareness program (WEAP) training from a qualified biologist prior to project commencement. The training will describe the appropriate work practices necessary to effectively implement all relevant mitigation measures and to comply with applicable environmental laws and regulations regarding biological resources. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats present or with the potential to occur in the work area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during work activities to leave the area unharmed and to report encounters to the | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | project biologist. The project biologist will immediately contact USFWS, USFS, and/or CDFW (as appropriate) if a special-status species is encountered and cannot leave the site on its own (without being handled). All attendees of the training will be required to sign a log documenting attendance and completion of the training.<br><br>**MM-BIO-7: Compensatory Mitigation Plan for the Permanent Loss of Wetlands and Other Aquatic Resources at the Lassen Facility Site.** The project applicant will compensate for the permanent loss of wetlands and other aquatic resources anticipated from facility construction. Compensatory mitigation to ensure no net loss of aquatic resources shall be achieved through one or a combination of the following (in order of priority):<br>▪ Based on site soil, hydrology, and watershed characteristics, the southern portion of the Lassen Facility site could support approximately 47.8 acres of seasonal wetland (APNs 001-270-026, 001-270-029, and 013-040-013; WRA 2024). Thus, GSNR will:<br>- Implement on-site applicant-sponsored mitigation in accordance with an agency-approved Wetland Mitigation and Monitoring Plan (Plan). The Plan will be prepared by a qualified biologist or similar in accordance with resource agency guidelines and submitted to the relevant resource agencies (e.g., USACE, RWQCB, and CDFW) for review and approval. The Plan will include at a minimum: a conceptual planting plan including planting zones, grading, and irrigation, as applicable; a conceptual | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | planting plant palette; a long-term maintenance and monitoring plan; annual reporting requirements; proposed success criteria; legal and funding mechanisms; and parties responsible for long-term management and monitoring of the restored or enhanced habitat. On-site applicant-sponsored mitigation shall be conserved and managed in perpetuity.<br>▪ Purchase mitigation credits from an agency-approved wetlands mitigation bank or pay an agency-approved in-lieu fee.<br><br>MM-BIO-8<br>MM-BIO-17 | |
| **BIO-5.** The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. | PS<br>(*Lassen Facility, Tuolumne Facility, Port of Stockton*)<br><br>LTS<br>(*Feedstock Acquisition*) | **MM-BIO-6: Nesting Bird Surveys and Avoidance at the Lassen Facility Site.** Tree and vegetation removal at the Lassen Facility site will be conducted outside of the nesting season (February through September) as feasible. If not feasible, the following measures will be implemented to avoid or minimize impacts to nesting birds:<br>▪ A qualified biologist shall conduct a pre-construction survey for nesting birds no more than 7 days prior to vegetation or structure removal or ground-disturbing activities conducted during the nesting season (February through September). The survey shall cover the limits of construction and suitable nesting habitat within 500 feet for raptors and 100 feet for other nesting birds, as feasible and accessible. | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance shall typically range from 50 to 500 feet and shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground-disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers, and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.<br>▪ If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities.<br>▪ If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be halted until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the birds have fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.<br><br>MM-BIO-8<br>MM-BIO-10<br>MM-BIO-14<br>MM-BIO-17 | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | MM-BIO-18<br><br>**MM-BIO-21: Native Bat Roost Protection at the Port Site.** Riparian vegetation and various human-made structures at the Port site may provide roosting habitat for native bats. Thus, GSNR will take the following actions:<br>▪ If feasible, any structure demolition and tree removal activities will be conducted outside of the bat maternity season (March 1 – August 31) to avoid potential impacts to maternity colonies.<br>▪ If structure demolition and tree removal activities must occur during the bat maternity season, a qualified biologist will conduct a pre-construction survey for maternity roosts within 14 days prior to construction. The survey will include a visual inspection of potential roosting features (bats need not be present) and presence of guano in the construction footprint and within 50 feet. Potential roosting features found during the survey will be flagged or marked.<br>▪ If bats (individuals or colonies) are detected and cannot be completely avoided, GSNR will implement measures to safely evict bats under the direction of a qualified biologist. If individuals cannot be safely evicted due to factors such as lack of alternative roosting sites, as determined by the qualified bat biologist, ground-disturbing activities within a specified distance of the roost (specified distance to be determined by the qualified biologist, based on surroundings and vulnerability of roost site, etc.) will be postponed or halted until conditions are suitable for safe eviction or the roost has vacated naturally. | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| **BIO-6.** The project may conflict with local policies or ordinances protecting biological resources. | PS (*Tuolumne Facility)*<br><br>NI (*Feedstock Acquisition, Lassen Facility, Port of Stockton*) | **MM-BIO-3**<br>**MM-BIO-15**<br>**MM-BIO-16** | LTS |
| **BIO-7.** The project may conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state conservation plan. | PS (*Port of Stockton*)<br><br>NI (*Feedstock Acquisition, Lassen Facility, Tuolumne Facility*) | **MM-BIO-2**<br>**MM-BIO-3**<br>**MM-BIO-4** | LTS |
| **Cultural and Tribal Cultural Resources** | | | |
| **CUL-1.** The project would not cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. | LTS *(Feedstock Acquisition, Tuolumne Facility, Port of Stockton)*<br><br>*NI (Lassen Facility)* | N/A | LTS |
| **CUL-2.** The project may cause a substantial adverse change in the significance of an archaeological resource pursuant to §15063.4 or disturb human remains. | PS *(Lassen Facility, Tuolumne Facility, Port of Stockton)* | **MM-CUL-1 Unanticipated Archaeological Resources:** All crews should be alerted to the potential to the potential to encounter archaeological material. In the unlikely event that cultural resources (sites, features, or artifacts) are exposed during creek bank stabilization activities, all | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | LTS<br>*(Feedstock Acquisition)* | construction work occurring within 100 feet of the find shall immediately stop and GSNR contacted. A qualified specialist, meeting the Secretary of the Interior's Professional Qualification Standards, will be assigned to review the unanticipated find, and evaluation efforts of this resource for NRHP and CRHR listing will be initiated in consultation with GSNR. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, concentrations of fragmented or whole burned or complete bone, non-local lithic materials, or the characteristic observed to be atypical of the surrounding area. Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appeared to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies. Depending upon the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under NHPAA/CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.<br><br>**MM-CUL-2 Unanticipated Discovery of Human Remains:** Should human remains be discovered, work will halt in that area and procedures set forth in the California Public Resources Code (Section 5097.98) and State Health and Safety Code (Section 7050.5) will be followed, beginning with notification to the ACOE (if applicable) and County Coroner. No further excavation or | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall provide recommendations on next steps within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains. | |
| **CUL-3.** The project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:<br>a) *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*<br>b) *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria* | PS<br>*(Lassen Facility, Tuolumne Facility, Port of Stockton)*<br><br>LTS<br>*(Feedstock Acquisition)* | **MM-CUL-1** | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| *set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?* | | | |
| **Energy** | | | |
| **ENE-1.** The project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. | LTS | N/A | LTS |
| **ENE-2.** The project would not result in conflicts with or otherwise obstruct a state or local plan for renewable energy or energy efficiency. | LTS | N/A | LTS |
| **Geology and Soils** | | | |
| **GEO-1a.** The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault. | NI | N/A | NI |
| **GEO-1b.** The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. | NI (*Feedstock Acquisition*)<br><br>LTS | N/A | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | (*Lassen Facility, Tuolumne Facility, Port of Stockton*) | | |
| **GEO-1c.** The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismically related ground failure, including liquefaction. | NI (*Feedstock Acquisition*)<br><br>LTS (*Lassen Facility, Tuolumne Facility, Port of Stockton*) | N/A | LTS |
| **GEO-1d.** The project would potentially directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. | LTS *(Feedstock Acquisition, Lassen Facility, Tuolumne Facility)*<br><br>NI *(Port of Stockton)* | N/A | LTS |
| **GEO-2.** The project would potentially result in substantial soil erosion or the loss of topsoil. | LTS *(Feedstock Acquisition, Lassen Facility, Tuolumne Facility, Port of Stockton)* | N/A | LTS |
| **GEO-3.** The project would potentially be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. | LTS *(Feedstock Acquisition, Lassen Facility, Tuolumne Facility, Port of Stockton)* | N/A | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| **GEO-4.** The project would not be located on expansive soil, creating substantial direct or indirect risks to life or property. | LTS *(Lassen Facility, Tuolumne Facility, Port of Stockton)*<br><br>NI *(Feedstock Acquisition)* | N/A | LTS |
| **GEO-5.** The project would potentially have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. | PS *(Lassen Facility, Tuolumne Facility)*<br><br>NI *(Feedstock Acquisition, Port of Stockton)* | **MM-GEO-1 Engineered Septic System.** The on-site septic system shall be an engineered system to address on-site constraints including poor soil conditions (insufficient percolation) and high groundwater. The system may consist of an aerobic treatment unit or other system with equivalent pretreatment characteristics. The system, including any dispersal system, shall be located a minimum of 100 feet from any domestic water well. The system shall meet the requirements for protection of water quality of the local environmental health agency and the Regional Water Quality Control Board. | LTS |
| **GEO-6.** The project would potentially directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. | PS *(Lassen Facility, Port of Stockton)*<br><br>LTS (*Tuolumne Facility*)<br><br>NI *(Feedstock Acquisition)* | **MM-GEO-2 Paleontological Resources.** Prior to commencement of any grading activity on-site, GSNR shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) (2010) guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the project. The PRIMP shall be consistent with the SVP (2010) guidelines and should outline requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the proposed project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | (including sediment sampling for microvertebrate fossils), reporting, and collections management. The PRIMP shall also include a statement that any fossil lab or curation costs (if necessary due to fossil recovery) are the responsibility of GSNR. The qualified paleontologist shall attend the preconstruction meeting and a qualified paleontological monitor shall be on-site during all rough grading and other significant ground-disturbing activities (including augering) in previously undisturbed, fine-grained Pleistocene alluvial deposits. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find. | |
| **Greenhouse Gas Emissions** | | | |
| **GHG-1.** The project would potentially generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. | PS | MM-AQ-2<br>MM-AQ-3<br>MM-AQ-4<br>MM-AQ-9<br>MM-TRF-1<br>MM-TRF-4 | SU |
| **GHG-2.** The project would potentially conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. | PS | MM-AQ-2<br>MM-AQ-3<br>MM-AQ-4<br>MM-AQ-9<br>MM-TRF-1<br>MM-TRF-4 | SU |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| **Hazards and Hazardous Materials** | | | |
| **HAZ-1.** The project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. | LTS | N/A | LTS |
| **HAZ-2.** The project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. | LTS | N/A | LTS |
| **HAZ-3.** The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. | LTS<br>(Feedstock Acquisition)<br><br>NI<br>(Lassen Facility, Tuolumne Facility, Port of Stockton) | N/A | LTS |
| **HAZ-4.** The project could create a significant hazard to the public or the environment due to being located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5. | PS<br>*(Port of Stockton)*<br><br>LTS<br>*(Feedstock Acquisition, Lassen Facility, Tuolumne Facility)* | **MM-HAZ-1: Port of Stockton. Soil Management Plan and Phase II Investigation.** Prior to issuance of a grading or building permit, GSNR shall retain a qualified environmental consultant to prepare and implement a Soil Management Plan for all earthwork activities proposed at the site. The Soil Management Plan shall be based on a review of previous environmental subsurface characterizations and in accordance with Department of Toxic Substances Control (DTSC) and/or Regional Water Quality Control Board (RWQCB) coordination. The consultant shall also prepare a Phase II Work Plan for all structures that would be occupied as part of project operations. The Phase II Work Plan shall include | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | sampling locations, depths, and analytical laboratory testing that will be done to evaluate the potential health risks associated with any existing legacy contaminants of concern that may be present in the subsurface and the potential for adverse health effects related to vapor intrusion. The work plan shall be submitted to San Joaquin County Environmental Health for review and approval prior to commencement of sampling activities at the site. The findings of the Phase II Work Plan shall be compiled in a report documenting the results of the sampling and include recommendations for any further testing or remediation, if applicable. Sampling results shall be compared to RWQCB Regulatory Screening Levels for commercial/industrial land uses and additional sampling conducted as directed by the overseeing agency whether that is San Joaquin County Environmental Health Services, DTSC, or RWQCB. Issuance of a grading or building permit shall only occur upon authority from the overseeing agency once they have determined that no further threat to human health or the environment remains in the areas of the proposed improvements intended for human occupancy. | |
| **HAZ-5.** The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. | LTS | N/A | LTS |
| **HAZ-6.** The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving fires. | PS<br>*(Lassen Facility, Tuolumne Facility, Port of Stockton)*<br><br>LTS | **MM-HAZ-2: Fire Prevention Plan**. GSNR shall prepare a Site Specific Fire Prevention Plan for each production and storage facility Plan (Lassen Facility, Tuolumne Facility, and Port of Stockton). Development of each Site Specific Fire Prevention Plan shall be consistent with Brown, et al., 2022, *Application of Process Hazard Analysis and Inherently Safer Design in Wood Pellet* | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | *(Feedstock Acquisition)* | *Production*, American Chemical Society ACS Omega 2022, 7, 47720−47733, and each Plan shall incorporate the following Inherently Safer Design features where applicable, at a minimum:<br>▪ Maintenance and housekeeping measures to reduce the risk of "hot spots" and potential fire risk during the production and movement of pellets.<br>▪ Identification of early detection measures, including belt speed and motor sensors, spark detectors, temperature sensors.<br>▪ Protocols to minimize the residence time of finished pellets in storage silos.<br>▪ On-site fire suppression facilities, including water storage and pumping.<br>▪ Require that pellet storage silos will be equipped with temperature monitoring systems to detect hot spots.<br>▪ Require that each pellet storage silo will also be equipped with an aeration system that will activate when elevated temperatures are detected and blow ambient air through the silo for cooling.<br>▪ Require use of an enclosed motors instead of a non-enclosed motors to ensure dust is kept out to prevent fire spots.<br>▪ Require multiple dust collectors with explosion panels will be installed throughout the process in order to reduce fire and explosion hazard associated with dry fiber handling generating dust.<br>▪ Ensure that all ductwork is designed to have a minimal number of bends to the extent feasible.<br>The pellet production facilities shall include the following additional measures: | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Require that magnets be located throughout the process to remove ferrous objects from the feedstock and product streams to the extent feasible.<br>▪ Ensure quick material turnaround to minimize the risk of a deep-seated fire caused by organic material decomposition.<br>▪ Ensure separation of finished product silo storage and railcar from rest of the plant.<br>▪ Require all of the following equipment protection systems/sprinkler systems:<br>▪ The Fire Pump Building will be protected with a wet sprinkler system.<br>▪ The Bark Hog Tower will be protected with a dry pipe sprinkler system.<br>▪ The Green Hammer Mill Tower will be protected with a dry pipe sprinkler system.<br>▪ The Dry Hammer Mill Structure will be protected with a dry pipe sprinkler system.<br>▪ The Pelletizer Building will be protected with a wet sprinkler system.<br>▪ Require that each baghouse at rail loadout will be provided with fire water connections and spray nozzles.<br>▪ Require the inclusion of a Rail Loadout Dust Control System<br>▪ Require a Central Dust Control system in the balance of the production facilities.<br>▪ Require that well water be treated as necessary to minimize dissolved material in water to reduce scaling and clogging of water deluge systems/plugged nozzle or lines with water scale/hardness. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | Each plan shall be reviewed and approved by the Fire Marshall with authority over each site (Lassen County, Tuolumne County, and the Port of Stockton) and comply with all applicable current standards and codes set by the National Fire Protection Agency and the International Building Code as well as any additional requirements deemed necessary by the applicable local fire authority. | |
| **Hydrology and Water Quality** | | | |
| **HYD-1.** The project would potentially violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. | PS<br>*(Feedstock Acquisition, Lassen Facility, Tuolumne Facility, Port of Stockton)* | **MM-GEO-1**<br><br>**MM-HYD-1: Protection of Existing Water Bodies.** The following measures shall be implemented to protect existing water quality during forest thinning operations:<br><br>▪ All equipment and vehicle staging areas shall be a minimum of 100 feet from existing drainages, streams, reservoirs, and lakes.<br>▪ Equipment watercourse crossings shall be planned, constructed, maintained, and removed according to standards described in the California Forest Practice Rules (California Licensed Timber Operators and California Registered Professional Foresters 2020) and the National Best Management Practices for Water Quality Management on National Forest System Lands, National Core BMP Technical Guide (USDA Forest Service 2012). Measures include:<br>- minimization of the number of crossings;<br>- selection of crossings where the erosion potential is low; | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | - use of a temporary bridge, culvert, or log culvert to minimize siltation of the stream;<br>- using suitable drainage measures to disconnect the road from the waterbody;<br>- providing unrestricted passage of the design flow and fish migration; and<br>- removal and stabilization of the stream prior to the winter rainy season.<br><br>**MM-HYD-2: Spill Prevention and Response Plan.** A Spill Prevention and Response Plan shall be prepared prior to forest thinning activities to provide protection to onsite workers, the public, and the environment from incidental leaks or spills of petroleum products, herbicides, or hazardous substances. The Spill Prevention and Response Plan shall be consistent with the 2011 Forest Service Region 5 Water Quality Management Handbook 2509.22, Chapter 10 (U.S. Forest Service 2011) and the National Best Management Practices for Water Quality Management on National Forest System Lands, National Core BMP Technical Guide (USDA Forest Service 2012), including, but not limited to:<br><br>▪ All water-drafting vehicles shall be checked daily and shall be repaired as necessary to prevent leaks of petroleum products from entering streams.<br>▪ Water-drafting vehicles shall contain petroleum-absorbent pads, which are placed under vehicles before drafting. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Water-drafting vehicles shall contain petroleum spill kits.<br>▪ Disposal of absorbent pads shall be completed according to a Hazardous Response Plan.<br>▪ Plan for appropriate equipment refueling and servicing sites during project planning and design.<br>▪ Allow temporary refueling and servicing only at approved locations, which are well away from water or riparian resources.<br>▪ Develop or use existing fuel and chemical management plans (for example, spill prevention control and countermeasures (SPCC), spill response plan, emergency response plan) when developing the management prescription for refueling and servicing sites. SPCCs measures shall include:<br>- Install or construct the containment features or countermeasures called for in the SPCC Plan to ensure that spilled oil does not reach groundwater or surface water.<br>- Ensure that each SPCC Plan includes a spill contingency plan at each facility that is unable to provide secondary spill containment.<br>- Ensure that clean-up of spills and leaking tanks complies with federal, State and local regulations and requirements.<br>- Prepare a contingency plan when quantities of petroleum products are capable of violating Regional Water Quality Control Board Basin Plan water-quality objectives.<br>▪ Locate, design, construct, and maintain petroleum and chemical delivery and storage facilities consistent with local, State and federal regulations. | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Install contour berms and trenches around vehicle service and refueling areas, chemical storage and use areas, and waste dumps to fully contain spills.<br>▪ Locate new staging to avoid the potential for hydrologic connectivity with water bodies and watercourses. To determine necessary drainage, calculate the expected runoff using the appropriate design storm. Include any run-on from adjacent areas in the calculation.<br>▪ Use liners as needed to prevent seepage to groundwater.<br>▪ Provide training for all personnel handling fuels and chemicals in their proper use, handling, storage, and disposal.<br>▪ Avoid spilling fuels, lubricants, cleaners, and other chemicals during handling and transporting.<br>▪ Report spills and initiate appropriate clean-up action in accordance with applicable State and federal laws, rules and regulations.<br><br>**MM-HYD-3 Protection of Existing Drainage Systems.** If a forest thinning activity is located adjacent to a roadway with stormwater drainage infrastructure, the existing stormwater drainage infrastructure shall be marked prior to ground disturbing activities. If a drainage structure or infiltration system is inadvertently disturbed or modified during project activities, GSNR shall coordinate with owner of the system or feature to repair any damage and ensure that restore pre-project drainage conditions are restored.<br><br>**MM-HYD-4 Avoidance of Legacy Soil Contamination.** Areas of known or suspected contaminated soil shall be | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | avoided during forest thinning operations. Known contaminated sites shall be based on the California Department of Toxic Substances Control Cortese list, as described in Section 3.8, Hazards and Hazardous Materials.<br><br>**MM-HYD-6 Lassen Low Impact Development Features.** A proprietary biotreatment unit (i.e., Modular Wetland System) shall be installed downstream of the proposed detention basin, as infiltration is not feasible at the site. The biotreatment unit shall be designed to capture and treat stormwater pollutants, consistent with commercial/industrial developments and associated parking lots, and including oil, grease, metals, trash, and debris. Treatment design shall be finalized upon completion of final project design. Source control Best Management Practices, such as secondary containment, regular inspections, and equipment maintenance, shall also be implemented whenever possible.<br><br>**MM-HYD-8 Tuolumne Low Impact Development Features.** Soil infiltration testing shall be completed on-site to determine the suitability of the site for construction of a stormwater infiltration basin. In the event that the soils are suitable for infiltration, a stormwater detention/infiltration basin shall be constructed to minimize off-site transport of polluted stormwater runoff. In the event, on-site soils are not suitable for stormwater infiltration, a proprietary biotreatment unit (i.e., Modular Wetland System) shall be installed downstream of the proposed detention basin, as described in MM-HYD-7. | |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | **MM-HYD-10 Stockton Low Impact Development Features.** A proprietary biotreatment unit (i.e., Modular Wetland System) shall be installed downstream of the proposed detention basin, as infiltration is not feasible at the site. The biotreatment unit shall be designed to capture and treat stormwater pollutants, consistent with commercial/industrial developments and associated parking lots, and including oil, grease, metals, trash, and debris. Treatment design shall be finalized upon completion of final project design. Source control Best Management Practices, such as secondary containment, regular inspections, and equipment maintenance, shall also be implemented whenever possible. | |
| **HYD-2.** The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. | PS<br>*(Feedstock Acquisition)*<br><br>LTS<br>*(Lassen Facility, Tuolumne Facility, Port of Stockton)* | **MM-HYD-5 Minimize Soil Compaction.** Consistent with the 2011 Forest Service Region 5 Water Quality Management Handbook 2509.22, Chapter 10 (U.S. Forest Service 2011), the following measures shall be implemented to minimize soil compaction and increase infiltration of precipitation:<br><br>▪ Exclude the use of mechanical equipment in wetland and meadows except for the purpose of restoring wetland and meadow function.<br>▪ During road construction and maintenance, limit operation of equipment when ground conditions could result in excessive soil compaction, except on the road prism or other surface to be compacted.<br>▪ During restoration of equipment damaged areas, mechanically rip areas of compacted soil to allow infiltration of precipitation. | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Fell trees toward a predetermined skid pattern, also known as felling to the lead, to reduce soil disturbance.<br>▪ When restoring water crossings, remove all trail-hardening materials and fill, and restore the channel bottom to its natural gradient and width. If necessary, replace hardening material in the channel with cobble similar in size to the native bed-load. | |
| **HYD-3.** The project would not substantially alter the existing drainage pattern of the Master Plan area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: | | | |
| i. result in substantial erosion or siltation on or off site; | PS (*Feedstock Acquisition, Lassen Facility, Tuolumne Facility, Port of Stockton*) | **MM-HYD-1**<br><br>**MM-HYD-5**<br><br>**MM-HYD-7: Lassen Stormwater Detention.** A stormwater detention basin shall be constructed on-site and designed to provide peak flow detention for a 24-hour, 50-year storm event, with over 2 feet of freeboard during the peak of the storm event. Stormwater flow rates exiting the site shall be less than or equal to existing conditions. The top elevation of the detention basin shall be constructed a minimum of 2 feet above projected 100-year base flood elevations.<br><br>**MM-HYD-9: Tuolumne Stormwater Detention.** Stormwater detention basins shall be provided for stormwater runoff flowing to the north and south of the site. The stormwater detention basins shall be designed to provide peak flow detention for a 24-hour, 50-year storm event, with over 2 | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | feet of freeboard during the peak of the storm event. Stormwater flow rates exiting the site shall be less than or equal to existing conditions.<br><br>**MM-HYD-11 Stockton Stormwater Detention**. A stormwater detention basin shall be constructed on-site and designed to provide peak flow detention for a 24-hour, 50-year storm event, with over 2 feet of freeboard during the peak of the storm event. Stormwater flow rates exiting the site shall be less than or equal to existing conditions. | |
| ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; | PS<br>*(Lassen Facility, Tuolumne Facility, Port of Stockton*)<br><br>LTS<br>(*Feedstock Acquisition)* | **MM-HYD-7**<br>**MM-HYD-9**<br>**MM-HYD-11** | LTS |
| iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or | PS<br>(*Lassen Facility, Tuolumne Facility, Port of Stockton*)<br><br>LTS<br>(*Feedstock Acquisition*) | **MM-HYD-1**<br>**MM-HYD-5**<br>**MM-HYD-7**<br>**MM-HYD-9**<br>**MM-HYD-11** | LTS |
| iv. cause the proposed development, when combined with all other existing and anticipated development, to increase the water surface elevation of the base flood | LTS<br>*(Lassen Facility)*<br><br>NI *(Feedstock Acquisition,* | N/A | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| more than one foot at any point within the community. | *Tuolumne Facility, Port of Stockton)* | | |
| **HYD-4.** The project would not risk release of pollutants due to project inundation in a flood hazard, tsunami, or seiche zone. | LTS (*Lassen Facility*)<br><br>NI (*Feedstock Acquisition, Tuolumne Facility, Port of Stockton*) | N/A | LTS |
| **HYD-5.** The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. | LTS | No additional mitigation measures, beyond those identified in Impacts HYD-1 through HYD-4. | LTS |
| **Land Use and Planning** | | | |
| **LU-1.** The project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. | LTS | N/A | LTS |
| **Noise** | | | |
| **NOI-1.** The project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. | LTS | N/A | LTS |
| **NOI-2.** The project would not result in generation of excessive groundborne vibration or groundborne noise levels. | LTS | N/A | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| **NOI-3.** The project is not one that is located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, that would expose people residing or working in the project area to excessive noise levels. | LTS | N/A | LTS |
| **Population and Housing** | | | |
| **POP-1.** The project would not induce substantial unplanned population growth in the area, either directly or indirectly. | LTS | N/A | LTS |
| **POP-2.** The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. | NI | N/A | NI |
| **Public Services** | | | |
| **SER-1.** The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services. | | | |
| Fire Protection | LTS | N/A | LTS |
| Police Protection | LTS | N/A | LTS |
| Schools | LTS | N/A | LTS |
| Parks | LTS | N/A | LTS |
| Library Facilities | LTS | N/A | LTS |
| **Transportation** | | | |
| **TRF-1.** The project may conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. | PS<br>*(Lassen Facility)*<br><br>LTS | **MM-TRF-2: Assessment and maintenance of Babcock Road per GP Policies CE 6 and CE 10.**<br><br>**Initial Assessment** | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | *(Feedstock Acquisition, Tuolumne Facility, Port of Stockton)* | The project will be required to conduct an initial pavement assessment of Babcock Road from SR-299 to the project site, prior to commencement of construction of the Lassen Facility.<br>**Biennial Pavement Assessments**<br><br>Pavement within the designated area of Babcock Road will thereafter be evaluated biennially, commencing at the start of construction of the Lassen Facility, and the results of these analyses will be retained by GSNR.<br>**Assessment Criteria**<br><br>Each assessment required by the Mitigation Measure shall address the following elements:<br>▪ **Pavement Distress Evaluation:** quantification of the distress types, extents, and severities in accordance with the ASTM D6433 standard. A 100% assessment of the construction routes will be performed. If the existing surface is not Asphalt Concrete (AC) or Portland Cement Concrete (PCC), an alternative evaluation method such as the Pavement Surface Evaluation and Rating (PASER) methodology will be used.<br>▪ **Pavement Condition Index (PCI):** PCI values will be calculated using collected distress data and reported for both AC and PCC roadways.<br>▪ **Photo Survey:** photos of the surface will be collected and provided to the County as part of the analysis.<br>▪ **Road Roughness:** measurement of the International Roughness Index (IRI) for each construction route.<br>**Rehabilitation** | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | If, through this assessment, the road is found to require resurfacing, repaving, or reconstruction in order to maintain its pre-project condition, GSNR will be required to resurface, repave, or reconstruct this section of Babcock Road, consistent with the County of Lassen requirements for Road District Four and consistent with Lassen County Code Section 10.32.050 – *Minimum Design Standards for County Road.* The road will be rehabilitated to a condition that allows for carrying 20-year Equivalent Single Axel Load (ESAL) values. (Traffic volumes along this segment of Babcock Road will be determined from the traffic report contained in this EIR. Forward-looking projections of operational traffic will be also considered to determine the 20-year ESAL count and ensure that the rehabilitated pavement sections are structurally adequate for project and non-project traffic.) The post-construction report will be signed and stamped by a California-Licensed Professional Engineer. | |
| **TRF-2.** The project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). | PS<br>*(Feedstock Acquisition, Lassen Facility)*<br><br>LTS<br>*(Tuolumne Facility, Port of Stockton)* | **MM-TRF-1: Provide Employee Sponsored Vanpool for Sustainable Forest Management Projects.** GSNR would be required to provide, or cause to be provided, vanpooling services consistent with CAPCOA Measure T-11 for workers traveling to jobsites when applicable (i.e., when 5 or more employees with similar work hours live close enough to one another for van pooling to be practicable). A Transportation Manager shall be designated to coordinate vanpooling for each feedstock acquisition project and provide a report detailing recorded annual vanpool usage to the County.<br><br>**MM-TRF-4: Provide Electric Vehicle Charging Infrastructure and Employee Sponsored Vanpool for the Lassen Facility, the Tuolumne Facility, and the Port of** | SU |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | **Stockton.** GSNR would be required to provide, or cause to be provided, vanpooling services consistent with CAPCOA Measure T-11 for workers traveling to the Lassen Facility, the Tuolumne Facility, and the Port of Stockton facility when applicable (i.e., when 5 or more employees with similar work hours live close enough to one another for van pooling to be practicable). A Transportation Manager shall be designated to coordinate vanpooling for at each facility and maintain a record of annual vanpool usage.<br><br>Additionally, GSNR would be required to install EV charging at the Lassen Facility, the Tuolumne Facility, and the Port of Stockton facility consistent with CAPCOA Measure T-13. Per Table A5.106.5.3.2 of the 2019 California Green Building Standards, 10 percent of total parking spaces are required to be EV charging spaces to meet Tier 2 standards. The project proponent would be required to exceed the 10 percent EV charging space requirement, consistent with CAPCOA Measure T-13. | |
| **TRF-3.** The project could substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). | PS<br>*(Lassen Facility)*<br><br>LTS<br>*(Feedstock Acquisition, Tuolumne Facility, Port of Stockton)* | **MM-TRF-3: Installation of Warning Signage Along SR 299.** GSNR would be required to install CA MUTCD W2-1 warning signage per applicable standards in advance of Babcock Road and 4th Street along both directions of SR-299. | LTS |
| **TRF-4.** The project would not result in inadequate emergency access. | LTS | N/A | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| **Utilities and Service Systems** | | | |
| **UTIL-1.** The project would require the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities resulting in environmental effects. | PS<br>*(Lassen Facility, Tuolumne Facility)*<br><br>LTS<br>*(Port of Stockton)*<br><br>NI<br>*(Feedstock Acquisition)* | MM-AQ-2<br>MM-AQ-3<br>MM-AQ-4<br>MM-AQ-5<br>MM-AQ-7<br>MM-AQ-10<br>MM-AQ-13<br><br>MM-CUL-1<br>MM-CUL-2.<br><br>MM-WIL-2 | LTS |
| **UTIL-2.** The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. | LTS | N/A | LTS |
| **UTIL-3.** The project would not result in a determination by the wastewater treatment provider, that it does not have adequate capacity to serve the project's projected demand in addition to existing commitments. | LTS<br>(Port of Stockton)<br><br>NI<br>(Feedstock Acquisition, Lassen Facility, Tuolumne Facility) | N/A | LTS |
| **UTIL-4.** The project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. The project would comply with all federal, state, and local | LTS | N/A | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| management and reduction statutes and regulations related to solid waste. | | | |
| **Wildfire** | | | |
| **WIL-1.** The project would not substantially impair an adopted emergency response plan or emergency evacuation plan. | LTS | N/A | LTS |
| **WIL-2.** The project would potentially exacerbate wildfire risks due to slope, prevailing winds, and other factors, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. | PS<br>*(Feedstock Acquisition, Lassen Facility, Tuolumne Facility)*<br><br>NI<br>*(Port of Stockton)* | **MM-HAZ-2**<br><br>**MM-WIL-1: Feedstock Acquisition Fire Prevention Plan.** Best practices and standard requirements for fire risk reduction shall be required during feedstock acquisition activities. Prior to the start of feedstock acquisition activities (e.g., prior to the use of vehicles or mechanical equipment on site), a Fire Prevention Plan shall be prepared in consultation with and for review and approval by the U.S. Forest Service, California Department of Forestry and Fire Protection (CAL FIRE), or the fire agency having jurisdiction (FAHJ). The Fire Prevention Plan shall include, but would not be limited to, the following specific measures to be implemented during feedstock acquisition activities:<br>▪ Responsibilities of the project applicant, its contractor(s), and fire agencies with respect to fire prevention and inspection of work areas;<br>▪ Designation of a Site Safety Officer responsible for overseeing the Fire Prevention Plan implementation; | LTS |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Basic fire prevention training of employees/contractors upon employment and prior to beginning work, and documentation of the training. Basic fire prevention training shall include, but would not be limited to: fire prevention, proper response and notification, initial attack firefighting (e.g., the use of fire extinguishers and hand tools), and fire reporting;<br>▪ Emergency communication, response, and reporting procedures. All fires shall be reported to the FAHJ;<br>▪ Procedures for minimizing potential ignition, including, but not limited to: vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, storage of combustible or flammable materials restrictions, proper use of gas-powered equipment, use of spark arresters;<br>▪ Identification of fire suppression equipment to be maintained in work areas and staging areas (e.g., portable fire extinguishers, water tender, shovels, Pulaski). The fire suppression equipment appropriate for the project shall be determined based on the project characteristics, but at minimum would include: one fire extinguisher per chainsaw and each vehicle shall be equipped with one long-handled shovel and one axe or Pulaski (PRC Section 4428);<br>▪ Identification of evacuation routes and procedures;<br>▪ Provisions for fire/emergency services access if roadway blockage or temporary closures occur;<br>▪ Designated worker parking and staging areas cleared of flammable vegetation; no parking or feedstock activities in non-designated areas; | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Prohibition of smoking and open fires at the project site. Prohibit smoking in vegetated areas and require that smoking is only permitted in designated smoking areas barren or cleared to mineral soil at least 3 feet in diameter (PRC Section 4423.4);<br>▪ Assurances that all internal-combustion equipment are equipped with appropriate spark arresters and that fire extinguishers are immediately available and maintained in readiness for use at all times;<br>▪ Presence of a designated fire watch personnel with appropriate firefighting equipment available at the project site at all times;<br>▪ Curtailment of all feedstock acquisition activities in the event of a fire or when fuel and weather conditions get into the "very high" and "extreme" ranges (Red Flag Warning), as determined by the National Weather Service, with specific project-related activities to be allowed during very high or extreme weather conditions at the discretion of the FAHJ;<br>▪ Information contained in the Fire Prevention Plan and location of fire-suppression materials and equipment to be included as part of the employee environmental training.<br><br>**MM-WIL-2: Construction Fire Prevention Plan.** GSNR shall develop a Construction Fire Prevention Plan for review and approval by the U.S. Forest Service, California Department of Forestry and Fire Protection (CAL FIRE), or the fire agency having jurisdiction (FAHJ) prior to commencement of construction activities (prior to vehicles or equipment being brought on site). At minimum, the plan will require all of the following: | |

**Table ES-1. Summary of Project Impacts**

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| | | ▪ Procedures for minimizing potential ignition, including but not limited to:<br>- Vegetation clearing<br>- Parking requirements<br>- Smoking restrictions<br>- Hot work restrictions;<br>▪ Red Flag Warning restrictions. During Red Flag Warning events, as issued daily by the National Weather Service in State Responsibility Areas (SRAs) and Local Responsibility Areas (LRAs), and when the Forest Service Project Activity Level (PAL) is "E" on National Forest lands (as appropriate), all non-essential, non-emergency construction and maintenance activities shall cease or be required to operate under a Hot Work Procedure. The Hot Work Procedure will be in compliance with the applicable sections in NFPA 51-B "Fire prevention during welding, cutting, or other hot work" and CFC Chapter 26 "Welding and Other Hot Work";<br>▪ Fire coordinator role and responsibility;<br>▪ Fire suppression equipment on site at all times work is occurring;<br>▪ Emergency response and reporting procedures;<br>▪ Emergency contact information;<br>▪ Worker education materials; kick-off and tailgate meeting schedules;<br>▪ Other information as provided by the FAHJ (as appropriate for each project). | |
| **WIL-3.** The project would potentially require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that | PS<br>*(Feedstock Acquisition, Lassen* | **MM-WIL-1**<br>**MM-WIL-2** | LTS |

## Table ES-1. Summary of Project Impacts

| Environmental Topic | Impact | Mitigation Measure(s) | Level of Significance After Mitigation |
|---|---|---|---|
| may result in temporary or ongoing impacts to the environment. | *Facility, Tuolumne Facility)*<br><br>NI<br>*(Port of Stockton)* | | |
| **WIL-4.** The Project would potentially expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. | PS<br>*(Feedstock Acquisition)*<br><br>LTS<br>*(Lassen Facility, Tuolumne Facility)*<br><br>NI<br>*(Port of Stockton)* | **MM-HYD-5** | LTS<br>*(Feedstock Acquisition)* |

**Notes**: LTS = Less than Significant, N/A = Not Applicable, NI = No Impact, PS = Potentially Significant, SU = Significant and Unavoidable

# ES.3 Analysis of Alternatives

## Alternatives Considered

Alternatives to the proposed project are discussed in Chapter 4. This discussion includes alternatives that were identified but dismissed from further consideration. Four feasible alternatives were identified that would avoid or substantially lessen one or more project impacts. They are summarized below.

- **No Project Alternative** - The No Project Alternative are the circumstances under which the proposed project does not proceed.
- **Wood Product Alternative** - This alternative involves producing an alternative wood product at the site, as opposed to wood pellets. Woody material would be harvested to produce either oriented strand board (OSB) or medium density fiberboard (MDF).
- **Biochar Alternative** - This alternative involves producing biochar at the production facilities, as opposed to wood pellets. Biomass would still be harvested per the proposed project.
- **Alternative Layout at Northern California Facility** - This alternatives would change the facility layout at the Northern California (Nubieber) site to maximize avoidance of jurisdictional waters (waters of the US and the State).

## No Project Alternative

CEQA Guidelines Section 15126.6(e) generally provides that "[t]he 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, … as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." Section 15126(e)(3)(B) provides that, where, as here, a proposed project is something "other than a land use or regulatory plan," the "No Project" Alternative is "the circumstance under which the project does not proceed." The purpose of describing and analyzing a No Project Alternative is to allow decision - makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project (CEQA Guidelines Section 15126.6[e][1]). "[W]here failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (CEQA Guidelines Section 15126.6[e][3][B]).

Under the No Project Alternative, GSNR would not construct any facilities, nor engage in Sustainable Forest Management projects to promote forest resiliency and reduce the effects of catastrophic wildfire in California. The No Project Alternative would not meet any of the project objectives, including wildfire management objectives, biological and cultural resource objectives, nor economic and community development objectives.

Project construction, operations, and transportation impacts would be avoided. However, benefits accruing to reduction of catastrophic wildfire would not occur. While other local, state, and federal programs would continue to engage in vegetation management, the significant increase in this activity enabled by the GSNR project would not occur. Most estimates show increasing incidence, severity, and size of wildfires, particularly in the Sierra Nevada and Southern Cascades in the absence of increased management actions (CCST 2020). Catastrophic wildfire results in the release of carbon as a result of combustion, and may also slow the uptake in carbon sequestration that typically results from regrowth following a fire (Hemes 2023).

## Wood Product Alternative

Under this alternative, woody material would be harvested to produce either oriented strand board (OSB) or medium density fiberboard (MDF), instead of wood pellets. The rationale behind this alternative is to preserve carbon from forest vegetation in the final product, as opposed to a fuel use.

OSB is an engineered wood that is formed by adding adhesives and compressing layers of wood strand. It is often used in residential and commercial construction due to its ability to resist deflection, delamination, and warping, making it an ideal material for load bearing uses such as flooring (APA – The Engineered Wood Association 2024). Similar to the proposed project, the primary source of GHG emissions in OSB production is the drying process, which requires thermal energy production (Puettmann, Karstmer, and Taylor 2016). OSB strands, which are compressed into OSB sheets, are produced by thinly slicing logs (typically 8 to 12 inches in diameter) into wood flakes that are approximately 0.5 in by 3 inches by 0.02 inch, depending on process and material ((Fisette 2005; Hiziroglu 2017). Currently, OSB waste can only be incinerated; there are no alternatives for disposal (The Upstyle Wood Guide.org, n.d.)

MDF is a different engineered wood product that is often used in furniture and interior construction (such as cabinets, countertops, and trim). Its smooths surface and uniform density make it ideal for shaping (Travis Perkins 2024). However, while OSB is made by compressing wood strands that are a few inches in length, MDF is made by adhering fine wood fibers together, from hard or softwood (Travis Perkins 2024). Recycling options for MDF are still being investigated, as most MDF waste is currently landfilled (Zimmer and Bachmann 2023). Studies indicate during decomposition, OSB and MDF offgas toxic compounds, originating from formaldehyde, urethane, and/or melamine used in their production.

The wood materials alternative would achieve many of the proposed project objectives, but to a lesser degree than the proposed project. These alternative products require larger diameter feedstock material and do not provide an outlet for smaller diameter materials such as slash, thereby reducing the extent to which they can achieve the project's wildfire fuel reduction objectives. Further, softer market demand for these products is likely to limit the ability for the project to sustain treatment activities in practice. Finally, unlike wood pellets, manufacture of these materials requires adhesives, including synthetic resin binder and wax, which may result in the generation of toxicants including formaldehyde, urethane, and melamine.

## Biochar Alternative

Under this alternative, the GSNR facility would produce biochar instead of wood pellets. Biochar is a charcoal-like substance that is made by burning organic material from agricultural and forestry wastes (also called biomass) in a controlled process called pyrolysis. Biochar is applied to agricultural soils using a variety of application rates and preparation techniques. Biochar production is a carbon-negative process, which means that it actually reduces $CO_2$ in the atmosphere. In the process of making biochar, the unstable carbon in decaying plant material is converted into a stable form of carbon that is then stored in the biochar. The release of heat energy from this process can be also captured and used to create steam which is used to generate electricity (Spears 2018, Levitan 2010).

Biochar technology has not been employed, either domestically or internationally, at the scale to accomplish the treatment goals of the proposed project – raising critical issues of feasibility. Currently, there are only approximately 150 companies in the United States, mostly small suppliers, selling biochar worldwide. These producers generally work at a scale of, at most, thousands of metric tons per year (Thengane, et al 2021). This scale would not be sufficient to meet the project objectives for fuel reduction, as the project would need to produce hundreds of thousands of metric tons of biochar to achieve stated objectives. (The proposed project would produce up to

1,000,000 metric tons of product.) The small market size makes it challenging to assess the overall feasibility of this alternative.

The biochar alternative would achieve many of the proposed project objectives, but to a lesser extent than the proposed project. Due to the underdeveloped nature of the biochar market, it is unclear if this alternative could achieve economic self-sufficiency, necessary to sustain forest resiliency activities. Domestic and international demand for biochar remains unclear, with limited production and high costs (Thengane, et al 2021). The ability of this alternative to feasibly achieve the same scale as the proposed project is further limited by the numerous technological barriers associated with biochar production, application, and forest management practices. Thus, this alternative may not achieve long-lasting community benefits in historically overlooked and underinvested California communities, nor achieve the same amount of wildfire fuel reduction treatment as the proposed project.

### Alternative Layout at Lassen Facility

This alternative presents a maximum avoidance design for on-site jurisdictional waters, including wetlands. This design would reduce, but not entirely avoid impacts to waters of the US and waters of the state. However, this alternative layout creates serious operational challenges, including a lengthy conveyance of feedstock from the woodyard to the production facility, which would increase costs and decrease reliability (by creating additional maintenance challenges).

While this alternative would accomplish most of the key objectives, reduced efficiency at the plant may impair the project's ability to offset wildfire fuel management costs by making productive use of low-value forest materials, thereby jeopardizing achievement of the project's forest resiliency treatment objectives.

## ES.4 Areas of Controversy

The notice of preparation (NOP) for the Golden State Natural Resources Forest Resiliency Demonstration Project was distributed on November 18, 2022 and recirculated on June 1, 2023, to responsible agencies, as well as private organizations and individuals that may have an interest in the project. GSFA held public scoping meetings on November 28, 2022, November 29, 2022, November 30, 2022, December 6, 2022, and June 20, 2023 to provide information on the proposed project and solicit public input on the scope and content of the PEIR.

While numerous comments were received (see Appendix A), concerns were centered on the following areas of controversy:

### Greenhouse Gas Emissions and Climate Change

Many commenters identified greenhouse gas (GHG) emissions associated with the project as an area concern and potentially significant impact. Potential GHG sources of emission include construction of facilities, off-road equipment for in-forest operations, transportation to and from the pellet facilities, pellet production, port operations, and combustion of wood pellets. This also was raised in the context of carbon sequestration – the potential loss of existing stored forest carbon and loss of future carbon uptake.

Some commenters have stated that wood pellets, or bioenergy more broadly, should therefore not be considered a "renewable" energy source. For example, statements have been made whether or not the Intergovernmental Panel on Climate Change (IPCC) identifies biomass, or bioenergy, as a renewable energy source. While this is controversial, both the IPCC and the European Union (EU) identify bioenergy as a category of renewable energy.

This is not to say that bioenergy is carbon neutral. The carbon impact of a particular bioenergy product or process will vary.

This EIR examines the above topics, including GHG emission sources during project construction and operations, and the effects on carbon storage and future sequestration in the forests and the effects of wildfire on treated and untreated forest lands.

### Air Quality

GHG is not the only emission associated with the construction and operation of the project. Commenters noted the potential adverse effects on air quality due to facility construction, operation, and transportation (truck, rail, and ship). Pollutants of concern include particulate matter, volatile organic compounds (VOCs), toxic diesel particulate emissions, and hazardous air pollutants (HAPs). Commenters have stated that environmental health impacts may be felt most strongly by disadvantaged communities, such as South Stockton.

### Forest Treatment

If, and how, California's forests should be managed to minimize the risk of catastrophic wildfire is an area of controversy. Adverse effects identified by commenters include impacts to special status wildlife and plants, destabilization of soils and subsequent erosion, impacts to water quality, and loss of recreational opportunities. Some commenters expressed concern that the proposed project was a means to reinstate large scale logging in California.

The potential impacts of the proposed sustainable forest management activities are analyzed in this EIR. A wide range of required project development features are incorporated into those activities to avoid or reduce potentially significant impacts while providing opportunities for improved forest sustainability and wildfire resilience.

It is noted that the State of California has identified 500,000 acres per year as a treatment goal for wildfire resilience (Wildfire Task Force 2021). This is matched by the U.S. Forest Service, which has also identified 500,000 acres per year as their treatment goal.

## ES.5 Issues to be Resolved by the Lead Agency

The CEQA Guidelines, Section 15123(b)(3), require that an EIR contain a discussion of issues to be resolved. The GSFA Board of Directors (Board) must consider whether or not to approve the proposed project, or one of the project alternatives, and must further consider the terms and conditions of a public-private partnership agreement between GSFA and GSNR, including terms and conditions that implement environmental protections. GSFA will thereafter be required to consider approval of all sources of harvest residuals procured and used by GSNR, and all biomass-only thinning projects undertaken by GSNR.

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# 1 Introduction

## 1.1 Purpose and Intended Use of this EIR

Golden State Finance Authority (GSFA or Authority) serves as the lead agency for implementation of the Golden State Natural Resources Forest Resiliency Demonstration Project (project) and has prepared this Draft Environmental Impact Report (Draft EIR) to inform responsible agencies, trustee agencies, other interested public agencies including local Native American tribes, and the general public regarding the potential significant environmental effects resulting from project implementation. This Draft EIR was prepared in compliance with the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.), and the CEQA Guidelines (14 CCR 15000 et seq.).

As described in CEQA Guidelines Section 15121(a), an EIR is an informational document that assesses potential environmental impacts of a proposed project, as well as identifies mitigation measures and alternatives to a proposed project that could reduce or avoid adverse environmental impacts. As the CEQA lead agency for this project, the GSFA is required to consider the information in the EIR along with any other available information in deciding whether to approve the project entitlements requested. The basic requirements for an EIR include providing information that establishes the environmental setting (or project baseline), and identifying environmental impacts, mitigation measures, project alternatives, growth inducing impacts, and cumulative impacts. In a practical sense, an EIR functions as a method of fact-finding, allowing an applicant, the public, other public agencies, and agency staff an opportunity to collectively review and evaluate baseline conditions and project impacts through a process of full disclosure. Additionally, this EIR provides the primary source of environmental information for the lead agency to consider when exercising any permitting authority or approval power directly related to implementation of this project. It is not the intent of an EIR to recommend either approval or denial of a project.

Responsible agencies, including Lassen County, Tuolumne County, and the Port of Stockton will rely on this EIR when taking action on those components of the project within their jurisdiction. See Chapter 2 for further discussion of necessary entitlements and approvals for the project.

## 1.2 Project Background and Overview

GSFA is a governmental entity that has led numerous project financing efforts in California since its creation in 1993. GSFA and its affiliate, Rural County Representatives of California (RCRC), established Golden State Natural Resources (GSNR), a California benefit corporation and nonprofit organization, in 2019. GSNR was created for the purposes of implementing a robust forest resiliency initiative with a mission to enhance quality of life, public safety, economic development, and the environment in California. Specifically, the GSNR Forest Resiliency Demonstration Project, which is further described in Chapter 2, “Project Description,” would involve removal of high hazard fire fuels in California’s forests, manufacturing of pelletized fuel products at new processing facilities in rural California, and exportation of produced pellets to for use in energy generation in Europe and Asia. By transforming excess and unmarketable fire fuels into a marketable wood product, GSNR aims to create fire resilient landscapes and fire adaptive communities.

In October 2019, GFSA executed a 20-year Master Stewardship Agreement (MSA) with the US Forest Service (USFS) which provides for mutual benefit and interests between GSFA and the USFS for the purpose of achieving resilient

forests within US Forest Service Region 5 including 18 of the twenty national forests located in California. The MSA provides that GSFA may elect to have GSNR perform forest treatment work under the MSA on GSFA's behalf. The proposed project includes providing such authorization to GSNR, and establishing a framework for GSFA to approve individual Supplemental Project Agreements for specific forest treatment projects under the MSA, to be performed by GSNR. In addition to USFS national forest land, GSNR intends to obtain low value biomass from additional sources, such as state and private forests, Senate Bill 901 fire fuel reduction grant recipients, as well as Fire Safe Council and Resource Conservation District work, further reducing landfill impacts and reducing the need for the traditional burn piles and emissions to dispose of this biomass.

As described above, GSFA serves as lead agency for implementation of the project. The GSFA Board of Directors is comprised of forty elected California county supervisors, who have ultimate responsibility for approving and supervising the proposed project. The proposed project will be carried out jointly as a public-private partnership between GSFA and GSNR, with GSFA providing approval, supervision, and financing, and GSNR executing project operations. GSFA's responsibilities for the proposed project include:

- Creating GSNR as a nonprofit corporation, and appointing two members of its Board of Directors. (The other current directors are appointed by GSFA's affiliate, RCRC.)
- GSFA's Executive Director serves as President of GSNR, with executive responsibility for all of GSNR's operations. (All of GSNR's staffing is provided by GSFA and its affiliate, RCRC.)
- Subcontracting responsibilities under the MSA to GSNR through the public-private partnership agreement, establishing conditions for the exercise of those functions, and overseeing GSNR's performance.
- Approving Supplemental Project Agreements under the MSA, and subcontracting those treatment projects to GSNR, including establishing conditions for performance of that work and overseeing GSNR's activities.
- Providing startup funding to GSNR, consisting of an $11.75 million loan to GSNR (to fund feasibility studies and other predevelopment activities).
- Providing conduit financing for implementation of the Forest Resiliency Demonstration Project, through issuance of bonds.
- Approving all sources of harvest residuals procured and used by GSNR, and all biomass-only thinning projects undertaken by GSNR (as further described in Section 2.4).

The GSFA Board of Directors will determine whether the project proceeds, and under what conditions. In sum, GSFA is both the public member of the partnership that will carry out the proposed project, and the public agency with the greatest responsibility for supervising and approving the project as a whole, and therefore must act as lead agency for purposes of CEQA.

## 1.3 EIR Process

### Notice of Preparation

In accordance with CEQA Guidelines Section 15082, a Notice of Preparation (NOP) was circulated for public and agency review in November 2022. In response to comments and discussions with responsible agencies, a Revised Notice of Preparation was released in June 2023. The purpose of the NOP is to provide notification that an EIR for the proposed project is being prepared and to solicit guidance on the scope and content of the document. A summary of the substantial environmental comments received on the NOP is included in the Executive Summary,

as well as in the introduction of each technical section in Chapter 3. The NOP and comments received thereon are included in Appendix A to this EIR.

## Draft EIR and Public Review

This Draft EIR is being circulated for public review and comment for a period of 60 days. Please refer to the Notice of Availability for the comment deadline, locations where physical copies of the Draft EIR are available, and public meetings to receive comment on the Draft EIR.

Written comments may be sent to:

Golden State Finance Authority
Attn: GSNR DEIR Comment
1215 K Street, Suite 1650
Sacramento, California 95814
Email: gsnr@gsnrnet.org
Website: https://goldenstatenaturalresources.com/local-forest-resilience-projects/

The public can review the Draft EIR and supporting documents at the following address during normal business hours (Monday through Friday, 8 a.m. to 4 p.m.) or on the Authority's website at:

https://www.gsfahome.org/programs/ed/forest-resiliency.shtml

Golden State Finance Authority
1215 K Street, Suite 1650
Sacramento, California 95814

## Final EIR and EIR Certification

Upon completion of the Draft EIR public review period, a Final EIR will be prepared that will include written comments on the Draft EIR received during the public review period and the Authority's responses to those comments. The Final EIR will include any revisions to the Draft EIR made in response to agency or public comments, and may include additional information at the discretion of GSFA. Before GSFA can approve the project, it must first certify that the EIR has been completed in compliance with CEQA, that the Board of Directors has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of GSFA. The Board of Directors is also required to adopt Findings of Fact and a Statement of Overriding Considerations (for any significant and unavoidable impacts) explaining the decision to balance the benefits of the project against unavoidable environmental impacts if it approves the project (see also Public Resources Code Section 21081). When approving the project, GSFA shall adopt a Mitigation Monitoring / Reporting Program (MMRP) prepared in accordance with Section 21081.6 of the Public Resource Code.

## Type of EIR and EIR Adequacy

This EIR is a hybrid: it encompasses project-level environmental review of the "Wood Pellet Production" and "Transport to Market" phases of the project, while serving as a program EIR for the "Feedstock" phase (see *Make UC A Good Neighbor v. Regents of University of California* (2023) 88 Cal.App.5th 656.regarding the use of a program/project hybrid EIR). These phases are described in greater detail in Chapter 2, "Project Description".

The level of detail contained throughout this EIR is consistent with Section 15151 of the CEQA Guidelines, which states the following:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of the environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

With regard to the Feedstock phase, CEQA Guidelines Section 15168(a) notes that a program EIR is appropriate when activities can be characterized as part of one large project and are related either: (1) Geographically, (2) A logical parts in the chain of contemplated actions, (3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways. The overall program is described in this EIR, including the geographic area and the types of activities that may be undertaken. As described further below, as the project and site-specific details are developed for subsequent activities, they will be reviewed in light of this EIR.

## Use of EIR in Connection with Site-Specific Review of Vegetation Management and Feedstock Procurement Activities

As discussed above, the Feedstock phase of the project is, by its nature, a programmatic analysis. In accordance with CEQA Guidelines Section 15168(c) for later activities GSFA must evaluate the later activities associated with each subsequent feedstock project to determine whether such activities have been analyzed in this EIR. If GSFA finds that the impacts were analyzed in this EIR and no new or substantially more severe significant effects could occur or no new mitigation measures would be required for a subsequent treatment project, the project can be found to be within the scope of this EIR. In this circumstance, no additional CEQA documentation would need to be prepared or publicly circulated (CEQA Guidelines Section 15168[c][2] and [4]).

As discussed in greater detail in Section 2.4, a written checklist or similar document may be used to evaluate subsequent site specific activities. This documentation would provide the substantial evidence required to make a finding that such activities are “within the scope” of this EIR. If the later activity is approved, GSFA would file a Notice of Determination.

Under this CEQA compliance approach, a subsequent project must incorporate all project development features relevant to the proposed activity and all feasible mitigation measures from the EIR into the later activity, as needed, to address significant or potentially significant effects on the environment.

If a proposed subsequent project is not within the scope of this EIR, then GSFA may prepare additional environmental documentation that accompanies this EIR for CEQA compliance. If a later EIR is prepared, it could be limited in its scope to the new or substantially more severe significant impact and could require additional CEQA documentation, per CEQA Guidelines Sections 15162. 15163, and 15168. Pursuant to CEQA Guidelines Section 15168(d), a later negative declaration could be prepared if the new impact would be less than significant, or mitigated negative declaration could be prepared if the new impact could be clearly mitigated to less than

significant. If a new or substantially more severe significant effect could not be clearly mitigated to less than significant, an EIR would be prepared that would focus on the new or substantially more severe significant impact(s).

## 1.4 Scope of the Draft EIR

Based on the scope of the proposed project as described in the NOP and IS and comments received from the public agencies (see Appendix A), the following issues were determined to be potentially significant and are therefore addressed in Chapter 3, Environmental Impacts and Mitigation Measures, of this document:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services
- Transportation
- Utilities and Service Systems
- Wildfire

Other environmental issues, including agricultural resources (farmland) and mineral resources are discussed in Chapter 5, CEQA Considerations. It was determined during the scoping process that the proposed project would not have a significant effect on these resources.

This EIR addresses the cumulative environmental effects of the project in combination with other closely related past, present, and reasonably foreseeable probable future projects in the area. In compliance with CEQA Guidelines Section 15126.6, this EIR also describes and evaluates the comparative merits of a reasonable range of alternatives to the proposed project, including the required No Project Alternative, and also identifies the environmentally superior alternative. Further, this EIR describes alternatives that were considered but rejected by the lead agency as infeasible and explains the reasons why.

## 1.5 Organization of the Draft EIR

**Executive Summary**—Summarizes the elements of the project and the environmental impacts that could result from implementation of the proposed project and provides a table which lists impacts, describes proposed mitigation measures, and indicates the level of significance of impacts both before and after mitigation.

**Chapter 1, Introduction**—Provides an introduction and overview of the EIR process and describes the intended use of the EIR and the review process.

**Chapter 2, Project Description**—Provides a detailed description of the proposed project, including its location, background information, project history, project objectives, and technical characteristics.

**Chapter 3, Environmental Impacts and Mitigation Measures**—Describes the baseline environmental setting and provides an assessment of potential project impacts for each technical issue area presented. Each section is

divided into four sub-sections: Introduction, Environmental Setting, Regulatory Background, and Impacts and Mitigation Measures (project-specific and cumulative).

**Chapter 4, Project Alternatives**—Describes and compares the proposed project alternatives to the proposed project.

**Chapter 5, CEQA Considerations**—Provides information required by CEQA regarding impacts that would result from the proposed project, including a summary of cumulative impacts, secondary impacts including potential impacts resulting from growth inducement, and significant irreversible changes to the environment.

**Chapter 6, EIR Preparers**—Lists report authors who provided technical assistance in the preparation and review of the EIR.

**Appendices**—Includes various documents and data that support the analysis presented in the Draft EIR.

# 2 Project Description

The Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project) is a response to the growing severity of wildfires in the western United States, which has been exacerbated by hazardous excess fuel loads in forests, and the need to enhance economic activity in California's rural counties. The proposed project serves as an opportunity to help restore western forests, watersheds, and ecosystems to a more natural and resilient condition. Project components and operations will provide overall benefit to the region by sustainably procuring and processing excess biomass into a pelletized fuel source for renewable energy generation. This project description describes the proposed project as a whole, consisting of three basic components: The forest treatment and restoration activities ("Feedstock Acquisition"); the transportation and processing of the feedstock at two pellet production facilities, one in the Central Sierra Nevada foothills and one in Northern California ("Wood Pellet Production"); and the transportation of the finished product to a storage facility to be constructed at the Port of Stockton, California, for export to international markets ("Transport to Market").

## 2.1 Background

Golden State Finance Authority (GSFA), a California joint powers authority, is a governmental entity that has led numerous project financing efforts in California since its creation in 1993. GSFA and its affiliate, Rural County Representatives of California (RCRC), established Golden State Natural Resources (GSNR), a California public benefit corporation and nonprofit organization, in 2019. GSNR was created for the purposes of implementing a robust forest resiliency initiative with a mission to enhance quality of life, public safety, economic development, and the environment in California. Specifically, GSNR's proposed initiative would involve removal of fire fuels from forested lands located in and around California, manufacturing of pelletized fuel products at new production facilities in rural California, and exportation of produced pellets to for use in energy generation in Europe and Asia. By transforming excess and unmarketable fire fuels into a marketable wood product, GSNR aims to create fire resilient landscapes and fire adaptive communities (GSNR 2022).

While wildfires are a natural part of California's landscape, the fire season in California has generally been starting earlier and ending later with each passing year. Warmer spring and summer temperatures, reduced snowpack, insect infestation, and earlier spring snowmelt driven by climate change create longer and more intense dry seasons that increase moisture stress on vegetation and make forests more susceptible to severe wildfire (CAL FIRE 2021). Overgrown forests experiencing significant tree mortality have furthered the degradation of forest health and increased hazardous fuel loads, leading to catastrophic wildfires and environmental degradation, and contributing to the loss of life, property, and natural resources. Similar conditions are present in the adjoining forested regions of Oregon and Nevada.

The need to increase the pace and scale of wildfire fuel reductions treatments in this area is widely recognized by both the federal and state governments. For example, in August 2020, the State of California and the United States Forest Service, Pacific Southwest Region (Region 5) entered into an *Agreement for Shared Stewardship of California's Forest and Rangelands* which includes a commitment "to the following actions to advance shared stewardship opportunities":

> **"Treat One Million Acres per Year:** The Parties will scale up vegetation treatment to one million acres of forest and wildlands annually by 2025, committing to each sustainably treat 500,000 acres per year. Treatments will

follow a joint plan and will be driven by public safety and ecological goals including reducing wildfire impacts in high priority areas and maintaining or restoring healthy, resilient forests and rangelands."

In response to this issue, the proposed project will remove excess woody biomass from forested lands located in and around California to reduce the threat of catastrophic wildfires and environmental degradation. This excess woody biomass would then be transported to pellet production facilities. This complements efforts underway in several countries participating in the Paris Climate Accord, including Japan, Poland, and the United Kingdom, which are converting some industrial energy plants from coal to wood pellet energy generation (in some cases co-firing the pellets with coal, and in others relying entirely on wood pellets as part of their objective to reduce anthropomorphic carbon emissions and to meet the need for baseload renewable energy generation).

California has among the highest concentration of low- to no-value forest vegetation in the western United States. Additionally, California and its adjoining region have a significant geographic advantage for overseas transport to international markets in Asia since most U.S. wood pellet manufacturers are in the southeast portion of the country. The finished wood pellet product would be transported to contracted offtake markets, mainly targeting the international power market due to large and increasing demand for industrial wood pellets to meet climate change carbon reduction goals.

In October 2019, GSFA executed a 20-year Master Stewardship Agreement (MSA) with the U.S. Forest Service to provide for mutual benefit and mutual interests between GSFA and the USFS for the purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes 18 national forests located in California. The MSA provides that GSFA may elect to have GSNR perform forest treatment work under the MSA on GSFA's behalf. The proposed project includes providing such authorization to GSNR, and establishing a framework for GSFA to approve individual Supplemental Project Agreements for specific forest treatment projects under the MSA, to be performed by GSNR.

## 2.2 Project Objectives

The proposed project is designed to achieve all of the following objectives:

- Sustainably reduce excess fuel loads in high hazard landscapes at greatest risk of catastrophic wildfire.
- Reduce catastrophic wildfire risks associated with ladder fuels, crown fires, insect pathogens, and disease.
- Enhance ecological functions, watershed functions, wildlife habitat, biodiversity, and overall forest health and resilience by increasing tree spacing, reducing evapotranspiration water loss, reducing nutrient resource competition, improving the growth rates and health of larger and healthier tress, and increasing carbon sequestration and storage.
- Reduce environmental harms resulting from uncontrolled wildfires, including emissions of greenhouse gases and air pollutants.
- Facilitate opportunities to reintroduce traditional tribal and cultural forest management practices and prescribed burning to maintain healthy forest conditions.
- Reduce risk to first responders, residents, visitors, communities, and natural and manmade infrastructure from catastrophic wildfire.
- Reduce firefighting suppression costs, healthcare costs related to wildfire smoke, and impacts and losses to manmade infrastructure and communities.
- Protect California's high-value, iconic recreational resources, National and State Parks and other priceless natural resources from catastrophic wildfires.

- Offset the high costs of wildfire management activities by making productive use of low-value forest materials generated from those activities.
- Improve economic and community development and create jobs in historically overlooked and underinvested California communities.
- Support the development of new and emerging technologies that use biomass fuels to address climate change, such as Bioenergy with Carbon Capture and Storage (BECCS).

## 2.3 Project Overview

The proposed project will consist of three primary phases:

1. **Feedstock Acquisition.** Feedstock generally consists of the underutilized and unmarketable forest material used to produce industrial wood pellets. As described in greater detail in Section 2.4, feedstock will typically consist of low or negative value woody biomass, such as brush, small trees designated as undesirable ladder fuels, slash piles that would otherwise be open-burned, and dead or dying trees with little or negative value as timber. Feedstock may include otherwise marketable roundwood resulting from forest fuels reduction and restoration activities, subject to the conditions and criteria discussed in Section 2.4 below. Feedstock would be sourced from approved salvage, prescribed green tree thinning, fuel-reduction, community wildfire protection, or other forest resiliency projects in California and adjoining forests. Section 2.4 further describes the mandatory Project Design Features established for these projects, which set significant constraints upon these activities. Feedstock sources for the project fall into three categories: (1) "GSNR Biomass Only Thinning Projects" are wildfire fuel reduction operations undertaken by GSNR, or on GSNR's behalf, and which would not occur without GSNR's proposed project; (2) "Harvest Residuals" are residual biomass material resulting from timber harvest, vegetation management, and forest management operations undertaken by third-parties unaffiliated with GSNR and which would occur regardless of GSNR's proposed project; and (3) "Mill Residuals" are residual biomass materials, including residual chips, sawdust, planer shavings, bark and other byproducts, of commercial lumbermills operated by third-parties unaffiliated with GSNR. The feedstock is transported by truck from the forest or mill to the wood pellet production facility.
2. **Wood pellet production.** Feedstock is received at wood pellet production facilities located in the Central Sierra Nevada foothills (Tuolumne County) and Northern California (Lassen County) regions. In general, any feedstock received in roundwood form is processed through a debarker and chipper. The processed chips are conveyed to a radial stacker reclaimer where they will be combined with material that is received in residual (size reduced) form for the next processing phase. The bark from any roundwood is conveyed separately to a storage pile for use as fuel for the furnace used to heat the dryer. The wood chips are then screened for the appropriate size and transferred to the dryer. Chips that do not pass through the screens are directed to an array of hammer mills to be reduced to the appropriate size. The chips are then dried and can go through another stage of size reduction by way of hammer mills and are then sent through the pellet mill. The pellets are cooled to ambient air temperature and sent through a final screen, after which they are stored in silos awaiting loading for off-site transportation. Additional information regarding production facility design is set forth below and in subsequent chapters of this EIR, including mandatory Site Design Features established for these facilities.
3. **Transport to market.** The pellets are loaded onto railcars for transport to a dedicated, purpose-built export terminal at the Port of Stockton, California. At the terminal, the pellets are unloaded and stored in large domes, where they are continuously monitored while awaiting final ship load out. The domes feed covered

conveyors by gravity, which transport the pellets to a shiploader, where the pellets are loaded into dedicated cargo ships for delivery to international energy markets. Additional information regarding port facility design is set forth below and in subsequent chapters of this EIR, including mandatory Site Design Features established for this facility.

# 2.4 Feedstock Acquisition

Feedstock for manufacturing of wood pellets at GSNR's proposed pellet facilities will come from three sources, collectively referred to herein as "Sustainable Forest Management Projects": (1) "Harvest Residuals" are residual biomass material resulting from timber harvest, vegetation management, and forest management operations undertaken by third-parties unaffiliated with GSNR and which would occur regardless of GSNR's proposed project; (2) "GSNR Biomass Only Thinning Projects" are wildfire fuel reduction operations undertaken by GSNR, or on GSNR's behalf, and which would not occur without GSNR's proposed project; and (3) "Mill Residuals" are residual biomass materials, including residual chips, sawdust, planer shavings, bark and other byproducts, of commercial lumbermills operated by third-parties unaffiliated with GSNR.

## 2.4.1 Harvest Residuals

### General Description

Subject to the constraints set forth in this section, GSNR will procure and utilize residual biomass material resulting from timber harvest, vegetation management, and forest management operations undertaken within the geographic area depicted in Figures 2-1 and 2-2 (the “Working Area”) by third-parties unaffiliated with GSNR, for their own purposes, which would occur regardless of GSNR's proposed project. Among other limitations, GSNR will only accept "harvest residual" materials from timber harvest, vegetation management, and forest management operations that have been approved under NEPA, CEQA, or the California Forest Practices Act (or, for materials originating out-of-state, an equivalent law of that state). Material from private lands that have not obtained such an approval, sometimes referred to as "gate wood," would not be procured or used by the proposed project.

Currently, this material is often left in the forest to decay or disposed of by open burning. Each of these disposal methods can have significant adverse consequences, including wildfire ramifications and criteria pollutant and carbon emissions. In particular, harvest residuals left in the forest to decay can be the source of a higher fire hazard because they concentrate the dead fuel loading on the ground, increasing PM2.5 emissions and the risk of a crown fire. In the absence of a wildfire, these harvest residuals decompose slowly over time producing atmospheric methane and CO2 over the next 15-20 years. Open burning greatly reduces fuel loading and wildfire hazard, but creates uncontrolled criteria pollutant emissions, including PM2.5, as the piles are burned. Pile burning rarely completely consumes 100% of the piled material so the unburned component continues to decompose over time producing methane and CO2 emissions.

The third-party operations the generate Harvest Residuals generally include the following types of projects (undertaken by those third-parties, on their own initiative):

- **Commercial Timber Harvest Residuals.** Licensed Timber Operators and other forest contractors hired by a private landowner or federal timber purchaser cut and remove green or dead, dying, or diseased trees using sustainable silvicultural methodologies. Tree bole wood is removed in log form and transported to traditional forest products facilities such as sawmills and plywood plants. Feedstock procured by GSNR resulting from these

projects will be derived from limbs and tops of green trees and other bole wood that is unutilizable by traditional forest products facilities.

- **Pre-commercial Thinning Harvests.** These prescribed thinning operations selectively remove smaller, less healthy trees (16 inches DBH[1] or less) to increase the inter-tree spacing between the remaining larger and healthiest trees generally to improve overall forest health, growth, and carbon sequestration, and to increase resiliency to wildfire, insects, and diseases. Generally, 100% of the trees removed in these projects will be utilized as pellet feedstock. The equipment typically used for these projects will be tracked feller bunchers, rubber-tired grapple skidders, and a whole tree chipper that will convert the removed trees to chips and load them into a truck for delivery to GSNR's facility.
- **Fire, Insect, or Disease Salvage Harvests.** These operations selectively remove dead, diseased, or dying trees, generally in an emergency situation aimed at utilizing bole wood as higher value sawlogs or veneer before they are too decayed. Feedstock will generally be derived from bole wood that is too defective for local forest products facilities to use, or tree limbs and tops that are unutilizable for making lumber or veneer. Tree cutting and removal may be accomplished using tracked feller-bunchers or chain saws, rubber-tired grapple skidders, and processed using whole tree processors and whole tree chippers.
- **Removal of Slash Piles Slated for Open-Burning.** This type of operation removes slash piles, generally along roads left in the forest from previous forest management activities on private, state, or federal timberlands that have been slated for disposal through traditional open-burning. Feedstock is derived from chipping or grinding all woody material in the slash piles uncontaminated by soil, rock, and other non-woody material and loaded into large chip vans for delivery to GSNR's facility.
- **Hazardous Fuel Reduction Projects.** These projects are performed to reduce wildfire risk to forests, watersheds, wildlife habitat, communities, neighborhoods, or homes in Moderate, High and Very High Fire Hazard Severity Zones and in the Wildland-Urban Interface (WUI). They selectively thin the smaller (generally up to 16 inches DBH) trees to increase inter-tree spacing and remove brush that can act as a fire ladder that will allow a wildfire to move from ground level to the crowns of the larger trees making the wildfire much more difficult to control. Limbs on larger remaining trees will often be pruned 8-10' above the ground to further reduce the risk of a crown fire and make a wildfire easier to suppress. Feedstock obtained from these projects is generally derived from the small trees, limbs, and brush that are removed. Equipment that is used to cut and remove feedstock are chain saws and small rubber-tired or rubber-tracked tractors, and feedstock is processed through a whole tree chipper or large wood-grinding machine and loaded into chip vans to be trucked to a GSNR facility.
- **Construction of Shaded Fuel Breaks.** These operations generally have a linear footprint that may be 100 to 500 feet wide located along a property line, strategic ridge line, or critical access road to allow access by emergency personnel to be used to fight an approaching wildfire. Shaded fuel breaks are created by removing small trees and brush that can act as ladder fuels and substantially increasing spacing between remaining trees using mastication equipment. Limbs on larger remaining trees will often be pruned 8 to 10 feet above the ground to further reduce the risk of a crown fire and provide a safety zone for fire managers to safely make a stand against an oncoming wildfire. Feedstock obtained from these projects is derived from the brush, small trees, tops and limbs and other bole wood that is unmerchantable and chipped into large chip vans using a whole tree chipper or grinder and removed to GSNR's facility..
- **Reforestation Site Preparation.** Reforestation site preparation activities remove dead hazardous fuels loading to desired levels following wildfires, post-fire salvage, or other forest treatment activities to allow for reforestation. Generally, all dead trees in severely burned areas, except snags specifically left for wildlife

[1] DBH = Diameter at Breast Height.

habitat, are cut and removed to reduce fuel loading prior to replanting trees to establish a new forest. Roundwood feedstock obtained from these projects will be loaded onto log trucks and removed to GSNR's facility for further processing. Dead trees will generally be cut with tracked feller bunchers or by hand with chain saws, removed to a landing using rubber-tired skidders, and further processed by hand before being loaded on log trucks. Other feedstock obtained from these projects is derived from the small trees, limbs, and brush that are removed and chipped into large chip vans using a whole tree chipper or grinder and removed to GSNR's facility.

## Approval and Monitoring of Harvest Residual Feedstock Sources

1. General Requirements
   a. All sources of harvest residuals must be approved and under contract with GSNR prior to delivery of feedstock to GSNR. (The "source of harvest residuals" is typically the public or private forest landowner from whose property the materials originated, but may alternatively be a public agency or nonprofit organization which conducted treatment activities that generated the residuals.) The contract shall expressly require compliance with the provisions of this section and shall prescribe remedies for violation (subject to any conditions or restrictions applicable to federal land management agencies).
   b. Each source of harvest residuals must provide, at a minimum, a copy of the applicable environmental document (i.e., CEQA, NEPA, or Timber Harvest Plan document, or sister state equivalent) for the operations that generated the residuals. (For harvest residuals originating on federal lands, GSNR may accept the representation of the applicable federal land management agency that the material resulted from a project conducted in compliance with all applicable environmental laws to satisfy this requirement.)
   c. A source of harvest residuals that is (1) a public or tribal agency, (2) a fire safe council or similar nonprofit organization conducting forest treatment activities, or (3) the owner of 200,000 or more acres of timberland must submit a certification under penalty of perjury that the harvest residuals resulted from operations conducted within the scope and boundaries of, and in compliance with, the above-described environmental document, and otherwise in compliance with the provisions of this section. (For harvest residuals originating on federal lands, GSNR may accept the representation of the applicable federal land management agency that the material resulted from a project meeting these conditions to satisfy this requirement.)
   d. Any other source of harvest residuals must submit both the certification noted above and photographic or other evidence documenting the location from which the harvest residuals originated, and demonstrating that the harvest residuals comply with the provisions of this section.
   e. Each source of harvest residuals must consent to allow GSNR or its representatives to access and inspect the location(s) from which the harvest residuals originated both before and for a reasonable time after delivery of the feedstock, and must agree to cooperate with GSNR's audit and inspection program (subject to any conditions or restrictions applicable to federal land management agencies).
   f. Each delivery of feedstock material to GSNR shall be accompanied by chain of custody documentation as specified by the Executive Director of Golden State Finance Authority or their designee. GSNR shall employ, or cause to be employed, trained staff responsible for accepting feedstock deliveries to review this documentation and ensure compliance with this section.

2. Approval Process
    a. Prior to contracting with a source of harvest residuals or taking delivery of feedstock, GSNR shall submit the complete package of documents as described above to the Executive Director of Golden State Finance Authority or their designee for approval.
    b. The Executive Director or designee may approve the source of harvest residuals if they determine that the harvest residuals and their source comply with the requirements of this section and are otherwise consistent with the Project Objectives.
    c. GSFA shall use a written checklist or similar device prepared in accordance with CEQA Guidelines Section 15168(c) to document the evaluation of the site and GSNR's activities to determine whether the environmental effects are within the scope of this EIR.
    d. The Executive Director or designee shall submit an annual public report to the Golden State Finance Authority Board of Directors regarding approved sources of harvest residuals.
3. Audits and Inspections
    a. For sources of harvest residuals described in Paragraph 1.D, GSNR or its representatives shall inspect the location(s) from which the harvest residuals both before and after delivery of feedstock to verify compliance with the provisions of this section.
    b. For all other sources of harvest residuals, GSNR shall establish and implement a program of random audits and inspections to verify compliance with the provisions of this section. The program shall ensure that each year, no less than thirty percent (30%) of feedstock deliveries are subject to a "desk audit" review of the source's records pertaining to the harvest residuals, and that no less than ten percent (10%) of harvest residual source locations are physically inspected by GSNR or its representatives either before or after delivery of feedstock.
    c. GSNR shall make an annual report regarding the results of audits and inspections conducted under this section to the Executive Director of Golden State Finance Authority or their designee.

## Harvest Residual Collection and Transportation

Harvest Residual material may come in the form of either roundwood or chips, depending upon the type of third-party operation from which it resulted. GSNR's activities to obtain Harvest Residual feedstock will typically commence after the third-party operations within a forested area have been completed, and will typically include the following:

- Large-diameter residuals (i.e., roundwood) would be loaded from the pile location at a forest landing onto log trucks (typical capacity of 26 tons) with a loader (heel boom). The log trucks would then transport the material to the wood pellet production facility.
- Small-diameter residuals (typically less than 6-8 inch diameter) would be loaded from the pile location at a forest landing into a chipper with a loader (heel boom). The resulting wood chips would then be loaded onto haul trucks (typical capacity of 25 tons), and transported to the wood pellet production facility.

Harvest Residuals are anticipated to provide approximately 69 percent of the total feedstock utilized at the proposed Tuolumne facility, and approximately 47 percent of the total feedstock utilized at the proposed Lassen facility.

Acquisition of harvest residuals will be subject to the following minimum constraints. In addition to the constraints and Project Design Features (PDFs) set forth in this section, other Chapters of this EIR identify mitigation measures to further reduce potentially significant environmental impacts. Additionally, some harvest residual acquisition

activities may be subject to existing regulatory requirements or other standards that cover the same subject matter as one or more constraints or PDFs. Where this occurs, whichever measure has the strictest environmental protection requirements shall be applied.

## General Limitations

GSNR's procurement of Harvest Residuals will be subject to all of the following constraints:

- GSNR will only accept "harvest residual" materials (in any form) from timber harvest, vegetation management, and forest management operations conducted within the Working Area.
- GSNR will not accept "harvest residual" materials (in any form) from operations that involve the conversion of forest land to non-forest use.
- GSNR will only accept "harvest residual" materials (in any form) from timber harvest, vegetation management, and forest management operations within California that were subject to determination under NEPA, CEQA, or the Forest Practices Act.
- GSNR's activities to obtain Harvest Residual feedstock (i.e., from the location(s) in which it was deposited by the third-party) will comply with all applicable laws and all conditions and mitigation measures adopted for the third-party timber harvest, vegetation management, or forest management operations that generated the Harvest Residuals.
- GSNR will only accept "harvest residual" material from out-of-state timber harvest, vegetation management, and forest management operations that are subject to determination under NEPA or under a law of that state requiring preparation of a document containing essentially the same points of analysis as NEPA.
- For both in-state and out-of-state timber harvest, vegetation management, and forest management operations, the environmental review for the operation and applicable regulations must have included assurances of all of the following:
  - All State and Federal environmental laws are observed.
  - The timber harvest, vegetation management, or forest management operation is legally permitted and received an approved environmental determination (under CEQA, NEPA, the Forest Practices Act, or equivalent law of another state) in compliance with all applicable public notice and comment requirements.
  - The timber harvest, vegetation management, or forest management operation has a well-described silvicultural treatment that includes regeneration and practices that protect the forest from insects and disease.
  - Biological resources are recognized and any impacts fully mitigated to the extent feasible – including wildlife habitat and late successional forest protection, plant diversity (including threatened and endangered), aquatics, protection of endangered and sensitive species and their habitat
  - Water quality and riparian vegetation is protected and maintained and any impacts fully mitigated to the extent feasible. Sensitive watersheds have been designated. Roads and landings have been designed to protect water quality. Cumulative watershed effects have been analyzed and mitigated.
  - Soil resources are protected and maintained and any impacts fully mitigated to the extent feasible.
  - Air quality is protected and maintained and any impacts fully mitigated to the extent feasible.
  - Archaeological, historical and tribal cultural resources are protected, and any impacts fully mitigated to the extent feasible, and local tribes have been given sufficient opportunity to provide input.

  - The project area is managed to minimize wildfire risks and offset climate change effects by maximizing carbon sequestration rates and minimizing carbon emissions to the extent feasible.
- GSNR will not remove materials from federally designated wilderness areas, federally designated Wild and Scenic Rivers, or areas protected under the California Wild and Scenic Rivers Act.
- GSNR will not remove materials from Roadless Areas subject to the 2001 Roadless Rule (36 CFR 294).
- GSNR will not remove materials from areas with slope greater than 75% (37 degrees).
- GSNR will not remove materials from riparian areas – i.e., areas within 75' of a perennial stream or body of water.

Additionally, where feasible, GSNR will prioritize acquisition of Harvest Residuals based upon the following considerations:

- GSNR will prioritize removing Harvest Residual materials from forested lands that cause or threaten substantial increased risk of the occurrence or severity of wildfire.
- GSNR will prioritize removing Harvest Residual materials from forested lands whose decay will cause substantial carbon emissions.
- GSNR will prioritize removing Harvest Residual material from forested lands that are designated by a public agency as having elevated fire risk (such as High or Very High Fire Hazard Severity Zones) or are otherwise designated by a public agency as Wildland Urban Interface (WUI) areas.
- GSNR will prioritize removing Harvest Residual material from forested lands that have previously been heavily burned in catastrophic wildfires for the purpose of reducing fuel loading prior to reforestation activities.

### Harvest Residual Removal and Transportation Project Design Features

All of GSNR's activities to obtain Harvest Residual feedstock (i.e., from the location(s) in which it was deposited by the third-party) will comply with all applicable laws and regulations and will incorporate the following project design features (PDFs), described below in Section 2.4.2, that will be implemented to the extent applicable to avoid or minimize environmental impacts from the activities under GSNR's control:

> PDF-ADMIN-3, PDF-AQ-1, PDF-AQ-2, PDF-CUL-8, PDF-CUL-9, PDF-BIO-2, PDF-BIO-3, PDF-BIO-4, PDF-BIO-8, PDF-HAZ-1, PDF-HAZ-2, PDF-HAZ-4, PDF-NOI-1, PDF-NOI-2, PDF-NOI-3, PDF-NOI-4, PDF-NOI-5, PDF-NOI-6, PDF-REC-1, PDF-REC-2, PDF-REC-3, PDF-TRF-1.

The effect of these PDFs on the existence and significance of potential environmental impacts is discussed within the respective impact chapters of this Environmental Impact Report.

## 2.4.2 GSNR Biomass Only Thinning Projects

"GSNR Biomass Only Thinning Projects" are wildfire fuel reduction operations undertaken by GSNR, or on GSNR's behalf, which would not occur without GSNR's proposed project. Subject to the constraints set forth in this section. GSNR will perform, or cause to be performed, vegetation management activities on forested lands designed to reduce the risk and severity of wildfire occurrence. The goal of fuel treatment is not to remove all vegetation, but to minimize the potential for ignitions, crown fires, and extreme fire behavior by reducing fuel loads and managing the structure, composition, and spacing (horizontal and vertical) of retained vegetation.

The wildfire fuel reduction operations undertaken by GSNR will take place within the geographic area depicted in Figures 2-1 and 2-2 (the "Working Area"), and will generally include the following types of projects:

- **Hazardous Fuel Reduction Projects.** These projects are performed to reduce wildfire risk to forests, watersheds, wildlife habitat, communities, neighborhoods, or homes in Moderate, High and Very High Fire Hazard Severity Zones and in the Wildland-Urban Interface (WUI). They selectively thin vegetation (primarily smaller trees up to 16 inches DBH) to increase inter-tree spacing and remove brush that can act as a fire ladder that will allow a wildfire to move from ground level to the crowns of the larger trees making the wildfire much more difficult to control. Limbs on larger remaining trees will often be pruned 8-10' above the ground to further reduce the risk of a crown fire and make a wildfire easier to suppress. Feedstock obtained from these projects is generally derived from the small trees, limbs, and brush that are removed.
- **Construction of Shaded Fuel Breaks. These** operations generally have a linear footprint that may be 100 to 500 feet wide located along a property line, strategic ridge line, or critical access road to allow access by emergency personnel to be used to fight an approaching wildfire. Shaded fuel breaks are created by removing small trees and brush that can act as ladder fuels and substantially increasing spacing between remaining trees using mastication equipment. Limbs on larger remaining trees will often be pruned 8 to 10 feet above the ground to further reduce the risk of a crown fire and provide a safety zone for fire managers to safely make a stand against an oncoming wildfire. Feedstock obtained from these projects is derived from the brush, small trees, tops and limbs and other bole wood that is unmerchantable..
- **Reforestation Site Preparation.** Reforestation site preparation activities remove dead hazardous fuels loading to desired levels following wildfires, post-fire salvage, or other forest treatment activities to allow for reforestation. Generally, all dead trees in severely burned areas, except snags specifically left for wildlife habitat, are cut and removed to reduce fuel loading prior to replanting trees to establish a new forest.
- **Fire, Insect, or Disease Salvage Harvests.** These types of operations are described in greater detail in Section 2.4.1.

GSNR Biomass Only Thinning Projects are expected to range from 10 to 2,000 acres each, and will generally consist of the following activities:

**Mechanical Treatment.** Mechanical treatment is effective at removing dense stands of vegetation and is typically used in shrub- and tree-dominated vegetation communities. Mechanical vegetation treatment involves the use of heavy motorized equipment, such as feller-bunchers, specially designed to cut, tear, uproot, crush, compact, or chop target vegetation. (Feller-bunchers are tracked vehicles with a self-leveling cab that mechanically grasps the standing tree, cuts it with a hydraulically powered chain saw, and arranges cut trees in bunches to facilitate dragging the tree out of the forest (skidding).) Felled feedstock material is then removed to a forest landing using rubber-tired skidders, where would be loaded into a chipper with a loader (heel boom). The resulting wood chips would then be loaded onto haul trucks (typical capacity of 25 tons), and transported to the wood pellet production facility.

**Manual Treatment.** Manual treatments are typically used in developed, sensitive or hard to access areas, or for small-scale projects. Manual treatment would involve the use of hand tools and hand-operated power tools (such as chain saws) to cut, clear, or prune herbaceous and woody species. Felled feedstock material is then removed to a forest landing using rubber-tired skidders, where would be loaded into a chipper with a loader (heel boom). The resulting wood chips would then be loaded onto haul trucks (typical capacity of 25 tons), and transported to the wood pellet production facility.

**Site Access and Preparation.** Each GSNR Biomass Only Thinning Project may include up to one mile of low standard (i.e., unpaved) road construction to access the project site, which could include one or more stream crossings. These projects will typically also require preparation of forest landings as locations to sort, store, and chip cut trees, and load haul trucks.

GSNR Biomass Only Thinning Projects will be scheduled based on the following considerations:

- Normal Operating Season - Forest operations will generally be conducted between April 1 through November 15 when soil conditions are dry enough for heavy equipment operations to take place without long-term damage to forest soils and road systems. It is anticipated that approximately 90% of GSNR's feedstock will be acquired during the normal operating season.
- Winter Period Operations – Some forest operations may take place between November 16 and March 31 (the "Winter Period") during extended dry periods provided that a Registered Professional Forester (RPF) or U.S. Forest Service Resource Specialist has provided a Winter Operating Plan that addresses limitations that will be placed on certain activities such as skid trail construction/maintenance, or watercourse crossings, based on ground conditions (soil moisture condition or frozen soil), form of precipitation (rain or snow), operations on unstable areas, required erosion control facilities, etc.). The Winter Operating Plan will also ensure that roads, landings, watercourse crossings, and skid trails can only be constructed or operated on during dry, rainless periods, or frozen soil conditions with snow covering, where necessary to avoid erosion or damage to the road surface. In addition, there is a requirement that erosion control structures be installed on skid trails when there is a significant chance of rain the following day and prior to weekends.
- Fire Hazard Shutdowns – Tree falling and heavy equipment operations between April 1 and November 15 may be curtailed or limited during Red Flag, or dry and windy weather conditions or during periods when there are active wildfires in the area.
- Limited Operating Periods (LOPs) for T&E Species – In many areas, forest operations will be curtailed for several months each year to keep equipment operations from negatively impacting Sensitive or Threatened or Endangered bird, mammal, or amphibian nesting or egg laying seasons or Threatened or Endangered plant blooming periods. The most common LOPs are for northern and spotted owls (March 1 to August 15), goshawks (February 15 to September 15), Yosemite toad (October 1 to May 15) , red or yellow-legged frogs, Bald Eagles, Great Horned owls, and certain flowering plants.

It is anticipated that GSNR Biomass Only Thinning Projects will treat approximately 85,779 acres of forested land annually on average once the proposed project is fully operational (see Chapter 3.7, Greenhouse Gas Emissions). These activities are anticipated to provide approximately 30 percent of the total feedstock utilized at the proposed Tuolumne facility, and approximately 52 percent of the total feedstock utilized at the proposed Lassen facility.

## Selection and Approval of GSNR Biomass Only Thinning Projects

GSNR Biomass Only Thinning Projects will be selected, designed, and approved through the following public process:

1. Project Identification
    a. GSNR will coordinate with the United States Forest Service and other public, private, and tribal forest landowners to identify potential hazardous fuel reduction projects, shaded fuel breaks, reforestation site preparation projects, and fire, insect, or disease salvage harvests on their respective lands. This initial identification will be based on several parameters including the following:
        - Location and accessibility of the site;

- Characteristics of the site such as size; distribution, density, life cycle, and life stage during which plants are most affected by treatment; soil characteristics; weather conditions; and proximity to sensitive areas;
- Topography, slope, and aspect of the site;
- Ability and willingness of land management agency or landowner to maintain treated area;
- Effectiveness of the treatment in achieving desired fuel conditions and other applicable CalVTP objectives and follow-up maintenance requirements;
- Cost of the treatment methods and available funding;
- Potential for environmental effects that were not examined in this program EIR.
- Objectives for the site;
- Historic and current conditions;
- Opportunities to preserve desirable vegetation and wildlife habitat;
- Success of past treatments, or treatments conducted under similar conditions;
- Recommendations by local experts and input from local community;
- Primary land use (e.g., WUI, forestry, range, open space);
- Compliance with the requirements and constraints set forth in this section; and
- Overall consistency with the Project Objectives set forth in Section 2.2.

b. GSNR will prioritize all of the following in the selection process, where feasible:

- Removing fire fuels from forested lands that cause or threaten substantial increased risk of the occurrence or severity of wildfire.
- Removing biomass materials from forested lands whose decay will cause substantial carbon emissions.
- Removing fire fuels from forested lands that are designated by a public agency as having elevated fire risk (such as High or Very High Fire Hazard Severity Zones) or are otherwise designated by a public agency as Wildland Urban Interface (WUI) areas.
- Removing fire fuels from forested lands that have previously been heavily burned in catastrophic wildfires for the purpose of reducing fuel loading prior to reforestation activities.

2. Project Design

a. Once potential projects have been identified, GSNR will employ or contract with professional foresters and other qualified resource specialists to develop an appropriate silvicultural treatment prescription consistent with the requirements and constraints of this section, in coordination with the applicable land management agency or landowner. This will include preparation of drafts of necessary regulatory/approval documentation (e.g., timber harvest plan, NEPA documentation and decision memos, etc.)

3. Project Review and Approval

a. GSNR will then submit the complete package of documents regarding the proposed project, as described above, to the Executive Director of Golden State Finance Authority or their designee for approval.

b. GSFA shall prepare a Project Specific Analysis (PSA) for each GSNR Biomass Only Thinning Project. The purpose of the PSA is to evaluate the proposed project site and treatment activities to determine whether the environmental effects of these activities are addressed within the scope of this program EIR, consistent with Section 15168 of the CEQA Guidelines. The PSA shall also determine that all applicable PDFs and mitigation measures identified in this EIR have been incorporated into the project,

and whether additional mitigation would be necessary. If it is determined that the proposed treatment is within the scope of this EIR, then no additional CEQA documentation would be required for GSFA's approval (i.e., additional EIR, negative declaration, or MND). The PSA shall provide the substantial evidence to support a determination that the proposed treatment is within the scope. If it is determined that the proposed treatment includes activities that may result in one or more new significant effect(s) not addressed in this EIR or a substantial increase in the severity of significant impacts addressed in the EIR, the following actions may be taken:

- The proposed project may be changed to avoid the potential significant effect or substantial increase in severity.
- The proposed project may be disapproved by GSFA.
- Additional CEQA analysis in the form of an MND or supplemental or subsequent EIR focused on the new or substantially more severe significant environmental effect may be conducted to address the effect and identify any feasible mitigation measures.

c. The Executive Director or designee may approve a GSNR Biomass Only Thinning Project if they determine that the proposed project complies with the requirements of this section and is otherwise consistent with the Project Objectives. If the GSNR Biomass Only Thinning Project is approved, GSFA would file a Notice of Determination.

d. The Executive Director or designee shall submit an annual public report to the Golden State Finance Authority Board of Directors regarding approved GSNR Biomass Only Thinning Projects.

4. Project Permitting and Implementation
   a. GSNR will submit any necessary applications for permits or regulatory approvals, and will coordinate with regulatory and land management agencies to obtain any necessary review or approval for the proposed project.
   b. GSNR will engage qualified contractors to perform the approved treatment activities. The contracts shall expressly require compliance with the provisions of this section and shall prescribe remedies for violation.
5. Project Oversight
   a. At a minimum, GSNR or its representatives shall inspect the project site both before and after treatment activities are conducted to verify compliance with the provisions of this section, and shall require the contractor to submit records demonstrating compliance with these provisions and any applicable regulations and permit conditions.
   b. Each delivery of feedstock from a GSNR Biomass Only Thinning Project shall be accompanied by chain of custody documentation as specified by the Executive Director of Golden State Finance Authority or their designee. GSNR shall employ, or cause to be employed, trained staff responsible for accepting feedstock deliveries to review this documentation and ensure compliance with this section.
   c. GSNR shall make an annual report regarding its inspections and oversight of contractors to the Executive Director of Golden State Finance Authority or their designee.

## GSNR Biomass Only Thinning Project Requirements

GSNR Biomass Only Thinning Projects will be subject to the following minimum constraints. In addition to the constraints and Project Design Features (PDFs) set forth in this section, other Chapters of this EIR identify mitigation measures to further reduce potentially significant environmental impacts. Additionally, some GSNR Biomass Only Thinning Projects may be subject to existing regulatory requirements or other standards that cover the same subject

matter as one or more constraints or PDFs. **Where this occurs, whichever measure has the strictest environmental protection requirements shall be applied.**

### General Limitations

GSNR Biomass Only Thinning Projects will be subject to all of the following constraints:

- All GSNR Biomass Only Thinning Projects will take place within the Working Area, and will comply with all applicable laws and regulations.
- GSNR Biomass Only Thinning Projects shall not involve the conversion of forest land to non-forest use.
- GSNR Biomass Only Thinning Projects shall not involve clearcutting, as that term is defined in Sections 913.1, 933.1, and 953.1 of Title 14 of the California Code of Regulations, except in the case of Fire, Insect, or Disease Salvage operations, where a registered professional forester, qualified biologist, [2] or qualified botanist[3] determines that the removed trees are unlikely to survive due to damage from the fire, insects, or disease.
- GSNR Biomass Only Thinning Projects shall not occur within federally designated wilderness areas federally designated Wild and Scenic Rivers, or areas protected under the California Wild and Scenic Rivers Act.
- GSNR Biomass Only Thinning Projects shall not occur within Roadless Areas subject to the 2001 Roadless Rule (36 CFR 294).
- GSNR Biomass Only Thinning Projects shall not occur within Spotted Owl Protected Activity Centers.
- Wildfire fuel reduction operations will not take place within riparian areas – i.e., areas within 75' of a perennial stream or body of water.
- No GSNR Biomass Only Thinning Project shall require more than one mile of low standard road construction (as that term is used in 36 C.F.R. § 220.6).
- GSNR Biomass Only Thinning Projects shall not involve any activities where the capability of forests to produce a range of wood and non-wood forest products and services on a sustainable basis is not maintained or harvesting levels exceed a rate that can be sustained in the long term.
- GSNR Biomass Only Thinning Projects shall not involve any activities where forest management does not contribute to the maintenance, conservation or enhancement of biodiversity on landscape, ecosystem, species or genetic levels.
- GSNR Biomass Only Thinning Projects shall not involve activities where ecologically important forest areas are not identified, protected, conserved or set aside.

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[2] A qualified biologist is an individual who individual who holds a degree from an accredited university in wildlife biology, botany, ecology, forestry, or other similar field from an accredited university and meets the following requirements: 1) knowledgeable about relevant species life histories and ecology, 2) able to correctly identify relevant species and their habitat, 3) experience conducting field surveys of relevant species or resources, 4) knowledgeable about relevant survey protocols, 5) familiarity with federal, state, and relevant local regulations related to special-status species, and 6) experience with CDFW's California Natural Diversity Database (CNDDB) and Biogeographic Information and Observation System (BIOS).

[3] A qualified botanist is an individual who holds a degree from an accredited university in wildlife biology, botany, ecology, forestry, or other similar field from an accredited university and meets the following requirements: 1) knowledgeable about plant taxonomy, 2) familiar with plants of the relevant region, including special-status plants and sensitive natural communities, 3) experience conducting botanical field surveys in accordance with the most current and relevant agency protocols and guidelines (e.g., CDFW 2018, USFWS 2000, or CNPS 1983) or experience conducting such surveys under the direction of an experienced botanical field surveyor, 4) experience with the California Manual of Vegetation (CNPS 2023a), and 5) familiarity with federal, state, and relevant local regulations related to plants.

- Every GSNR Biomass Only Thinning Project shall have a well-described silvicultural treatment that includes regeneration and practices that enhance resiliency of the residual forest to excessive damage from fire, drought, insects, and disease. All silvicultural prescriptions shall be reviewed and approved by a Certified Silviculturist.[4]
- GSNR Biomass Only Thinning Projects occurring outside the State of California shall undergo environmental review under NEPA or under a law of that state requiring preparation of a document containing essentially the same points of analysis as NEPA.

## Mandatory Treatment Prescription Criteria

- No tree larger than 30" DBH shall be removed, except in the case of Fire, Insect, or Disease Salvage operations, where a registered professional forester, qualified biologist, or qualified botanist determines that the tree is unlikely to survive due to damage from the fire, insects, or disease, or where necessary to abate a safety hazard or for operability, such as creating landings. When necessary to remove a larger tree for operability, a qualified biologist shall be consulted prior to implementation.
- Minimum basal area retention of 70 square feet (averaged across the stand), except as part of a Shaded Fuel Break.
- No blue oak, tan oak, Pacific Madrone, valley oaks, , cottonwood, white bark pine, coastal redwood trees, or other heritage trees shall be removed. (A heritage tree is a large individual tree determined by GSNR, or by a federal, state, or local agency with jurisdiction, in its discretion and supported by substantial evidence, to possess unique value, age, rarity, and/or size, as well as aesthetic, botanical, ecological, and historical value.)
- Trees and shrubs shall be evaluated for vertical and horizontal spacing; remove unhealthy, structurally unsound or highly flammable trees that are likely to torch and distribute embers; and remove short understory trees. Criteria for tree removal would include consideration of tree health, structure, height, potential for failure, flammability/fire hazard, high fuel volume production of small diameter fuels, and competition with other trees (including for water, space, and light). Dead, unhealthy, and structurally unsound trees would be removed, as would trees prone to torching or burning with high fire intensity.
- Criteria for retention of trees include fuel characteristics (flammability, fuel volume, amount of dead material), consideration of ability to slow spreading of invasive species and surface fuels, protection of understory, encouragement of nesting and improvement of flight patterns of raptors, erosion prevention, and cost of removal. Near roads, trails, and buildings, lower limbs of trees would generally be pruned and understory vegetation shortened.
- In the case of fire salvage, the largest snags shall be left uncut for cavity nesting wildlife and to eventually contribute to the woody biomass component of the forest soil, in accordance with applicable regulations and practice rules.

## Project Design Features

All GSNR Biomass Only Thinning Projects will include a number of project design features (PDFs) that will be implemented to avoid or minimize environmental impacts. The effect of these PDFs on the existence and significance of potential environmental impacts is discussed within the respective impact chapters of this Environmental Impact Report..

[4] A certified silviculturist is an individual trained in the growth, care, and reestablishment of trees-describing the types of trees to be planted and the techniques to be used to improve a timber stand on national forest land or other forested land.

### Administrative

- PDF-ADMIN-1: The boundaries of the treatment area and protected resources shall be clearly defined on maps for the treatment area and with highly-visible flagging or clear, existing landscape demarcations (e.g., edge of a roadway) prior to beginning any treatment to avoid disturbing the resource. "Protected Resources" refers to environmentally sensitive places within or adjacent to the treatment areas that would be avoided or protected to the extent feasible during planned treatment activities to sustain their natural qualities and processes. This work will be performed by a qualified specialist for the specific resource (e.g., qualified RPF or biologist).
- PDF-ADMIN-2: The treatment shall be designed and implemented in a manner that is consistent with applicable local plans (e.g., Forest Plans, general plans, Community Wildfire Protection Plans, CAL FIRE Unit Fire Plans), policies, and ordinances to the extent the project is subject to them.
- PDF-ADMIN-3: If trash receptacles are used on-site, fully covered trash receptacles with secure lids (wildlife proof) will be used to contain all food, food scraps, food wrappers, beverages, and other worker generated miscellaneous trash. Remove all temporary non-biodegradable flagging, trash, debris, and barriers from the project site upon completion of project activities.
- PDF-ADMIN-4: Vegetation treatments will not occur during extreme fire danger conditions such as red flag warnings, as posted by the local CAL FIRE unit or National Weather Service. Fire danger shall be specifically determined before the start of each work day, and GSNR may require that operations be limited or ceased to mitigate wildfire risk even without a red flag warning. In addition, during the dry season, a ground inspection for fire will occur within 2 hours of felling, yarding, and mechanical loading activities ceasing each. The person conducting the inspection shall have adequate communication available for prompt reporting of any fire that may be detected.

### Aesthetics

- PDF-AES-1: Vegetation adjacent to the viewshed of public trails, parks, recreation areas, and roadways will be thinned and feathered to break up or screen linear edges of the clearing and mimic forms of natural clearings as reasonable or appropriate for vegetation conditions. In general, thinning and feathering in irregular patches of varying densities, as well as a gradation of tall to short vegetation at the clearing edge, will achieve a natural transitional appearance. The contrast of a distinct clearing edge will be faded into this transitional band.
- PDF-AES-2: All treatment-related materials, including vehicles, vegetation treatment debris, and equipment, will be stored outside of the viewshed of public trails, parks, recreation areas, and roadways to the extent feasible.
- PDF-AES-3: Sufficient vegetation shall be preserved within, at the edge of, or adjacent to treatment areas to screen views from public trails, parks, recreation areas, and roadways as reasonable or appropriate for vegetation conditions.

### Air Quality

- PDF-AQ-1: All treatment activities will comply with the applicable air quality requirements of air districts within whose jurisdiction the project is located.
- PDF-AQ-2: To minimize dust during treatment activities, the following measures will be implemented:
  - Limit the speed of vehicles and equipment traveling on unpaved areas to 15 miles per hour to reduce fugitive dust emissions.

  - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved roads) will be maintained using water or another CARB-approved non-toxic dust control agent as necessary to avoid particulate emissions that may "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property," per Health and Safety Code Section 41700.
  - Remove visible dust, silt, or mud tracked-out on to public paved roadways where sufficient water supplies and access to water is available.
  - Suspend ground-disturbing treatment activities, including land clearing and bulldozer lines, when there is visible dust transport (particulate pollution) outside the treatment boundary, if the particulate emissions may "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property," per Health and Safety Code Section 41700.
- PDF-AQ-3: Ground-disturbing treatment activities will be avoided in areas identified as likely to contain naturally occurring asbestos (NOA) per maps and guidance published by the California Geological Survey, unless an Asbestos Dust Control Plan (17 CCR Section 93105) is prepared and approved by the air district(s) with jurisdiction over the treatment area. Any NOA-related guidance provided by the applicable air district will be followed.

### Archaeological and Cultural Resources

- PDF-CUL-1: A CHRIS record search and review of other pertinent desktop sources will be conducted per the applicable federal, state or local agency procedures prior to any treatment activities.
- PDF-CUL-2: The project proponent will obtain the latest Native American Heritage Commission (NAHC) provided Native Americans Contact List. Using the appropriate Native Americans Contact List, the California Native American Tribes in the counties where the treatment activity is located will be notified. The notification will contain the following:
  - A written description of the treatment location and boundaries.
  - Brief narrative of the treatment objectives.
  - A description of the activities used (e.g., mastication) and associated acreages.
  - A map of the treatment area at a sufficient scale to indicate the spatial extent of activities.
  - A request for information regarding potential impacts to cultural resources from the proposed treatment.
  - A detailed description of the depth of excavation if ground disturbance is expected. In addition, NAHC will be contacted for a review of their Sacred Lands File.
- PDF-CUL-3: Research will be conducted prior to implementing treatments as part of the cultural resource investigation. The purpose of this research is to properly inform survey design, based on the types of resources likely to be encountered within the treatment area, and to be prepared to interpret, record, and evaluate these findings within the context of local history and prehistory. Qualified cultural resources specialists will review records, study maps, read pertinent ethnographic, archaeological, and historical literature specific to the area being studied, and conduct other tasks to maximize the effectiveness of the survey.
- PDF-CUL-4: GSNR will coordinate with a qualified archaeologist to conduct a site-specific survey of the treatment area. The survey methodology (e.g., pedestrian survey, subsurface investigation) depends on

whether the area has a low, moderate, or high sensitivity for resources, which is based on whether the records search, pre-field research, and/or Native American consultation identifies archaeological or historical resources near or within the treatment area. A survey report will be completed for every cultural resource survey completed. The specific requirements will comply with the applicable federal, state, or local agency procedures.

- PDF-CUL-5: If cultural resources are identified within a treatment area, and cannot be avoided, a qualified archaeologist will notify the culturally affiliated tribe(s) based on information provided by NAHC and assess whether an archaeological find qualifies as a unique archaeological resource, an historical resource, or in coordination with said tribe(s), as a tribal cultural resource. GSNR, in consultation with culturally affiliated tribe(s), will develop effective protection measures for important cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. These protection measures will be written in clear, enforceable language, and will be included in the survey report in accordance with applicable state or local agency procedures.
- PDF-CUL-6: GSNR, in consultation with the culturally affiliated tribe(s), will develop effective protection measures for important tribal cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. The project proponent will provide the tribe(s) the opportunity to submit comments and participate in consultation to resolve issues of concern. GSNR will defer implementing the treatment until the tribe approves protection measures, or if agreement cannot be reached after a good-faith effort, GSNR determines that any or all feasible measures have been implemented, where feasible, and the resource is either avoided or protected.
- PDF-CUL-7: If the CHRIS records search and/or other desktop review identifies built environment historical resources, as defined in Section 15064.5 of the State CEQA Guidelines, these resources will be avoided. Within a buffer of 100 feet of the built historical resource, there will be no mechanical treatment activities Buffers less than 100 feet for built historical resources will only be used after consultation with and receipt of written approval from a qualified archaeologist or architectural historian. If the records search does not identify known historical resources in the treatment area, but structures (i.e., buildings, bridges, roadways) over 50 years old that have not been evaluated for historic significance are present in the treatment area, they will similarly be avoided.
- PDF-CUL-8: All crew members and contractors implementing treatment activities will be trained on the protection of sensitive archaeological, historical, or tribal cultural resources. Workers will be trained to halt work if archaeological resources are encountered on a treatment site and the treatment method consists of physical disturbance of land surfaces (e.g., soil disturbance).
- PDF-CUL-9: If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil (“midden”), that could conceal cultural deposits, are discovered during ground-disturbing activities, all ground-disturbing activity within 100 feet of the resources will be halted and a qualified archaeologist will assess the significance of the find. The qualified archaeologist will work with the project proponent to develop a primary records report that will comply with applicable state or local agency procedures. If the archaeologist determines that further information is needed to evaluate significance, a data recovery plan will be prepared. If the find is determined to be significant by the qualified archaeologist (i.e., because the find constitutes a unique archaeological resource, subsurface historical resource, or tribal cultural resource), the archaeologist will work with the project proponent to develop appropriate procedures to protect the integrity of the resource. Procedures could include preservation in place (which is the preferred manner of mitigating impacts to archaeological sites), archival research, subsurface testing, or

recovery of scientifically consequential information from and about the resource. Any find will be recorded using standard Department of Parks and Recreation (DPR) Primary Record forms (Form DPR 523) will be submitted to the appropriate regional information center.

### Biological Resources

- PDF-BIO-1: GSNR will require a qualified RPF or biologist to conduct a data review and reconnaissance-level survey prior to each treatment project during the feedstock acquisition phase. The review and surveys will be conducted no more than one year prior to the preparation of the Project-Specific Analysis (PSA), and no more than one year between completion of the PSA and implementation of each treatment project. The data reviewed will include the biological resources setting, species and sensitive natural communities tables, and habitat information where the treatment will occur. The data review will incorporate the best available, current data for the area, including vegetation mapping data, species distribution/range information, California Natural Diversity Database (CNDDB), California Native Plant Society Inventory of Rare and Endangered Plants of California, relevant Biogeographic Information and Observation System (BIOS) queries, relevant general and regional plans, and Tables 2 and 3 in Appendix X of the DEIR.

  Reconnaissance-level biological surveys will be general surveys that include visual and auditory inspection for biological resources to help determine the environmental setting of the site. The qualified surveyor will: 1) identify and document sensitive resources, such as riparian or other sensitive habitats, sensitive natural communities, wetlands, or wildlife nursery sites (including bird nests); 2) assess the suitability of habitat for special-status plant and wildlife species; and 3) record any incidental wildlife observations.

  If more than one year passes between completion of the PSA and initiation of the treatment project, GSNR will verify the continued accuracy of the PSA prior to beginning the treatment project by reviewing for any data updates and/or visiting the site to verify conditions. Based on the results of the data review and reconnaissance-level survey, GSNR, in consultation with a qualified RPF or biologist, will determine which one of the following best characterizes the treatment:

  1. **Suitable Habitat Is Present but Adverse Effects Can Be Clearly Avoided.** If, based on the data review and reconnaissance-level survey, the qualified RPF or biologist determines that suitable habitat for sensitive biological resources is present but adverse effects on the suitable habitat can clearly be avoided through one of the following methods, the avoidance mechanism will be implemented prior to and throughout the treatment project:
     a. Physically avoid suitable habitat. Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of road or property fence) to delineate the boundary of the avoidance area around the suitable habitat. For physical avoidance, a buffer may be implemented as determined necessary by the qualified RPF or biologist.
     b. Conduct the treatment outside of the season when a sensitive resource could be present or outside the season of sensitivity (e.g., outside of special-status bird nesting season, during dormant season of sensitive annual or geophytic plant species, or outside of maternity and rearing season at wildlife nursery sites).
  2. **Suitable Habitat is Present and Adverse Effects Cannot Be Clearly Avoided.** Further review and surveys will be conducted to determine presence/absence of sensitive biological resources that may be affected, as described in the PDFs below. Further review may include contacting USFWS, NOAA Fisheries, CDFW, or local resource agencies as necessary to determine the potential for special-status species or other sensitive biological resources to be affected by the treatment project.

Focused or protocol-level surveys will be conducted as necessary to determine species presence/absence. Survey procedures will adhere to methodologies approved by resource agencies and the scientific community. Specific survey requirements for special-status plants and wildlife are addressed by PDF-BIO-5 and PDF-BIO-7, respectively.

- PDF-BIO-2: GSNR will require crew members and contractors to receive worker environmental awareness training from a qualified RPF or biologist prior to beginning treatment activities. The training will describe the appropriate work practices necessary to effectively implement all relevant PDFs and to comply with applicable environmental laws and regulations regarding biological resources. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats present or with the potential to occur in the work area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during work activities to leave the area unharmed and to report encounters to a qualified RPF, biologist, or biological technician.[5] The qualified RPF, biologist, or biological technician will immediately contact CDFW or USFWS, as appropriate, if any wildlife protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA) is encountered and cannot leave the site on its own (without being handled). All attendees of the training will be required to sign a log documenting attendance and completion of the training.
- PDF-BIO-3: When implementing the proposed project in sensitive natural communities or other habitats at heightened risk from plant pathogens, GSNR will require that the following best management practices be undertaken to prevent the spread of *Phytopthora* spp. and other plant pathogens (e.g., honey mushroom [*Armillaria gallica*], fir-annosum [*Heterobasidion annosum*], pitch canker [*Fusarium* spp.], shothole borer [*Scolytus rugulosus*], bark beetle [*Curculionidae* spp.]):
  - clean and sanitize vehicles, equipment, tools, footwear, and clothes before arriving on-site and when leaving a contaminated site, or a site in a county where contamination is a risk;
  - include training on *Phytopthora* diseases and other plant pathogens in the worker awareness training if applicable;
  - minimize soil disturbance as much as possible by limiting the number of vehicles, avoiding off-road travel as much as possible, and limiting use of mechanized equipment as feasible;
  - minimize movement of soil and plant material within the site, especially between areas with high and low risk of contamination;
  - clean soil and debris from equipment and sanitize hand tools, buckets, gloves, and footwear when moving from high risk to low risk areas or between widely separated portions of a treatment area; and
  - follow the procedures listed in the *Guidelines to Minimize Phytophthora Contamination in Restoration Projects* (Working Group for Phytophthora in Native Habitats, 2016) for plant pathogen prevention when working at contaminated restoration sites or within sensitive habitat as applicable.
- PDF-BIO-4: GSNR will require that the following actions be taken as applicable to prevent the spread of invasive plants, noxious weeds, and invasive wildlife that could result from project activities:

[5] A qualified biological technician is an individual who meets the following requirements: 1) knowledgeable in relevant species life histories and ecology, 2) able to correctly identify relevant species and their habitat, 3) professional experience conducting biological monitoring of relevant species or resources, and 4) familiarity with federal, state, and relevant local regulations related to special-status species.

- Clean clothing, footwear, and equipment used during treatments of soil, seeds, vegetative matter, or other debris or seed-bearing material, before entering the treatment area or when leaving an area with infestations of invasive plants, noxious weeds, or invasive wildlife;
- For all heavy equipment and vehicles traveling off road, pressure wash, if feasible, or otherwise appropriately decontaminate equipment at a designated weed-cleaning station prior to entering the treatment area. Anti-fungal wash agents will be specified if the equipment has been exposed to any pathogen that could affect native species;
- Track/document decontamination efforts for each piece of equipment or vehicle using a wash log with the date and service type (e.g., pressure wash, anti-fungal wash, other decomination solutions); the log will be stored in said vehicle or equipment and may be inspected by the qualified RPF, biologist, or biological technician prior to entering the treatment area;
- Inspect all heavy equipment, vehicles, tools, or other treatment-related materials for sand, mud, or other signs that weed seeds or propagules could be present prior to use in the work area. If the equipment is not clean, the equipment shall be denied entry to the treatment area;
- Stage equipment in areas free of invasive plant infestations unless there are no uninfested areas present within a reasonable proximity to the treatment area;
- Implement applicable BMPs outlined in the most current version of Cal-IPC's *Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers*.

- PDF-BIO-5: If PDF-BIO-1 determines that suitable habitat for special-status plant species is present in the treatment area and cannot be avoided, GSNR will require that the following actions be taken:
  - A qualified RPF or botanist will conduct protocol-level surveys for special-status plant species with the potential to be affected by a treatment project prior to initiation of the treatment. The survey will follow the most current and relevant agency survey protocols and guidelines for special-status plants (e.g., CDFW 2018, USFWS 2000, and CNPS 2001). The protocol surveys will be conducted in suitable habitat that could be affected by the treatment and timed to coincide with the blooming or other appropriate phenological period of the target species (as determined by a qualified RPF or botanist), or all species in the same genus as the target species will be assumed to be special-status.
  - If potentially occurring special-status plants are listed under CESA or FESA, protocol-level surveys of the listed species will be conducted in all circumstances, unless determined otherwise by CDFW or USFWS.
  - For other special-status plants not listed under CESA or FESA, surveys will not be required under the following circumstances:
    - If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the 5 years before implementation of the treatment project and no special-status plants were found, and no treatment activity has occurred following the protocol-level survey, treatment may proceed without additional plant surveys.
    - If the target special-status plant species is an herbaceous annual, stump-sprouting, or geophyte species, the treatment may be carried out during the dormant season for that species or when the species has completed its annual lifecycle without conducting surveys provided the treatment will not alter habitat or destroy seeds, stumps, or roots, rhizomes, bulbs and other underground parts in a way that would make it unsuitable for the target species to reestablish following treatment.
- PDF-BIO-6: GSNR will require that the following actions be taken if special-status plant species are observed in the work area:

- The RPF or botanist will delineate a no-disturbance buffer around the area occupied by special-status plants. The buffer will be a minimum of 50 feet from the special-status plants and marked with high-visibility flagging, fencing, stakes, or similar. The the size and shape of the buffer zone may be adjusted under the discretion of the qualified RPF or botanist. The appropriate buffer size will be determined based on the individual species' life history and vulnerability to disturbance, type and timing of treatment activities, environmental conditions, such as hydrology, topography, and anticipated changes to conditions from treatment activities (e.g., reduced canopy cover, edge effects, and potential introduction or spread of invasive plants).
- For treatment projects, if the buffer is reduced from 50 feet, a qualified RPF or botanist will provide a specific explanation for the reduction in the PSA (see PDF-BIO-1). If there is any deviation (e.g., further reduction) to the reduced buffer as explained in the PSA, this deviation and a science-based justification for the deviation will be documented in the post-project implementation report.
- For FESA or CESA listed plant species, if GSNR cannot avoid loss by implementing no-disturbance buffers, GSNR will implement MM-BIO-1.
    - The only exception to this approach is in cases where it is determined by a qualified RPF or biologist, in consultation with USFWS and/or CDFW, that the species would benefit from treatment in occupied habitat, even if some individual(s) may be lost during treatment activities. For a treatment to be considered beneficial to a given species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., citing scientific studies demonstrating that the species [or similar species] has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or reduction of inter-species competition). The substantial evidence will be included in the PSA (see PDF-BIO-1). If it is determined that treatment activities would be beneficial to a listed species, no compensatory mitigation will be needed.

- PDF-BIO-7: If PDF-BIO-1 determines that suitable habitat for special-status wildlife species or nurseries of any wildlife species is present and cannot be avoided by a treatment activity (either directly or indirectly), GSNR will require that a qualified RPF or biologist conduct focused or protocol-level surveys for special-status wildlife species or nursery sites (e.g., bat maternity roosts, deer fawning areas, heron or egret rookeries). The survey area will be determined by a qualified RPF or biologist based on the target species and habitats and any recommended buffer distances in agency protocols.

  The qualified RPF or biologist will determine if following an established protocol is required, and GSNR may consult with CDFW and/or USFWS for technical information regarding appropriate survey protocols. Unless otherwise specified in a protocol, the survey will be conducted no more than 14 days prior to the beginning of treatment activities. Focused or protocol-level surveys for a special-status wildlife species with a potential to occur in the treatment area may not be required if species presence is assumed.

- PDF-BIO-8: If feasible, GSNR will require that project activities be scheduled to avoid the active nesting season of common native bird species, including raptors, that could be present within or adjacent to the work area. The active nesting season will be defined by the qualified RPF or biologist based on the location of the feedstock operation or other project activity (e.g., wood pellet processing and transport to market) and the nesting season of the bird species potentially affected by the activity.

  If active nesting season avoidance is not feasible, and project activities will occur within the nesting season, a qualified RPF or biologist will conduct a survey for nesting birds (including raptors) and active nests. Surveys of nesting birds may be completed concurrent with other required surveys, provided the individual requirements of each survey are met.

The survey area will encompass reasonably accessible portion of the work area and nearby suitable nesting habitat viewable from the work area. The survey area will be determined by a qualified RPF or biologist, based on the species known to occur in the area, location of suitable nesting habitat, and expected project activities. The survey will be conducted at a time that balances the effectiveness of detecting nests and the reasonable consideration of potential avoidance strategies. Typically, this timeframe would be up to 2 weeks before project activities. Survey methods and timing will be tailored by the qualified RPF or biologist to the list of target bird species and site and habitat conditions, typically involving walking throughout the survey area, visually searching for nests and birds exhibiting breeding-type behavior (e.g., copulation, carrying nesting material, and delivering food).

If an active nest is observed (i.e., presence of eggs and/or chicks) or determined to likely be present based on breeding-type behavior, GSNR will implement a feasible strategy to avoid disturbance of active nests, which may include, but is not limited to, one or more of the following:

- **Establish Buffer.** GSNR will require that a species-appropriate no-disturbance buffer be established around the nest sufficient to reasonably expect that breeding would not be disrupted by project activities. Project activities will not be permitted within the buffer. The buffer location will be determined by a qualified RPF or biologist. Factors to be considered for determining buffer location will include: presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and expected project activities. No-disturbance buffers will be marked with high-visibility flagging, fencing, stakes, or similar, as well as maintained until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.
- **Modify Activity.** GSNR will require that the project activity in the vicinity of an active nest be modified to avoid disturbance of active nests. Activity modifications will be determined by GSNR in coordination with the qualified RPF, biologist, or biological technician.
- **Defer Activity.** GSNR will require that the timing of project activities in the portion(s) of the work area that could disturb the active nest be deferred. When this avoidance strategy is implemented, project activity will not commence until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.
- **Monitor During Activity.** A qualified RPF, biologist, or biological technician will monitor an active nest during project activities to identify signs of agitation, nest defense, or other behaviors that indicate potential nest disturbance. If nesting birds are showing signs of nest disturbance, one of the other avoidance strategies (establish buffer, modify or defer activity) will be implemented or a pause in the work area will occur until the disturbance behavior ceases.

The following avoidance strategy may also be considered together with or in lieu of other actions for implementation by GSNR to avoid disturbance to raptor nests:

- Trees with visible raptor nests, whether occupied or not, will be retained.

- PDF-BIO-9: GSNR will require that the following actions be taken if special-status wildlife species are observed during reconnaissance surveys (PDF-BIO-1), focused or protocol-level wildlife surveys (PDF-BIO-7) or nesting bird surveys (PDF-BIO-8):

**California Fully Protected Species or Species Listed Under ESA or CESA:**

- Injury or mortality of California Fully Protected Species is prohibited pursuant to Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code.
- GSNR will require that one of the following actions be taken to avoid mortality, injury, or disturbance of California Fully Protected Species or species listed under ESA or CESA:
  - Project activities will not be implemented within habitat occupied by California Fully Protected Species or species listed under ESA or CESA. Any project activities outside occupied habitat will be a sufficient distance from the occupied habitat such that mortality, injury, or disturbance of the species will not occur, as determined by a qualified RPF or biologist using the most current and commonly-accepted science and considering published agency guidance; OR
  - Project activities will be implemented outside the sensitive period of the species' life history (e.g., outside the breeding or nesting season). For species present year-round, CDFW and/or USFWS will be consulted to determine if there is a period of time within which project activities could occur that would avoid species mortality, injury, or disturbance.
- For species listed under ESA or CESA, if project activities cannot avoid mortality, injury or disturbance by taking one of the two actions listed above, GSNR will implement MM-BIO-2.
  - For treatment projects, the only exception to this approach is in cases where it is determined by a qualified RPF or biologist that the species would benefit from treatment activities in occupied habitat, even if some individual(s) may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to a given species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., citing scientific studies demonstrating that the species [or similar species] has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or reduction of inter-species competition). The substantial evidence will be included in the PSA (see PDF-BIO-1). If it is determined that treatment activities would be beneficial to a listed species, no compensatory mitigation will be needed. The qualified RPF or biologist will consult with CDFW and/or USFWS for technical information regarding the determination.

**Other Special-Status Wildlife Species:**

- GSNR will require that the following actions be taken to avoid mortality, injury, or disturbance of other special-status wildlife species:
  - For all project activities, GSNR will require that a no-disturbance buffer be established around occupied sites (e.g., nests, dens, roosts, burrows, nursery colonies). Buffer size will be determined by a qualified RPF or biologist using the most current, commonly accepted science and will consider published agency guidance. Factors to be considered in determining buffer size may include: the species' tolerance to disturbance; the presence of natural buffers provided by vegetation or topography; locations of foraging territory; baseline levels of noise and human activity; and expected project activity. Buffer size may be adjusted if the qualified RPF or biologist determines that such an adjustment would not be likely to adversely affect (i.e., cause mortality, injury, or disturbance to) the species within the occupied site.
  - No-disturbance buffers will be marked with high-visibility flagging, fencing, stakes, or similar. The no-disturbance buffer will be maintained until young fledge or the occupied site becomes inactive, as determined by the qualified RPF, biologist, or biological technician. A qualified RPF, biologist, or biological technician will monitor the effectiveness of the no-disturbance buffer during treatment. The

qualified RPF, biologist, or biological technician will have the authority to stop any project activities that could result in mortality, injury or disturbance to the occupied site, as well as increase the buffer distance if project activities are causing disturbance to to the occupied site (e.g., agitated behavior of special-status species).

- If any special status wildlife is encountered during treatment activities, the animal will be allowed to leave the treatment area unharmed and on its own accord.

- PDF-BIO-10: GSNR will require that one of the following actions be taken to maintain habitat function for special-status wildlife:

  - Concurrently with PDF-BIO-1, a qualified RPF or biologist will identify and demarcate any habitat features that are necessary for survival of the affected wildlife species (e.g., tree snags, trees cavities, dens, downed woody debris, foraging resources). Treatments will be designed to minimize or avoid the loss or degradation of the demarcated habitat features by incorporating life history and habitat requirements of the affected species and the most current, commonly accepted science.
  - If it is determined that special-status wildlife species with specific requirements for high canopy cover (e.g., marten, fisher, spotted owl) are present within a treatment area, then tree or shrub canopy cover within existing suitable areas will be retained at the percentage preferred by the species (as determined by the qualified RPF or biologist based on the most current, commonly accepted science for the affected species) such that habitat function is maintained.
    - For wildlife species listed under FESA and/or CESA, the qualified RPF or biologist will consult with CDFW and/or USFWS regarding the determination that habitat function is maintained. If consultation determines that habitat function will be maintained and the impact on special-status wildlife would be less than significant, no further mitigation will be required. If consultation determines that the treatment will not maintain habitat function, GSNR will implement MM-BIO-2 to reduce the residial effects of treatment on special-status wildlife to less than significant under CEQA.
    - For other special-status wildlife species, the qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding habitat function. If technical information suggests that habitat function will be maintained and the impact on special-status wildlife would be less than significant, no further mitigation will be required. If technical information suggests that the treatment will not maintain habitat function, GSNR will implement MM-BIO-2 to reduce the residial effects of treatment on special-status wildlife to less than significant under CEQA.
      - For treatment projects, the only exception to this approach is in cases where it is determined by a qualified RPF or biologist that the species would benefit from treatment in occupied habitat, even if some individual(s) may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to a given species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., citing scientific studies demonstrating that the species [or similar species] has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or reduction of inter-species competition). The substantial evidence will be included in the PSA (see PDF-BIO-1). If it is determined that treatment activities would be beneficial to a non-listed special-status species, no compensatory mitigation will be needed. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding the determination.

- PDF-BIO-11: If special-status bumble bees are identified as occurring or having potential to occur in the treatment area during implementation of PDF-BIO-1, GSNR will require that the following actions be taken:
  - Concurrently with PDF-BIO-1, a qualified RPF or biologist will identify and demarcate any habitat features that are necessary for survival of the affected species (e.g., hot plant species, foraging resources, and refugia). Treatments will be designed to minimize or avoid the loss or degradation of the demarcated habitat features by incorporating life history and habitat requirements of the affected species and the most current, commonly accepted science.
  - Treatment areas within occupied or suitable habitat will be divided into a sufficient number of treatment units to avoid treating the entire habitat within a single year. In addition, treatment activities within occupied or suitable habitat will be conducted in a patchy pattern as feasible. This approach aims to provide continued shelter to special-status bumble bees during treatment and temporarily preserve nearby floral resources.
  - A qualified RPF or biologist knowledgeable of the affected species will review the treatment design to reduce any residual effects of the treatment that could be significant under CEQA. If technical information suggests that habitat function will be maintained and the impact on special-status bumble bees would be less than significant, no further action will be required. If technical information suggests that the treatment will not maintain habitat function, GSNR will implement MM-BIO-2 to reduce the residual effects of treatment on special- status bumble bees to less than significant under CEQA.
    - The only exception to this approach is in cases where it is determined by a qualified RPF or biologist that the species would benefit from treatment in occupied habitat, even if some individual(s) may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to a given species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., citing scientific studies demonstrating that the species [or similar species] has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or reduction of inter-species competition). The substantial evidence will be included in the PSA (see PDF-BIO-1). If it is determined that treatment activities would be beneficial to a given species, no compensatory mitigation will be needed. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding the determination.

- PDF-BIO-12: If PDF-BIO-1 determines that a sensitive natural community or other sensitive habitat may be present in the treatment area, GSNR will:
  - Require a qualified RPF, biologist, or botanist perform a protocol-level survey, following the most current CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*, of the treatment area prior to the start of treatment activities for sensitive natural communities and other sensitive habitats. Sensitive natural communities and other sensitive habitats will be identified and keyed using the best scientific resources and data available, including the most current edition of *A Manual of California Vegetation* (http://vegetation.cnps.org/) or other relevant reports. The limits of these communities or habitats identified in the treatment area will be mapped and recorded digitally using a Global Positioning System (GPS), and GSNR will design treatments to avoid these delineated areas.
  - Require that before implementation of treatment activities, all sensitive natural communities or other sensitive habitat identified during the above surveys will be delineated as an environmentally sensitive area with brightly visible construction flagging and/or fencing under the direction of the qualified RPF,

biologist, or botanist. No treatment activities will be allowed within the environmentally sensitive area, including foot traffic to prevent inadvertant crushing of plants or spreading invasive or non-native species. The qualified RPF, biologist, botanist, or biological technician will routinely inspect the integrity of exclusion fencing/flagging throughout the treatment period.

- If GSNR determines that avoidance of a sensitive natural community or other sensitive habitat is not infeasible, a qualified RPF, biologist, or botanist will review the treatment design to reduce any residual effects of the treatment (i.e., habitat functions not maintained) that could be significant under CEQA. If it is determined that the impact would be less than significant, no additional action will be required. If it is determined that the impact would be significant under CEQA, even after implementing feasible treatment design alternatives and impact minimization measures, then GSNR will implement MM-BIO-3.
    - The only exception to this mitigation approach is when a qualified RPF, biologist, or botanist determines that treatment in the occupied area would be beneficial to a sensitive natural community or other sensitive habitat, even if there is some loss during the treatment. To be considered beneficial, the qualified individual must show that the habitat is likely to improve after the treatment, leading to expansion, regeneration, or increased vigor. This can be supported by scientific studies indicating benefits such as increased sunlight due to canopy opening, invasive species eradication, or reduced resource competition. These findings will be documented in a report to GSNR. If treatment is deemed beneficial, no compensatory mitigation will be needed.

- PDF-BIO-13: If potentially jurisdictional aquatic resources are identified in the treatment area during implementation of PDF-BIO-1, GSNR will require that the following actions be taken:
    - The qualified RPF or biologist will delineate the boundaries of aquatic resources in accordance with the most current published agency guidance at the time of the delineation (e.g., USACE 1987; USACE 2008; USACE 2010; SWRCB 2021) pursuant to Section 404 of the federal Clean Water Act, Section 401 of the federal Clean Water Act and the Porter-Cologne Act; and California Fish and Game Code. If there are aquatic resources delineated within 75 feet of the treatment area, the resource boundaries will be verified by the USACE by submitting a Aquatic Resources Delineation Report and *Request for Aquatic Resources Delineation Verification or Jurisdictional Determination* form to the appropriate USACE district office.
    - A qualified RPF or biologist will delineate an no-disturbance buffer around each aquatic resources within the treatment area. The buffer will be a minimum width of 25 feet or larger if necessary. The buffer will be installed using high-visibility flagging, fencing, stakes, or similar in coordination with the qualified RFP or biologist. The size and shape of the buffer will depend on the type of aquatic resource present, type and timing of treatment activities, special-status species occupancy, and environmental conditions and topography.
    - A qualified RPF, biologist, or biological technician will periodically inspect the condition and visibility of the no-disturbance buffer(s) and to confirm that impacts to the resource(s) are being avoided.
    - No soil disturbance, vehicle and equipment staging or acess, or any other ground-disturbing activitites will be allowed within the no-disturbance buffer.

### Geology and Soils

- PDF-GEO-1: GSNR will require that mechanical treatments be suspended if the National Weather Service forecast is a “chance” (30 percent or more) of rain within the next 24 hours during the Winter Period. Activities that cause mechanical soil disturbance may resume when precipitation stops and soils

are no longer saturated (i.e., when soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur). Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials.

- PDF-GEO-2: New road construction and road maintenance activities in areas with slopes in excess of 50% (27 degrees) shall be completed under the guidance of a licensed geologist (P.G. or C.E.G.) or geotechnical engineer (G.E) . Prior to and during road construction or maintenance, a CEG shall evaluate the road route based on the presence of existing landslides, bedrock type, bedding orientation, steepness of slope, and drainage pathways (proposed and existing). In the event areas of potential slope instability are identified, slope stability remedial measures shall be employed to prevent slope instability from occurring. Remedial measures shall include, but not be limited to:
  - Installation of surface and subsurface drainage culverts, water diversion features, and drain holes;
  - Sloping the road inward toward the hillside;
  - Installation of erosion control blankets, soil binders, and wire mesh to stabilize the hillside;
  - Scaling (i.e., removing loose or potentially unstable material/rocks);
  - Installing ground anchors/rock bolts;
  - Reducing/flattening the slope angle; and
  - Installing rock trap devices at the toe of slopes.

- PDF-GEO-3: A Storm Water Pollution Prevention Plan (SWPPP) or equivalent document shall be prepared for the project specifically to address new road construction and existing road maintenance. The SWPPP or equivalent shall include sediment control and erosion control Best Management Practices (BMPs) to minimize erosion induced sedimentation of downslope water bodies, including creeks, wetlands, lakes, and reservoirs. A Qualified SWPPP Practitioner (QSP) and/or delegated monitor shall inspect the road work, as set forth in the California Construction General Permit requirements. As the project progresses, the SWPPP shall be modified and amended to reflect modifications to stormwater control measures, as construction/maintenance conditions change. The SWPPP or equivalent shall be kept on-site and amended to reflect the current site conditions until final stabilization is met. If field circumstances do not allow the SWPPP to remain on-site, the QSP shall retain the hard copy SWPPP or equivalent, which will be made available upon request to federal, state, or county inspectors. Erosion control measures on federal lands shall be implemented in accordance with the 2011 Forest Service Region 5 Water Quality Management Handbook 2509.22, Chapter 10 (U.S. Forest Service 2011) and the National Best Management Practices for Water Quality Management on National Forest System Lands, National Core BMP Technical Guide (USDA Forest Service 2012b). Erosion control measures on non-federal lands shall be implemented in accordance with the 2020 California Forest Practice Rules (California Licensed Timber Operators and California Registered Professional Foresters (2020). Existing compacted road surfaces with no maintenance required are exempted as they are already compacted from use.

  Erosion prevention and control measures to be included in the SWPPP or equivalent shall include, but not be limited to:

  - Sidecast deposits, which are loose sediments created during road construction/maintenance and pushed over the downslope side of the road, shall be minimized to prevent downstream sedimentation

of water bodies and prevent mass wasting events during periods of heavy precipitation. Alternatively, a compacted berm shall be created with residual sediments along the downslope edge of the road, to prevent stormwater runoff from overtopping the road and eroding downslope sediments.

- Road construction and maintenance shall be completed such that stormwater drainage is controlled to prevent soil erosion. Drainage controls shall include measures described in PDF-GEO-2 regarding slope stability.
- Erosion control fabric, straw wattles, and soil binders shall be used on exposed areas of soil adjacent to roadways until vegetation can be reestablished.
- Road construction/maintenance shall be suspended during periods of heavy precipitation. Activities shall resume when precipitation ends and soils are no longer saturated (i.e., when soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur). Indicators of saturated soil conditions may include, but are not limited to: 1) areas of ponded water, 2) pumping of fines from the soil or road surfacing, 3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, 4) spinning or churning of wheels or tracks that produces a wet slurry, or 5) inadequate traction without blading wet soil or surface materials.
- GSNR shall require that road construction and maintenance areas be inspected for proper implementation of erosion control features prior to the rainy season. If erosion control measures are not properly implemented, they will be remediated prior to the first rainfall event. Additionally, GSNR shall require an inspection for evidence of erosion after the first large storm or rainfall event (i.e., greater than 1.5 inches in 24 hours), as soon as is feasible after the event. Any areas of erosion that will result in substantial sediment discharge shall be remediated within 48 hours.

- PDF-GEO-4: A SWPPP or equivalent document shall be prepared for the project specifically to address wildfire fuel reduction operations. Erosion prevention and control measures to be included in the SWPPP or equivalent shall include, but not be limited to:
  - Slopes steeper than 75% (37 degrees) shall be avoided to minimize soil erosion following soil disturbance.
  - Limit skidding with rubber-tired or fixed track equipment to slopes less than 35%; limit low ground pressure tracked equipment (e.g., traditional feller buncher) to less than 45%; and limit heel-boom loaders / shovel yarding to less than 40% unless otherwise approved by a licensed geologist (P.G. or C.E.G.) or geotechnical engineer (G.E). .
  - Skyline and/or noise yarding shall be used on slopes in excess of 45%, but less than 75%, to minimize soil erosion following soil disturbance.
  - High ground pressure vehicles shall be limited in treatment areas. GSNR will limit heavy equipment that could cause soil disturbance or compaction to be driven through treatment areas when soils are wet and saturated to avoid compaction and/or damage to soil structure. Saturated soil means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. If use of heavy equipment is required in saturated areas, other measures such as operating on organic debris, using low ground pressure vehicles, operating on frozen soils/snow covered soils, or use of small specialty skyline yarding equipment, shall be implemented to minimize soil disturbance. Existing compacted road surfaces are exempted as they are already compacted from use.
  - Newly created bare soil shall be stabilized with mulch or equivalent as soon as practicable after treatment activities and before October 15, to minimize the potential for substantial sediment discharge. Organic material shall be incorporated onto at least 75% of the disturbed soil where the soil

erosion hazard is moderate or high, and 50% of the disturbed soil where soil erosion hazard is low, to help prevent erosion. Where slash mulch is used, it shall be packed into the ground surface with heavy equipment so that it is sufficiently in contact with the soil surface.

- PDF-GEO-5: GSNR will require drainage of compacted and/or bare linear treatment areas capable of generating storm runoff via water breaks using the spacing and erosion control guidelines contained in Sections 914.6, 934.6, and 954.6(c) of the California Forest Practice Rules or equivalent Best Management Practices adopted by the United States Forest Service or other federal land management agency or state agency with jurisdiction. Where waterbreaks cannot effectively disperse surface runoff, including where waterbreaks cause surface run-off to be concentrated on downslopes, other erosion controls will be installed as needed to maintain site productivity by minimizing soil loss.
- PDF-GEO-6: GSNR will require that a Registered Professional Forester (RPF) or licensed geologist (P.G. or C.E.G.) or geotechnical engineer (G.E) evaluate treatment areas with slopes greater than 50 percent for unstable areas (areas with potential for landslide) and unstable soils (soil with moderate to high erosion hazard). If unstable areas or soils are identified within the treatment area, are unavoidable, and will be potentially directly or indirectly affected by the treatment, a licensed geologist (P.G. or C.E.G.) or geotechnical engineer (G.E) will determine the potential for landslide, erosion, of other issue related to unstable soils and identify measures that will be implemented by GSNR such that substantial erosion or loss of topsoil would not occur.

### Hazards

- PDF-HAZ-1: GSNR will require that all diesel- and gasoline-powered equipment be maintained per manufacturer's specifications, and in compliance with all state and federal emissions requirements. Maintenance records will be available for verification. Prior to the start of treatment activities, all equipment will be inspected for leaks and inspected everyday thereafter until equipment is removed from the site. Any equipment found leaking will be promptly removed.
- PDF-HAZ-2: GSNR will require mechanized hand tools to have federal- or state-approved spark arrestors.
- PDF-HAZ-3: GSNR will require tree cutting crews to carry one fire extinguisher per chainsaw. Each vehicle would be equipped with one long-handled shovel and one axe or Pulaski consistent with PRC Section 4428.
- PDF-HAZ-4: GSNR will require that smoking is only permitted in designated smoking areas barren or cleared to mineral soil at least 3 feet in diameter.
- PDF-HAZ-5: Prior to the start of vegetation treatment activities requiring soil disturbance (i.e., mechanical treatments), GSNR will make reasonable efforts to check with the landowner or other entity with jurisdiction (e.g., United States Forest Service, California Department of Parks and Recreation, etc.) to determine if there are any sites known to have previously used, stored, or disposed of hazardous materials. If it is determined that hazardous materials sites could be located within the boundary of a treatment site, GSNR will conduct a DTSC EnviroStor web search (https://www.envirostor.dtsc.ca.gov/public/) and consult DTSC's Cortese List to identify any known contamination sites within the project site. If a proposed mechanical treatment is located on a site included on the DTSC Cortese List as containing potential soil contamination that has not been cleaned up and deemed closed by DTSC, the area will be marked and no or soil disturbing treatment activities will occur within 100 feet of the site boundaries. If it is determined through coordination with landowners or after review of the Cortese List that no potential or known contamination is located on a project site, the project may proceed as planned.

### Hydrology and Water Quality

- PDF-HYDRO-1: GSNR shall require that proposed vegetation treatments be conducted in conformance with appropriate RWQCB timber, vegetation and land disturbance related Waste Discharge Requirements (WDRs) and/or related Conditional Waivers of Waste Discharge Requirements (Waivers), and appropriate Basin Plan Prohibitions. Where these regulatory requirements differ, the most restrictive will apply. If applicable, this includes compliance with the conditions of general waste discharge requirements (GWDR) and waste discharge requirement waivers for timber or silviculture activities where these waivers are designed to apply to non-commercial fuel reduction and forest health projects. In general, GWDR and Waivers of waste discharge requirements for fuel reduction and forest health activities require that wastes, including but not limited to petroleum products, soil, silt, sand, clay, rock, felled trees, slash, sawdust, bark, ash, and pesticides must not be discharged to surface waters or placed where it may be carried into surface waters; and that Water Board staff must be allowed reasonable access to the property in order to determine compliance with the waiver conditions.
- PDF-HYDRO-2: GSNR shall require that cumulative watershed effects (CWE) analysis be performed for proposed treatment areas prior to implementing proposed treatments to ensure cumulative effects are below the threshold of concern. CWE analysis shall meet or exceed the standards set forth in Technical Rule Addendum No 2 "Cumulative Impacts Assessment Guidelines" in the 2023 California Forest Practice Rules, and shall include evaluation of sediment, water temperature, organic debris, chemical contamination, peak flow, soil productivity effects.
- PDF-HYDRO-3: GSNR will require that Watercourse and Lake Protection Zones (WLPZs) be established on either side of watercourses as defined in the table below, which is based on 14 CCR Section 916 .5 of the California Forest Practice Rules (February 2019 version). WLPZ's are classified based on the uses of the stream and the presence of aquatic life. Wider WLPZs are required for steep slopes.

Procedures for Determining Watercourse and Lake Protection Zone (WLPZ) widths

| Water Class | Class I | Class II | Class III | Class IV |
|---|---|---|---|---|
| Water Class Characteristics or Key Indicator Beneficial Use | 1) Domestic supplies, including springs, on site and/or within 100 feet downstream of the operations area and/or<br>2) Fish always or seasonally present onsite, includes habitat to sustain fish migration and spawning. | 1) Fish always or seasonally present offsite within 1000 feet downstream and/or<br>2) Aquatic habitat for nonfish aquatic species.<br>3) Excludes Class III waters that are tributary to Class I waters. | No aquatic life present, watercourse showing evidence of being capable of sediment transport to Class I and II waters under normal high-water flow conditions after completion of timber operations. | Man-made watercourses, usually downstream, established domestic, agricultural, hydroelectric supply or other beneficial use. |
| **WLPZ Width (ft) – Distance from top of bank to the edge of the protection zone** | | | | |
| < 30 % Slope | 75 | 75 | Sufficient to prevent the degradation of downstream beneficial uses of water. Determined on a site-specific basis, but not less than 75 ft. | |
| 30-50 % Slope | 100 | 75 | | |
| >50 % Slope | 150 | 100 | | |

The following WLPZ protections will be applied for all treatments:

- Treatment activities within WLPZs (where permitted in accordance with the General Limitations above) will retain at least 75 percent surface cover and undisturbed area to act as a filter strip for raindrop energy dissipation and for wildlife habitat. If this percentage is reduced, a qualified RPF will provide a site- and/or treatment activity-specific explanation for the percent surface cover reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced percent as explained in the PSA, this will be documented in the post-project implementation report.
- Treatments will be limited to removal of uncharacteristic fuel loads (e.g., removing dead or dying vegetation), trimming/limbing of woody species as necessary to reduce ladder fuels, and select thinning of vegetation to restore densities that are characteristic of healthy stands of the riparian vegetation types characteristic of the region. This includes hand removal (or mechanized removal where topography allows) of dead or dying riparian trees and shrubs, invasive plant removal, selective thinning, and removal of encroaching upland species.
- Removed trees will be felled away from adjacent streams or waterbodies and piled outside of the riparian vegetation zone (unless there is an ecological reason to do otherwise that is approved by applicable regulatory agencies, such as adding large woody material to a stream to enhance fish habitat, e.g., see *Accelerated Wood Recruitment and Timber Operations: Process Guidance from the California Timber Harvest Review Team Agencies and National Marine Fisheries Service*).
- Vegetation removal that could reduce stream shading and increase stream temperatures will be avoided.
- Equipment, including tractors and vehicles, must not be driven in wet areas or WLPZs, except over existing roads or watercourse crossings where vehicle tires or tracks remain dry.
- Equipment used in vegetation removal operations will not be serviced in WLPZs, within wet meadows or other wet areas, or in locations that would allow grease, oil, or fuel to pass into lakes, watercourses, or wet areas.
- WLPZs will be kept free of slash, debris, and other material that harm the beneficial uses of water. Accidental deposits will be removed immediately.
- Within Class I and Class II WLPZs, locations where project operations expose a continuous area of mineral soil 800 square feet or larger shall be treated for reduction of soil loss. Treatment shall occur prior to October 15th and disturbances that are created after October 15th shall be treated within 10 days. Stabilization measures shall be selected that will prevent significant movement of soil into water bodies and may include but are not limited to mulching, rip-rap, grass seeding, or chemical soil stabilizers.

  Where mineral soil has been exposed by project operations on approaches to watercourse crossings of Class I, II, or III within a WLPZ, the disturbed area shall be stabilized to the extent necessary to prevent the discharge of soil into watercourses or lakes in amounts that would adversely affect the quality and beneficial uses of the watercourse.

  Where necessary to protect beneficial uses of water from project operations, protection measures such as seeding, mulching, or replanting shall be used to retain and improve the natural ability of the ground cover within the WLPZ to filter sediment, minimize soil erosion, and stabilize banks of watercourses and lakes.

- Equipment limitation zones (ELZs) will be designated adjacent to Class III and Class IV watercourses with minimum widths of 25 feet where side-slope is less than 30 percent and 50 feet where side-slope is 30 percent or greater. An RPF will describe the limitations of heavy equipment within the ELZ and, where appropriate, will include additional measures to protect the beneficial uses of water.

### Noise

- PDF-NOI-1: GSNR will require that operation of heavy equipment associated with treatment activities (heavy off-road equipment, tools, and delivery of equipment and materials) will occur during daytime hours if such noise would be audible to receptors (e.g., residential land uses, schools, hospitals, places of worship). Cities and counties in the treatable landscape typically restrict construction-noise (which would apply to vegetation treatment noise) to particular daytime hours. If treatment activity is subject to local noise ordinance, it will adhere to those to the extent the project is subject to them. If the applicable jurisdiction does not have a noise ordinance or policy restricting the time-of-day when noise-generating activity can occur noise-generating vegetation treatment activity will be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday and federal holidays. If the treatment activity is not subject to local ordinances, it will adhere to the restrictions stated above or may elect to adhere to the restrictions identified by the local ordinance encompassing the treatment area.
- PDF-NOI-2: GSNR will require that all powered treatment equipment and power tools will be used and maintained according to manufacturer specifications. All diesel- and gasoline-powered treatment equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.
- PDF-NOI-3: GSNR will require that engine shrouds be closed during equipment operation.
- PDF-NOI-4: GSNR will require that treatment activities, equipment, and equipment staging areas be located away from nearby noise-sensitive land uses (e.g., residential land uses, schools, hospitals, places of worship), to the extent feasible, to minimize noise exposure.
- PDF-NOI-5: GSNR will require that all motorized equipment be shut down when not in use. Idling of equipment and haul trucks will be limited to 5 minutes.
- PDF-NOI-6: For treatment activities utilizing heavy equipment, GSNR will require notification of noise-sensitive receptors (e.g., residential land uses, schools, hospitals, places of worship) located within 1,500 feet of the treatment activity. Notification will include anticipated dates and hours during which treatment activities are anticipated to occur and contact information, including a daytime telephone number, of the project representative. Recommendations to assist noise-sensitive land uses in reducing interior noise levels (e.g., closing windows and doors) will also be included in the notification.

### Recreation

- PDF-REC-1: If a treatment activity would require temporary closure of a public recreation area or facility, GSNR will coordinate with the owner/manager of that recreation area or facility. If temporary closure of a recreation area or facility is required, GSNR will work with the owner/manager to post notifications of the closure at least 2 weeks prior to the commencement of the treatment activities. Additionally, notification of the treatment activity will be provided to the Administrative Officer (or equivalent official responsible for distribution of public information) of the county(ies) in which the affected recreation area or facility is located.
- PDF-REC-2: For operations occurring on public lands, GSNR shall require utilization of signage and coordination with local user groups where appropriate to redirect recreation activities to safe areas during project implementation, a minimum of one week prior to treatment activities beginning at or directly adjacent to recreation sites.
- PDF-REC-3: GSNR shall require protection, repair, and restoration of any unintended damage to recreation site infrastructure (e.g., dispersed sites, trailheads, signs) caused by the project activities to pre-work conditions.

### Transportation

- PDF-TRF-1: Prior to initiating vegetation treatment activities, GSNR will work with the agency(ies) with jurisdiction over affected roadways to determine if a Traffic Management Plan (TMP) is needed. A TMP will be needed if traffic generated by the project would result in obstructions, hazards, or delays exceeding applicable jurisdictional standards along access routes for individual vegetation treatments. If needed, a TMP will be prepared to provide measures to reduce potential traffic obstructions, hazards, and service level degradation along affected roadway facilities in accordance with applicable jurisdictional standards..

## 2.4.3 "Mill Residuals"

Subject to the constraints set forth in this section, GSNR will procure and utilize residual biomass material resulting from by-products of commercial lumbermills and similar forest products processing facilities operated by third-parties unaffiliated with GSNR. Such mill residuals generally consist of secondary, residual materials generated from forest products manufacturing, including, but not limited to, sawdust, wood chips, shavings, bark, sanderdust, and trimmings, regardless of the source of primary materials. As with Harvest Residuals, the harvest activities and subsequent processing that generates Mill Residuals would occur regardless of GSNR's proposed project.

GSNR's activities to obtain Mill Residual feedstock consist of the transportation of feedstock from the originating forest products facility to GSNR's wood pellet production facility. Mill Residuals are typically delivered by wholly-owned or contracted commercial trucks and trailers controlled by the forest products facility. The originating facility usually retains ownership of the material during transport, with title passing to GSNR upon delivery and acceptance at GSNR's facility. GSNR may alternatively contract directly with commercial trucking firms to pick up and haul Mill Residuals from a particular forest product facility to GSNR's facility. Mill Residuals are anticipated to provide approximately 1 percent of the total feedstock utilized at both the proposed Lassen and Tuolumne facilities. GSNR's procurement of Mill Residuals will be subject to all of the following constraints:

- GSNR will accept mill residuals only from facilities holding applicable state and/or local permits as a commercial lumbermill and similar forest products processing facility.
- All sources of mill residuals must be approved and under contract with GSNR prior to delivery of feedstock to GSNR. The contract shall expressly require compliance with the provisions of this section and shall prescribe remedies for violation.
- Each source of mill residuals must submit a certification under penalty of perjury that the mill residuals resulted from operations conducted within the scope and boundaries of, and in compliance with, one or more approved environmental documents (i.e., CEQA, NEPA, or Timber Harvest Plan document, or sister state equivalent), and otherwise in compliance with the provisions of this section. GSNR and GSFA shall be provided with copies of all such environmental documents upon request.
- All Mill Residuals shall conform to the certification requirements of the Sustainable Biomass Program (SBP), and comply with one or more of the following chain of custody programs (selected by GSNR and approved by GSFA):
  - Forest Stewardship Council (FSC);
  - Sustainable Forest Initiative (SFI); or
  - Programme for the Endorsement of Forest Certification (PEFC)

- GSNR shall perform, or cause to be performed, all audits and inspections required as a condition of certification under the above-described programs. Each source of mill residuals must agree to cooperate with such audits or inspections.
- To ensure compliance with the requirements of the above-described programs, each source of mill residuals must submit a certification under penalty of perjury that the mill residuals are not derived from any of the following:
  - Activities not complying with applicable local, national or international legislation on forest management, including but not limited to forest management practices; nature and environmental protection; protected and endangered species; property, tenure and land-use rights for indigenous peoples, local communities or other affected stakeholders; health, labor and safety issues; anti-corruption and the payment of applicable royalties and taxes.
  - Activities where the capability of forests to produce a range of wood and non-wood forest products and services on a sustainable basis is not maintained or harvesting levels exceed a rate that can be sustained in the long term.
  - Activities where forest management does not contribute to the long-term maintenance, conservation or enhancement of biodiversity on landscape, ecosystem, species or genetic levels.
  - Activities where ecologically important forest areas are not identified, protected, conserved or set aside.
  - Activities where the spirit of the International Labour Organization Declaration on Fundamental Principles and Rights at Work (1998) is not met.
  - Activities where the spirit of the United Nations Declaration on the Rights of Indigenous Peoples (2007) is not met.
  - Timber that has been traded at some point in the chain of custody by armed groups or by a civilian administration involved in armed conflict or its representatives, either to perpetuate conflict or take advantage of conflict situations for personal gain ("Conflict timber").
  - Genetically modified trees.
- Mill Residuals will be delivered to GSNR's facilities in trucks and trailers that are licensed, fully insured, in good working order, and conform to all applicable local and state laws and regulations, including on-highway weight limits and emission controls.
- Each delivery of feedstock material to GSNR shall be accompanied by chain of custody documentation as specified by the Executive Director of Golden State Finance Authority or their designee. GSNR shall employ, or cause to be employed, trained staff responsible for accepting feedstock deliveries to review this documentation and ensure compliance with this section.

# 2.5 Northern California (Lassen) Facility

## 2.5.1 Location

The proposed Lassen wood pellet processing site is located in Nubieber, California (Lassen County), approximately 3 miles southwest of the census-designated place of Bieber in northwestern Lassen County (see Figure 2-3, Project Location (Lassen)). The Lassen site is located at 653-800 Washington Avenue, Nubieber, California. The production facilities would be located on a parcel approximately 65 acres in size, Assessor's Parcel Number (APN) 001-270-086. Log decking (storage) would occur on approximately 51 acres of the ~225-acre property immediately south of the production site (APNs 001-270-26, 001-270-29, and 013-040-13) (the "woodyard"). The project site is situated

in Township 38 North, Range 7 East, and Sections 28 and 33 of the U.S. Geological Survey Bieber, California 7.5-minute quadrangle. Elevation on the Lassen site is approximately 4,120 feet above mean sea level.

The Lassen location was formerly part of a wood processing sawmill. The buildings from the prior use are located north of the project site, and were separated from the main parcel through a lot line adjustment. The Burlington Northern Santa Fe (BNSF) Railroad forms the eastern boundary of the site. An agricultural chemical company (Helena Agri-Business) and scattered residences are located to the north and west of the site, and to the east of the woodyard property. Agricultural land is located to the east and south. Most of the lands adjacent to the site are under Williamson Act contracts. Primary access to the site is from Babcock Road, which connects to State Route 299.

## 2.5.2 Existing Conditions

The Lassen site is shown in Figure 2-4, Project Site (Lassen). The northern portion of the project site (north of Babcock Road) was previously part of a sawmill operation, and is currently used to load wood products onto railcars. The site includes railroad siding, a gravel pad, internal roadways, a well pump house and water tower. The water tower is 102 feet tall.

The southern portion of the project site (south of Babcock Road) is undeveloped, consisting of non-native grassland with a mix of annual grasses and forbs.

The project site contains several seasonal wetlands (see Figure 3.3-4). These features collect water seasonally and are discernible from the adjacent upland areas by a distinct change in vegetation. Sic unlined ditches are located throughout the project site. These are unlined, earthen water conveyance systems that were constructed in upland habitat and exhibit a mild break in slope and change in vegetation. Ditches within the project site are generally 5 to 6 feet wide at the top of bank and have an ordinary high water mark width of 1 to 2 feet.

The project site is located within a 100-year floodplain. Therefore, finished grade of structures would need to be above base flood elevation.

The northerly parcel, on which the production facility would be located, is zoned A-1 (General Agriculture District), which is described in Chapter 18.16 of the Lassen County Ordinance Code and is classified as Town Center by the Lassen County General Plan (Lassen County 1999). The southerly parcels, which would be used for feedstock storage, are zoned E-A-A-P (Exclusive Agricultural District – Agricultural Preserve Combining District), described in Chapters 18.66 and 18.82 of the Lassen County Ordinance Code, and is classified as Intensive Agriculture by the General Plan.

## 2.5.3 Wood Pellet Facility Components

The proposed project would include the construction and operation of a new wood pellet production facility, including a woodyard, green processing area, drying area, pellet mill, project storage, and loadout area. New internal roads for truck access and facility personnel access will be added, including a new road for truck access from Babcock Road at the southwest corner of the site. A new rail spur connecting to the adjacent BNSF Railway line would be added for finished product load out as well as additional rail siding tracks on-site for the storage of full and empty railcars. Other improvements would include new truck scales and a graded area for overflow raw material storage. The proposed site layout showing new project components is included in Figure 2-5, Project Site Plan (Lassen). These project components are also described in further detail below.

The stacker reclaimer, located on the southern end of the site (farther from the highway) would be the tallest structure on site, at 112 feet. Facility buildings would be 40 to 65 feet in height.

The proposed project would consist of several individual facility components to produce the wood pellet product, listed in chronological order (by way of process) and described below. The process flow, including each facility component and its role in the wood pellet production process, is also depicted in Figure 2-6, Process Flow Chart.

## Feedstock Receiving

The facility would be designed to produce 700,000 metric tons (MT) per year of industrial wood pellets. To produce this amount of pellets, a higher ratio of green material must be received, to account for drying and for material used in the drying process. The annual green feedstock volume required for this facility is approximately 1,183,890 metric tons, or 1,305,015 US tons .

The proposed wood pellet production facility would receive feedstock in two primary forms: roundwood and residual chips. Roundwood would be delivered to the facility by logging trucks and stored in the woodyard until processed into chips. Residual chips would be delivered in trucks and received using automatic back-on truck dumps. The residuals stream would be made up of chips and small amounts of sawdust. Both feedstock streams would be screened for oversized pieces and would be conveyed to a stacker reclaimer to pile the bulk material for storage.

The proposed project would receive feedstock and biomass fuel consistent with the specifications listed in Table 2-1.

### Table 2-1. Feedstock Specifications

| | |
|---|---|
| **Form of Feedstock Received (Annual Percentage By Weight)** | |
| Chips (including Sawdust) | 71% |
| Roundwood | 29% |
| **Roundwood (As Received)** | |
| Biomass Length | 8 feet to 50 feet |
| Biomass Diameter | 3 inches to 40 inches |
| Moisture Content | 35 - 50% |
| Bark Content | Up to 12% |
| Required Capacity | 41.2 MT/hour[a] |
| **Residual Chips (As Received)** | |
| Chip Size Distribution (Assumed) | — |
| > 4 inches | 4% |
| 3/8 inches to 4 inches | 90% |
| < 3/8 inches | 6% |
| Chip Moisture Content | 35% |
| Sawdust Moisture Content | 50% to 55% |
| Required Capacity | 106.0 MT/hour |
| **Biomass Fuel[b] (As Received)** | |
| Max Particle Size | 6 inches |
| Moisture Content | 15% to 40% |

**Notes:**

[a] MT/hour = metric tons per hour.

[b] Biomass fuel refers to miscellaneous waste debris, bark, and other organic matter generated from commercial forestry and forest products operations.

### Woodyard

When roundwood feedstock is ready to be processed in the woodyard, a loader would collect roundwood from the storage piles and transfer the logs for processing through a debarker and chipper. The woodyard would also receive the sawmill residuals and forest slash, and these smaller materials would be received by new automated back-on truck dumpers and screened based on particle size. Any material that is grossly out of spec would be rejected through a screening process and used as fuel for biomass furnaces. The processed chips and the residuals would be conveyed to a stacker reclaimer with a capacity of 4,000,000 cubic feet for storage. Biomass fuel and bark from the debarking drum would be conveyed to a storage pile for use as fuel for the dryer. A prefabricated electrical room dedicated to the woodyard equipment would also be installed.

### Green Materials Processing

Raw material (green chips) from the woodyard would be conveyed from the stacker reclaimer to the green processing area. The material would be screened based on particle size and all in-spec chips would continue to the dryer. The material that is too large to pass through the screens would be directed to an array of green hammer mills to be reduced to the appropriate size and then conveyed to the dryer.

### Drying and Dry Processing

The drying area would consist of a dryer island complete with drum dryer, furnace, air systems, and emissions control. The dryer would use heat from a biomass-fired furnace to reduce the moisture content of the wood chips to approximately 10%, a level suitable for pellet production. Dried material would be conveyed from the dryer to the dry processing area. The material would be screened based on particle size, and all in-spec chips would continue to the pellet mill. The material that does not pass through the screens would be directed to an array of dry hammer mills to be reduced to the appropriate size and then conveyed to the pellet mill.

### Pellet Mill

Dried wood chips would arrive at the pellet mill and would be distributed to an array of pellet lines consisting of a conditioning bin, pelletizer, and pellet cooler. The conditioning bin would meter material into the mills to be formed into pellets. After cooling, the pellets would pass through a final screen to ensure that specifications have been met. At full design capacity, the facility could produce up to 700,000 MT per year of I2 industrial grade wood pellets. Per the International Standard for Organization (ISO) wood pellet specification, I2 industrial grade wood pellets are consistent with the specifications listed in Table 2-2.

**Table 2-2. I2 Industrial Grade Wood Pellet Specifications**

| Property | Specification |
|---|---|
| Density | 42-44 lb/ft$^3$ |
| Moisture Content | 7% |
| Diameter | 0.24 to 0.39 inches (6–10 mm) |
| Length | 0.24 to 1.57 inches (6–40 mm) |
| Durability | ≥ 97.5% |
| Fines Content | ≤ 5.0% |

**Table 2-2. I2 Industrial Grade Wood Pellet Specifications**

| Property | Specification |
|---|---|
| Net Calorific Value | ≥ 7,100 BTU/lb (16.5 MJ/kg) |
| Total Ash | ≤ 1.5% |

**Notes:** Specifications based on ISO 17225-2:2014(en), Solid biofuels — Fuel specifications and classes — Part 2: Graded wood pellets. lb/ft$^3$ = pounds (mass) per cubic foot; mm = millimeters; BTU = British thermal unit; MJ/kg = megajoules per kilogram.

It is assumed that about 1% of pellets would be rejected during the screening process. In-spec pellets would continue to the finished product storage while rejects would be collected for reprocessing or use as fuel. A prefabricated electrical room dedicated to the pellet mill equipment would also be installed.

### Product Storage and Loadout

Finished pellets would be conveyed from the pellet mill to three 2,500-metric-ton silos for storage and loadout. From the silos, the finished product would be loaded into railcars for transport to the port for shipping. A new rail spur connecting to the adjacent BNSF Railway line and track to store railcars would be added for finished product loadout. Railcars would be combined into 100-car unit trains.[6] 70 trains per year, or approximately one train departing every five days, would depart for the Port of Stockton. (Each unit train has six locomotives, in addition to the 100 freight cars.)

### Other On-Site Facilities and Structures

Additional on-site facilities would include an office, maintenance shop, locker rooms, and two guard houses (one at each road entrance). There would also be auxiliary structures and utility systems required for plant operations (e.g., fire suppression, water, compressed air). To control air quality and maintain a safe work environment, a central dust and emissions control system would be installed. This central emissions control system will utilize a Regenerative Catalytic Oxidizer (RCO) to limit VOC emissions to the atmosphere, and will further implement selective noncatalytic reduction (SNCR) for the furnace and dryer systems. (Additional information regarding emissions control at this facility may be found in Chapter 3.2, Air Quality.)

### Fire Protection

While the product stream is still green (high in moisture), regular preventative maintenance along with belt speed sensors, motor current sensors, and housekeeping will be used to mitigate fire risk. Once the product stream is dry, spark detectors with chemical suppression are placed at all critical points throughout the process. (See Chapter 3.8, Hazards and Hazardous Materials, for further information.) Additionally, all dry process equipment is outfitted with bearing temperature sensors to monitor and allow any high-temperature issues to be preemptively corrected. Structures, conveyors, and major equipment will be outfitted with fire sprinklers in case of emergency. An underground fire water loop will be included complete with hydrants and firefighting stations in high-risk areas. The pellet storage silos utilize temperature sensors throughout the storage volume that trigger aeration fans to cool any hotspot that may occur, while the chance of any hotspots occurring is greatly reduced through operational controls by keeping residence time in the silos as short as possible. (Additional technical detail regarding the fire protection measures at this site is provided in Chapter 3.8.)

[6] A unit train is a train formed of cars carrying the same material to the same destination. By comparison, a manifest train is made up of different cars (and cargos) with different origins and destinations.

There is currently a water tower on-site that is used to fill water trucks for dust control. Either a new or replacement water storage tank would be required for fire suppression. The new tank would have a capacity of 180,000 gallons, subject to final review by the fire authorities.

A back-up fire pump, rated at 150 horsepower (hp) would be installed in case the site loses power.

## 2.5.4 Plant Security and Access

The project site would have a separate accessways for haul trucks (from Babcock Road) and employee access (from Washington Avenue), and new internal roads for truck circulation and personnel access would be added. Guard houses would control the truck and personnel access roads. The accessway would be designed to allow for emergency vehicles to access the site in case of fire or emergency event. A full perimeter fence would be constructed around the project site boundary for security.

## 2.5.5 Construction and Schedule

Construction is assumed to begin in late 2025 and will take approximately 14-18 months. Based on a review of the current structures located on the site, demolition activities are anticipated to generate minimal debris that would require transport to a landfill permitted to accept inert construction and demolition materials. The total area of disturbance would be approximately 192.52 acres. The earthwork largely balances on-site; it is anticipated that approximately 5,220 cubic yards of fill would need to be imported. The earthwork estimate includes raising building foundations above the base flood elevation and construction of a stormwater detention basin, as described in Chapter 3.9, Hydrology and Water Quality. The estimate also accounts for potential on-site wetlands mitigation, as described in Chapter 3.3, Biological Resources. Created wetlands would be designed to balance on-site. Any excess material from created wetlands would be used in raising the building foundations, potentially lowering the need for imported fill.

During typical project-related construction activities, equipment is expected to operate 5 days per week, during the hours of 7:00 a.m. to 5:00 p.m.

## 2.5.6 Operation

Facility equipment is designed based on 8,040 hours of operations per year. Feedstock would be received at the woodyard 24 hours per day, 5 days per week. This would produce and store enough feedstock for fuel to enable pellet production to operate consistently. Pellet production operations would be active 24 hours per day, 7 days per week, with up to 4 weeks total downtime allotted for planned and unplanned outages once at capacity. After start-up and commissioning, it is expected that it would take 2 years to reach full facility capacity.

The operation schedule is shown in Table 2-3.

**Table 2-3. Lassen Operation Schedule**

| Design Basis | Woodyard Receiving | Woodyard Equipment | Pellet Production | Routine Shutdowns | Unplanned Outages |
|---|---|---|---|---|---|
| Shifts | 3 | 3 | 3 | 3 | — |
| Hours/Shift | 8 | 8 | 8 | 8 | — |

**Table 2-3. Lassen Operation Schedule**

| Design Basis | Woodyard Receiving | Woodyard Equipment | Pellet Production | Routine Shutdowns | Unplanned Outages |
|---|---|---|---|---|---|
| Days/Week | 5 | 7 | 7 | 7 | — |
| **Total Weeks** | **48** | **48** | **48** | **3** | **—** |
| **Total Hours** | **5,760** | **8,040** | **8,040** | **504** | **216** |

The facility would employ up to 60 people in three shifts during the workday, as shown in Table 2-4.

**Table 2-4. Lassen Daily Employees**

| Shift | Employees |
|---|---|
| A | 28 |
| B | 16 |
| C | 16 |
| **Total** | **60** |

## 2.5.7 Utilities

The proposed project would require utilities such as electrical service and water for operation. Utilities required for the proposed project are listed in Table 2-5 below.

**Table 2-5. Utility Summary**

| Utility | Provider | Details |
|---|---|---|
| Electrical | PG&E (Current) | 142,677,840 kWh/year |
| Propane | Local Supplier | Natural gas service would be unavailable to the site. On-site propane storage (75,000 gallons) would be required for emissions control and other stationary equipment. |
| Water | Groundwater | Onsite wells would provide both potable and process water. Approximately 32 gpm average would be required for use in the process. Annual water demand would be approximately 47 acre-feet. |
| Process Wastewater | On-Site Treatment | Process wastewater generated on site would be recycled to the dryer system. |
| Sanitary Sewer | On-Site Treatment | The project would include a septic tank system. |
| Stormwater | On-Site Treatment | A stormwater drainage system would be installed to direct run off to an on-site detention pond. |

**Notes:** kWh = kilowatt-hours.

The project site is not served by wet utilities. Water for the pellet process and employee needs would be provided by on-site groundwater welsl. The process water is recaptured as steam and recycled into the process. A septic system would be installed to meet non-process wastewater demands. Stormwater would be addressed onsite with the construction of an on-site detention basin.

Electrical service will be provided from the nearest substation located approximately four miles northeast of the project site. This substation is presently operated by Surprise Valley Electrification Corporation (SVEC), and use of this substation will therefore require a wheeling or similar arrangement between PG&E and SVEC.

# 2.6 Central Sierra Nevada (Tuolumne) Site

## 2.6.1 Location

The proposed Tuolumne wood pellet processing site is located at 12001 La Grange Road approximately 9 miles southwest of the community of Jamestown, in Tuolumne County, California, and in the western foothills of the Sierra Nevada Mountain Range (see Figure 2-7, Project Location (Tuolumne)). The Tuolumne site is located immediately southeast of the junction of State Route 108 and La Grange Road. The site is situated in Township 1 South, Range 13 East, and Sections 14 and 23 of the U.S. Geological Survey Tuolumne, California 7.5-minute quadrangle. Elevations on the Tuolumne site range from approximately 1,070 feet above mean sea level in the northwest corner of the site to 1,140 feet above mean sea level in the eastern portion of the site. The Tuolumne site occurs within the Upper Stanislaus River watershed.

The Tuolumne location is a previously developed site that was formerly a wood processing mill, used by the former owner, Sierra Pacific Industries, for finished bark and colored mulch processing. Prior to Sierra Pacific Industries ownership, the facility was an operational sawmill run by Louisiana Pacific. A wood shaving plant owned by American Wood Fibers is located adjacent to the west side of the site, and two residences are located adjacent to the northwest corner of the site. Agricultural land is located to the north, east, and south. A majority of the adjacent lands are under Williamson Act (California Land Conversation Act) contracts, restricting them to agricultural or related use. Primary access to the site is from La Grange Road, which connects to CA-120 northwest of the site. The site is bordered by Sierra Northern Railroad to the west that travels along La Grange Road and intersects near the southwestern project site boundary.

## 2.6.2 Existing Conditions

The Tuolumne site is partially developed with existing structures and other features generally concentrated within the center of the site, as shown in Figure 2-8, Project Site (Tuolumne). This includes buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with the former mill. Currently, 9.6 acres of the total 58.56 acres of the project site are paved. The site has two existing accessways: one for truck access at the southwest area of the site and one for employee access at the northwest area of the site, both from La Grange Road.

The majority of the undeveloped areas of the project site consist of annual grassland with some young blue oak shrubs. Blue oak woodland is concentrated in the northwestern portion of the project site. There are two patches of riparian woodland in the northern portion of the project site. The project site is surrounded by widely scattered rural development and open space, generally also composed of scattered oak woodland and annual grassland.

The project site contains a variety of aquatic resources, including wetland and non-wetland waters. There are two freshwater emergent wetlands and two seasonal wetlands located in the northern and southern portions of the site. These features are discernible from the adjacent upland areas by a distinct change in vegetation. There is one vernal pool in the southeastern corner of the project site. An ephemeral drainage at the southern edge of the project site conveys overflow from a vernal pool and directs it through a culvert south of the project site. A freshwater pond

in the northern portion of the project site is fed by two seasonal drainages originating east to northeast of the project site. Additionally, there are four humanmade detention basins constructed throughout the project site to collect and store run-off: one in the southern portion of the site, one in the northeastern portion of the site, and two located near the mid-west portion of the site. One perennial drainage is located near the southern portion of the project site, and one intermittent drainage occurs in the northeast corner of the project site.

The current 58.56-acre site was once part of a larger mill site that included the 8.39-acre parcel to the southwest and two smaller (1.48-acre and 1.43-acre) parcels to the northwest. A wood shavings plant was constructed on the 8.39-acre parcel adjacent to the southwest under a Site Development Permit (307) granted in 1990. This wood shavings plant is now owned and operated by American Wood Fibers. The two smaller parcels each contain a single-family residence, built in 1969 as caretaker housing for the mill, and have since been sold for residential housing.

The site is zoned M-2 (Heavy Industrial), which is described in Section 17.40.020 of the Tuolumne County Ordinance Code and is classified as Heavy Industrial by the Tuolumne County General Plan (Tuolumne County 2018).

## 2.6.3 Wood Pellet Facility Components

The proposed project includes construction and operation of a new wood pellet production facility, including a woodyard, green processing area, drying area, pellet mill, project storage and loadout area. New roads for truck access and mill personnel access will be added, including a new truck access from La Grange Road at the southeast corner of the site. A new rail spur connecting to the adjacent Sierra Northern Railway line as well as additional rail siding tracks on site for the storage of full and empty railcars will be added for finished product loadout. Other improvements will include repurposing existing truck scales and a graded area for overflow raw material storage. The proposed site layout is shown in Figure 2-9, Project Site Plan (Tuolumne). These project components are also described in further detail below.

The stacker reclaimer would be the tallest structure on site, with a central structure 72 feet high, and a boom with a maximum height of 107 feet. Facility buildings would be 30 to 35 feet in height.

The proposed project would consist of several individual facility components to produce the wood pellet product, listed in the order in which they process material from receiving to finished product loadout and as described below in greater detail. The process flow, including each facility component and its role in the wood pellet production process, is also visualized in Figure 2-6, Process Flow Chart, provided in Section 2.5.3.

### Feedstock Receiving

The facility would be designed to produce 300,000 metric tons (MT) per year of industrial wood pellets. To produce this amount of pellets, a higher ratio of green material must be received, to account for drying and for material used in the drying process. The annual green feedstock volume required is approximately 548,294 metric tons (604,390 US tons).

The proposed wood pellet production facility would receive feedstock in two primary forms: roundwood and residual chips. Roundwood would be delivered to the facility by logging trucks and stored in the woodyard until processed into chips. Residual chips would be delivered in trucks and received using automatic back-on truck dumps. The residuals stream would be made up of chips and small amounts of sawdust. Both feedstock streams would be screened for oversized pieces and would be conveyed to a stacker reclaimer to pile the bulk material for storage.

The proposed project would receive feedstock and biomass fuel consistent with the specifications listed in Table 2-6.

## Table 2-6. Feedstock Specifications

| Form of Feedstock Received (Annual Percentage By Weight) | |
|---|---|
| Chips (including Sawdust) | 54% |
| Roundwood | 46% |
| **Roundwood (As Received)** | |
| Biomass Length | 8 feet to 50 feet |
| Biomass Diameter | 3 inches to 40 inches |
| Moisture Content | 35 - 50% |
| Bark Content | Up to 12% |
| Required Capacity | 31.6 MT/hour[a] |
| **Residuals (As Received)** | |
| Chip Size Distribution (Assumed) | — |
| > 4 inches | 4% |
| 3/8 inches to 4 inches | 90% |
| < 3/8 inches | 6% |
| Chip Moisture Content | 35% |
| Sawdust Moisture Content | 55% |
| Required Capacity | 39.6 MT/hour |
| **Biomass Fuel[b] (As Received)** | |
| Max Particle Size | 6 inches |
| Moisture Content | 15% to 40% |

Notes:
[a] MT/hour = metric tons per hour.
[b] Biomass fuel refers to miscellaneous waste debris, bark, and other organic matter generated from commercial forestry and agriculture.

### Woodyard

When roundwood feedstock is ready to be processed in the woodyard, a loader would collect roundwood from the storage piles and transfer the roundwood for processing through a de-barker and chipper. The woodyard would also receive the sawmill residuals and forest slash, and these smaller materials would be received by new automated back-on truck dumpers and screened based on particle size. Any material that is grossly out of specification would be rejected and used as fuel for biomass furnaces. The processed chips and the residuals would be conveyed to a stacker reclaimer with a capacity of 2,000,000 cubic feet for storage. Biomass fuel and bark from the debarking drum would be conveyed to a storage pile for use as fuel for the dryer. A prefabricated electrical room dedicated to the woodyard equipment would also be installed.

### Green Materials Processing

Raw material (green chips) from the woodyard would be conveyed from the stacker reclaimer to the green processing area. The material would be screened based on particle size and all in-spec chips would continue to the dryer. The material that is too large to pass through the screens would be directed to a green hammer mill to be reduced to the appropriate size and then conveyed to the dryer.

## Drying and Dry Processing

The drying area would consist of a dryer island complete with drum dryer, furnace, air systems, and emissions control. The dryer would utilize heat from a biomass-fired furnace to reduce the moisture content of the wood chips to approximately 10%, a level suitable for pellet production. Dried material would be conveyed from the dryer to the dry processing area. The material would be screened based on particle size and all in-spec chips would continue to the pellet mill. The material that does not pass through the screens would be directed to an array of dry hammer mills to be reduced to the appropriate size and then conveyed to the pellet mill.

## Pellet Mill

Dried wood chips would arrive at the pellet mill and would be distributed to an array of pellet lines consisting of a conditioning bin, pelletizer, and pellet cooler. The conditioning bin would meter material into the mills to be formed into pellets. After cooling, the pellets would pass through a final screen to ensure that specifications have been met. At full design capacity, the facility could produce up to 300,000 MT per year of I2 industrial grade wood pellets. Per the International Standard for Organization wood pellet specification, I2 industrial grade wood pellets are consistent with the following specifications listed in Table 2-7.

### Table 2-7. I2 Industrial Grade Wood Pellet Specifications

| Property | Specification |
|---|---|
| Density | 42 lb/ft$^3$ to 44 lb/ft$^3$ |
| Moisture Content | 7% |
| Diameter | 0.24 inches to 0.39 inches (6–10 mm) |
| Length | 0.24 inches to 1.57 inches (6–40 mm) |
| Durability | ≥ 97.5% |
| Fines Content | ≤ 5.0% |
| Net Calorific Value | ≥ 7,100 BTU/lb (16.5 MJ/kg) |
| **Total Ash** | **≤ 1.5%** |

**Notes:** Specifications based on ISO 17225-2:2014(en), Solid biofuels — Fuel specifications and classes — Part 2: Graded wood pellets. lb/ft$^3$ = pounds (mass) per cubic foot; mm = millimeters; BTU = British thermal unit; MJ/kg = megajoules per kilogram.

It is assumed that about 1% of pellets would be rejected during the screening process. In-spec pellets would continue to the finished product storage while rejects would be collected for reprocessing or use as fuel. A prefabricated electrical room dedicated to the pellet mill equipment would also be installed.

## Product Storage and Loadout

Finished pellets would be conveyed from the pellet mill to two 1,550-metric-ton silos for storage and loadout. From the silos, the finished product would be loaded into railcars for transport to the port for shipping. A total of 3000 railcars, with a capacity of 100 metric tons, per year would be required to transport material to the Port of Stockton. These cars would be added to other cargo types (such as box cars) to form a “manifest” train. Between 12 and 14 railcars would be added on to each manifest train (an average of 13 per day), approximately 240 days per year.

### Other On-Site Facilities and Structures

Additional on-site facilities would include an office, maintenance shop, locker rooms, and a guard house. There would also be auxiliary structures and utility systems required for plant operations (e.g., fire, water, compressed air). To control air quality and maintain a safe work environment, a central dust and emissions control system would be installed, and will further implement selective noncatalytic reduction (SNCR) for the furnace and dryer systems. (Additional information regarding emissions control at this facility may be found in Chapter 3.2, Air Quality.)

### Fire Protection

While the product stream is still green (high in moisture) regular preventative maintenance along with belt speed sensors, motor current sensors, and housekeeping will be used to mitigate fire risk. Once the product stream is dry, spark detectors with chemical suppression are placed at all critical points throughout the process. (See Chapter 3.8, Hazards and Hazardous Materials, for further information.) Additionally, all dry process equipment is outfitted with bearing temperature sensors to monitor and allow any high-temperature issues to be preemptively corrected. Structures, conveyors, and major equipment will be outfitted with fire sprinklers in case of emergency. An underground fire water loop will be included complete with hydrants and firefighting stations in high-risk areas. The pellet storage silos utilize temperature sensors throughout the storage volume that trigger aeration fans to cool any hotspot that may occur, while the chance of any hotspots occurring is greatly reduced through operational controls by keeping residence time in the silos as short as possible. (Additional technical detail regarding the fire protection measures at this site is provided in Chapter 3.8.)

A back-up fire pump, rated at 150 horsepower (hp) would be installed in case the site loses power.

## 2.6.4 Plant Security and Access

The project site currently has two accessways from La Grange Road: One for truck access on the south side of the parcel and one for employee access located on the northerly portion of the site. New internal roads for truck circulation and mill personnel access would be added. A new guard/scale house would control the truck access road. Both accessways would be designed to allow for emergency vehicles to access the site in case of fire or emergency event. A full perimeter fence would be constructed around the project site boundary for security. A new rail spur connecting to the adjacent Sierra Northern rail line and track to store 45 railcars would be added for finished product loadout.

## 2.6.5 Construction and Schedule

Construction is assumed to begin in late 2026 and will take approximately 14-18 months. The existing structures, associated with the prior mill facility, would be demolished. Cut and fill for the site is estimated to be 256,660 cubic yards cut and 141,176 cubic yards fill (net export of 115,484 cubic yards). The total area of disturbance would be approximately 46 acres.

During typical project-related construction activities, equipment is expected to operate 5 days per week, during the hours of 7:00 a.m. to 5:00 p.m.

## 2.6.6 Operation

Facility equipment is designed based on 8,040 hours of operations per year. Feedstock would be received at the woodyard 24 hours per day, 5 days per week. This would produce and store enough feedstock for fuel to enable pellet production to operate consistently. Pellet production operations would be active 24 hours per day, 7 days per week, with up to 4 weeks total downtime allotted for planned and unplanned outages once at capacity. After start-up and commissioning, it is expected that it would take 1 year to reach full facility capacity.

The operation schedule is shown in Table 2-8.

**Table 2-8. Tuolumne Operation Schedule**

| Design Basis | Woodyard Receiving | Woodyard Equipment | Pellet Production | Routine Shutdowns | Unplanned Outages |
|---|---|---|---|---|---|
| Shifts | 3 | 3 | 3 | 3 | — |
| Hours/Shift | 8 | 8 | 8 | 8 | — |
| Days/Week | 5 | 7 | 7 | 7 | — |
| **Total Weeks** | **48** | **48** | **48** | **3** | **—** |
| **Total Hours** | **5,760** | **8,040** | **8,040** | **504** | **216** |

The facility would employ up to 51 people in three shifts during the workday, as shown in Table 2-9.

**Table 2-9. Tuolumne Daily Employees**

| Shift | Employees |
|---|---|
| A | 25 |
| B | 13 |
| C | 13 |
| **Total** | **51** |

## 2.6.7 Utilities

The proposed project would require utilities such as electrical service and water for operation. Utilities required for the proposed project are listed in Table 2-10 below.

**Table 2-10. Utility Summary**

| Utility | Provider | Details |
|---|---|---|
| Electrical | PG&E | 94,807,680 kWH/year |
| Propane | Local Supplier | Natural gas service would be unavailable to the site. On-site propane storage (30,000 gallons) would be required for emissions control and other stationary equipment. |
| Water | Groundwater | An onsite well would provide both potable and process water. Approximately 17 gpm average would be required for use in the process Annual water demand would be approximately 25 acre-feet. |

**Table 2-10. Utility Summary**

| Utility | Provider | Details |
|---|---|---|
| Process Wastewater | On-Site Treatment | Process wastewater generated on site would be recycled to the dryer system. |
| Sanitary Sewer | On-Site Treatment | The project would include a septic tank system. |
| Stormwater | On-Site Treatment | A stormwater drainage system would be installed to direct run off to an on-site detention pond in the southeast corner or existing permitted discharge point on the west side of the property. |

**Note:** kWh = kilowatt-hours.

The project site is not served by wet utilities. Water will be provided by the on-site groundwater well. The process water is recaptured as steam and recycled into the process. The existing septic system will be refurbished, and expanded as needed, to meet the non-process needs of the facility. Stormwater is currently detained in two existing on-site basins, one on the south side, and one in the northeast area of the site. The site would continue to rely on these basins for stormwater detention.

An upgraded electrical connection to the grid, with service provided by PG&E will be required for the project, as further detailed in Chapter 3.15, Utilities and Service Systems.

# 2.7 Port of Stockton

## 2.7.1 Location

Finished pellets would be transported by rail from both the Lassen and Tuolumne facilities to the Port of Stockton, California (see Figure 2-10, Port Location). The proposed GSNR facility would be located in the West Complex of the Port, formerly known as Rough and Ready Island.

## 2.7.2 Existing Conditions

The Port of Stockton is an active deep water port. In 2022, Port activity included 278 ship calls and 4.4 million tons of import and export cargo. The West Complex, also known as Rough and Ready Island, is a former naval communication station (and previously, a naval supply annex). The property was approved for transfer to the Port of Stockton in 1966 for the benefit of maritime trade. The property was transferred in 2000.

The West Complex is 1,459 acres in size. It has 7 berths (labeled 14 through 20), with 6000 linear feet of docks, 630,000 square feet of transit sheds, and approximately 5 million square feet in warehouse space. Surface access to the West Complex is provided by Navy Drive Bridge and a parallel rail bridge on the west side, connecting to the main port, and the Port of Stockton Expressway Bridge to the south – the Expressway ultimately connects to Highway 4. The proposed GSNR facility would be located in the northwest quarter of the West Complex, on a relatively undeveloped site bordered by Davis Ave., Boone Dr., Edwards Ave., and Lipes Dr. The project site include a concrete parking lot in the southeast corner.

## 2.7.3 Facility Components

The proposed project would include the construction and operation of a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, covered conveyance to berth, and a ship loadout system. Additional rail sidings would be constructed to serve the facility. The proposed site layout showing new project components is included in Figure 2-11, Project Site Plan (Port). These project components are also described in further detail below.

The proposed project would consist of several individual facility components to receive, store, and load out the wood pellet product, listed in the order from receiving to loadout and as described below in greater detail.

### Product Receiving

Finished pellets would be delivered to the site by rail. Approximately 10,000 rail cars (each holding 100 MT of pellets) would arrive at the Port per year.

Pellets would be unloaded from closed hopper-type railcars. A single truck dump capable of unloading one bottom hopper trailer would also be installed. Pellets from each unloading system would pass through respective hoppers with dust control before being conveyed to storage domes.

### Product Storage

Finished pellets from the unloading systems would be conveyed to two storage domes complete with high-capacity pellet aeration systems and dust control systems. Each storage dome would store up to 35,000 MT of product. The domes would be approximately 140 feet in height, with auxiliary structures on top of the domes reaching a total height of 151 feet. At time of ship loadout, pellets would be reclaimed from the storage domes and conveyed through covered conveyors to the ship loadout system.

### Product Loadout

At time of ship loadout, pellets would be reclaimed from the storage domes by gravity and conveyed through covered conveyors to the ship loadout system. A mobile ship loader with jump conveyors would be used so as not to permanently impede port traffic on and around the dock area. Dust control systems would also be installed. Approximately 29 cargo ships, each carrying 35,000 MT of product, would be used each year to transport the pellets to various overseas international markets.

### Other On-Site Facilities and Structures

Additional on-site facilities would include an office, maintenance shop, and quality control lab. There would also be auxiliary structures and utility systems required for plant operations (nitrogen, service water, fire water, potable water, compressed air, and sewer). To control air quality and maintain a safe work environment, a series of dust control systems would be installed. Fire and explosion protection would be incorporated in this area.

### Fire Prevention

The two storage domes will utilize temperature sensors, moisture sensors, and multi-gas detectors to monitor the pellet storage piles. Protocols to minimize the time in storage will be implemented to lower the risk of fire

considerably. In the event any of the dome instrumentation triggers there will be a nitrogen deluge system installed that will flood the domes with nitrogen, displacing the oxygen supply. Additionally, the following fire monitoring and suppression system will be used:

- All conveyors will have a linear temperature sensing cable to monitor product temperature along the length of the belt.
- Transfer points will have infrared sensors (several per chute) to detect any high temperature particles.
- Each of the above detection methods can trigger fire water nozzles to spray the product stream.

Additional technical detail regarding the fire protection measures at this site is provided in Chapter 3.8, Hazards and Hazardous Materials.

## 2.7.4 Plant Security and Access

The Port of Stockton is a secured facility. Only authorized employees and visitors would have access to the site.

## 2.7.5 Construction and Schedule

Construction is assumed to begin in late 2024 and will take approximately 14-18 months. No demolition of structures is required, although the existing parking lot may be removed. The area of disturbance would be 12.9 acres.

During typical project-related construction activities, equipment is expected to operate 5 days per week, during the hours of 7:00 a.m. to 5:00 p.m.

## 2.7.6 Operation

Facility equipment is designed on the basis of 8,040 hours of operational availability per year, with the exception of the loadout equipment, which would operate 2,400 hours per year. Pellet receiving operations will be 24 hours per day, 7 days per week, with up to 4 weeks total downtime allotted for planned and unplanned outages once at capacity.

The operation schedule is shown in Table 2-11. The normal shift size would be four (4) employees in the A shift (day shift), and two (2) employees each in the B and C shifts.

**Table 2-11. Operation Schedule**

| Design Basis | Pellet Receiving | Pellet Loadout | Routine Shutdowns | Unplanned Outages |
|---|---|---|---|---|
| Products | I2 Pellets | I2 Pellets | N/A | N/A |
| Shifts | 3 | 3 | 3 | — |
| Hours/Shift | 8 | 8 | 8 | — |
| Days/Week | 7 | 3 | 7 | — |
| **Total Weeks** | **~48** | **~33** | **3** | **—** |
| **Total Hours** | **8,040** | **2,400** | **504** | **216** |

### 2.7.7 Utilities

The proposed project would require utilities such as electrical service and water for operation. Utilities required for the proposed project are listed in Table 2-12 below.

**Table 2-12. Utility Summary**

| Utility | Provider | Details |
|---|---|---|
| Electrical | Port of Stockton | 12,060,000 kWh annually (0.7 MW load). |
| Service Water | Port of Stockton | Operation would require approximately 675,360 gpy (2.07 AFY) for service water (non-potable). All service (non-potable) water uses would have an average demand of 84 gallons per hour, or 1.4 gpm. Maximum flow demand for non-potable water would by 66 gpm (excluding fire flow). |
| Fire Water | Port of Stockton | Existing fire hydrants would be used. For purposes of fire flow, the maximum non-potable flow would be between 1,500 and 3,940 gpm. |
| Potable Water | Port of Stockton | Operation would require approximately 50,966 gpy (0.16 AFY) for potable water. Potable water demand would be an average of 6.3 gallons per hour, or 0.1 gpm. Maximum potable flow would be 11 gpm. |
| Sanitary Sewer | Port of Stockton | Approximately 3 gpm. |
| Stormwater | On-Site Treatment | A stormwater drainage system would be installed to direct run off. |

**Notes:** kWh – kilowatt-hours; MW = megawatts; gpm = gallons per minute; AFY = acre-feet per year.

## 2.8 Project Approvals

GSFA is the lead agency under the California Environmental Quality Act. The GSFA Board of Directors, consisting of forty elected California county supervisors, has ultimate responsibility for approving and supervising the proposed project. The proposed project will be carried out jointly as a public-private partnership between GSFA and GSNR, with GSFA providing approval, supervision, and financing, and GSNR executing project operations. The public-private partnership agreement between GSFA and GSNR will include, as enforceable terms, all of the commitments and obligations of GSNR as described in this EIR, including but not limited to the Mitigation Measures, Project Design Features, Site Design Features, and feedstock constraints set forth in Section 2.4.

GSFA's responsibilities for the proposed project include:

- Creating GSNR as a nonprofit corporation, and appointing two members of its Board of Directors. (The other current directors are appointed by GSFA's affiliate, RCRC.)
- GSFA's Executive Director serves as President of GSNR, with executive responsibility for all of GSNR's operations. (All of GSNR's staffing is provided by GSFA and its affiliate, RCRC.)
- Subcontracting responsibilities under the MSA to GSNR through the public-private partnership agreement, establishing conditions for the exercise of those functions, and overseeing GSNR's performance.
- Approving Supplemental Project Agreements under the MSA, and subcontracting those treatment projects to GSNR, including establishing conditions for performance of that work and overseeing GSNR's activities.
- Providing startup funding to GSNR, consisting of an $11.75 million loan to GSNR (to fund feasibility studies and other predevelopment activities).

- Providing conduit financing for implementation of the Forest Resiliency Demonstration Project, through issuance of bonds.
- Approving all sources of harvest residuals procured and used by GSNR, and all biomass-only thinning projects undertaken by GSNR (as further described in Section 2.4).

The GSFA Board of Directors will determine whether the project proceeds, and under what conditions.

Table 2-13 provides a list of responsible agency project permits.

## Table 2-13. Responsible Agency Project Permits and Approvals

| Agency | Permit | Purpose | Discretionary? |
|---|---|---|---|
| **Tuolumne Facility** | | | |
| Tuolumne County Board of Supervisors | Development Agreement | Facilitate property development | Yes |
| Tuolumne County Community Development | Site Development Permit | Construction of new buildings | Yes |
| | | | |
| Tuolumne County Building and Safety Division | Building Permit(s) | Any structures on site | No |
| Tuolumne County Air Pollution Control District | Authority to Construct | Permission to construct facility that may emit air pollutants | Yes |
| | Permit to Operate | Permission to operate stationary source of air pollutants | Yes |
| U.S. Environmental Protection Agency | Title V Operating Permit | A permit under Title V of the Clean Air Act is required if the facility qualifies as a "major source" of hazardous air pollutants. The permit is typically processed concurrently with the local Authority to Construct/Permit to Operate. | Yes |
| Tuolumne County Environmental Health | Hazardous Materials Business Plan | If storage of liquid or solid hazardous materials exceeds certain amounts | No |
| | Aboveground/Underground Storage Tanks; Spill Prevention Plan | If petroleum products will be stored on site and exceeds certain amounts | No |
| Regional Water Quality Control Board | General Permit for Discharges of Storm Water Associated with Construction Activity | Coverage under general permit for disturbance of 1 or more acre of land; preparation of stormwater pollution prevention plan | No |
| | General Permit for Discharges of Storm Water Associated with Industrial Activity | Wood product manufacturing uses are typically covered under the general permit | No |
| | Water Discharge Report | Required if site development will impact waters of the state | Yes |

## Table 2-13. Responsible Agency Project Permits and Approvals

| Agency | Permit | Purpose | Discretionary? |
|---|---|---|---|
| California Department of Fish and Wildlife | Lake and Streambed Alteration Agreement (1602 Permit) | Required if site development will impact waters of the state | Yes |
| U.S. Army Corps of Engineers | Clean Water Act Section 404 Permit | Required if site development will require filling of any of the jurisdictional wetlands on the property. | Yes |
| **Agency** | **Permit** | **Purpose** | **Discretionary?** |
| **Lassen Facility** | | | |
| Lassen County Board of Supervisors | Development Agreement | Facilitate property development | Yes |
| Lassen County Planning and Building Services | Site Development Permit | Construction of new buildings | Yes |
| | Use Permit | Wood product manufacturing uses | Yes |
| | Building Permit(s) | Any structures on site | No |
| Lassen County Air Pollution Control District | Authority to Construct | Permission to construct facility that may emit air pollutants | Yes |
| | Permit to Operate | Permission to operate stationary source of air pollutants | Yes |
| U.S. Environmental Protection Agency | Title V Operating Permit | A permit under Title V of the Clean Air Act is required if the facility qualifies as a "major source" of hazardous air pollutants. The permit is typically processed concurrently with the local Authority to Construct/Permit to Operate. | Yes |
| Lassen County Environmental Health | Hazardous Materials Business Plan | If storage of liquid or solid hazardous materials exceeds certain amounts | No |
| | Aboveground/Underground Storage Tanks; Spill Prevention Plan | If petroleum products will be stored on site and exceeds certain amounts | No |
| Regional Water Quality Control Board | General Permit for Discharges of Storm Water Associated with Construction Activity | Coverage under general permit for disturbance of 1 or more acre of land; preparation of stormwater pollution prevention plan | No |
| | General Permit for Discharges of Storm Water Associated with Industrial Activity | Wood product manufacturing uses are typically covered under the general permit | No |
| | Water Discharge Report | Required if site development will impact waters of the state | Yes |
| California Department of Fish and Wildlife | Lake and Streambed Alteration Agreement (1602 Permit) | Required if site development will impact waters of the state | Yes |
| U.S. Army Corps of Engineers | Clean Water Act Section 404 Permit | Required if site development will require filling of any of the | Yes |

## Table 2-13. Responsible Agency Project Permits and Approvals

| Agency | Permit | Purpose | Discretionary? |
|---|---|---|---|
| | | jurisdictional wetlands on the property | |
| **Port Facility** | | | |
| Port of Stockton | Lease Agreement | Ground lease and construction of improvements. | Yes |
| **Feedstock Acquisition Permits and Approvals** | | | |
| U.S. Forest Service | Supplemental Project Agreement(s) (including similar stewardship contracts) | Conducting fuel reduction activities on U.S. Forest Service lands under the MSA | Yes |
| U.S. Fish and Wildlife Service | ESA Incidental Take Statement or Permit/Habitat Conservation Plan | Required if fuel reduction activities may adversely affect a *federally* listed threatened or endangered species (e.g., spotted owl) | Yes |
| California Department of Fish and Wildlife | CESA Incidental Take Permit/Natural Community Conservation Plan | Required if fuel reduction activities may adversely affect a *California* listed threatened or endangered species | Yes |
| | Lake and Streambed Alteration Agreement ("1602" Permit) | Required for any activity that will alter the bed, channel, or bank—of any stream (e.g., certain stream crossings) | Yes |
| U.S. Army Corps of Engineers | Clean Water Act Section “404” Permit | Required if in-forest activities will require discharge of fill material into streams (e.g., certain stream crossings) | Yes |
| State Historic Preservation Officer | National Historic Preservation Act Section 106 Concurrence | Federal agencies issuing permits that may affect historic resources must consult with the State Historic Preservation Officer | No |
| California Department of Forestry and Fire Protection | Timber Harvest Plan | Required for certain activities on *nonfederal* land that involve commercial harvest of timber, including some fuel reduction activities (i.e., if the byproducts are sold) | Yes |
| State Agency Land Managers (California State Parks, California Department of Fish and Wildlife, State Lands Commission, Caltrans, etc.) | Memorandum of Understanding | Required to conduct fuel reduction on agency-managed lands | Yes |

# 2.9 References

CAL FIRE (California Department of Forestry and Fire Protection). 2021. Fire Incidents Database. Accessed May 10, 2021. https://www.fire.ca.gov/incidents/

Lassen County. 1999. *Lassen County General Plan 2000.* September 1999. Accessed February 28, 2022. http://www.lassencounty.org/government/resources/planning-and-building-services.

Tuolumne County. 2018. *Tuolumne County General Plan*. August 2018. Accessed February 25, 2022. https://www.tuolumnecounty.ca.gov/889/General-Plan-Update.

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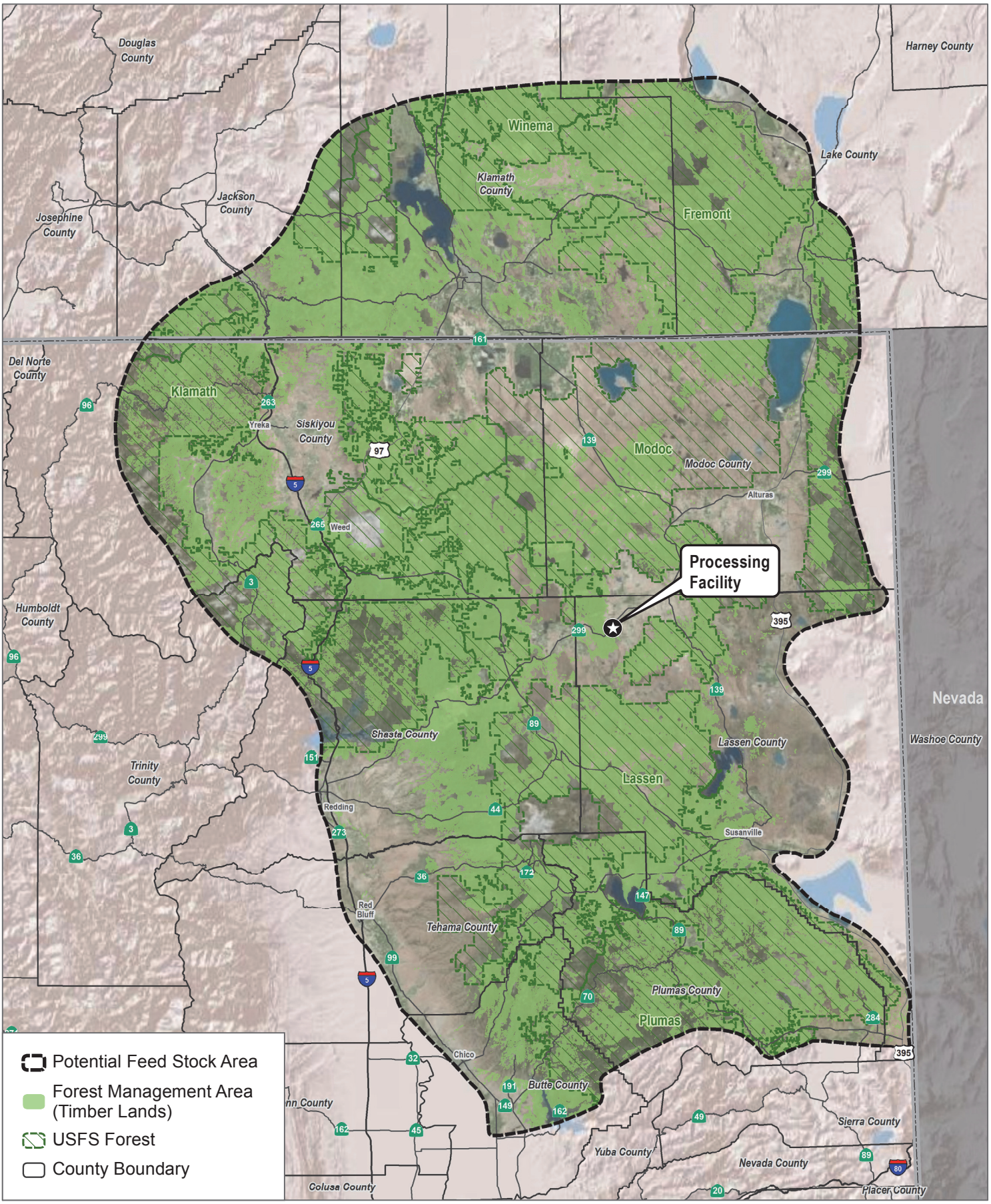


SOURCE: Bing Maps 2023

DUDEK

0 12.5 25 Miles

**FIGURE 2-1**

Working Area (Lassen Site)

Golden State Natural Resources Forest Resiliency Demonstration Project

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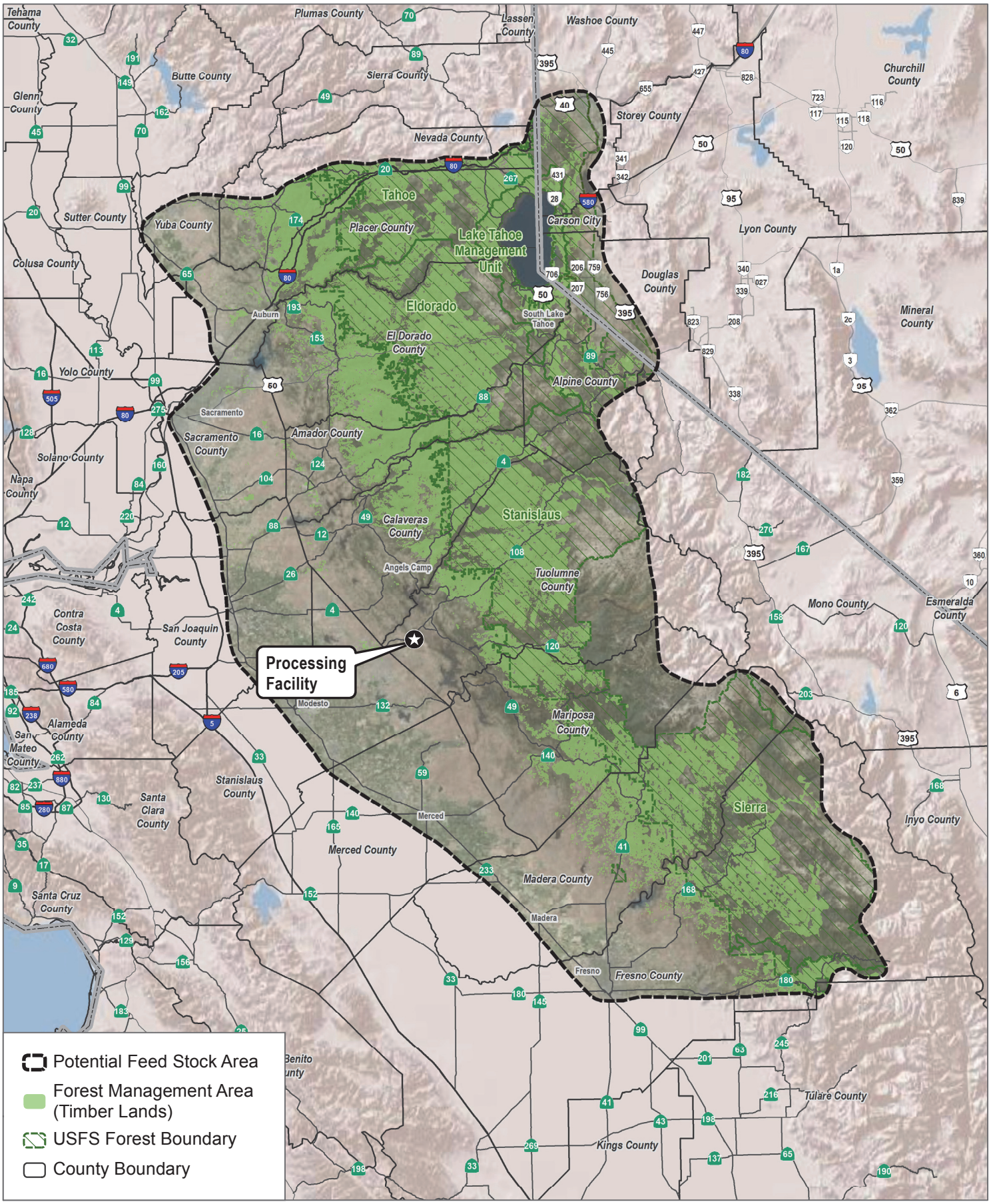


SOURCE: Bing Maps 2023

DUDEK

0 12.5 25 Miles

**FIGURE 2-2**

Working Area (Tuolumne Site)

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps 2020, Lassen County 2015

DUDEK

0 1,000 2,000 Feet

**FIGURE 2-3**

Project Location (Lassen Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps 2020, Lassen County 2015

DUDEK

0 500 1,000 Feet

**FIGURE 2-4**

Project Site (Lassen Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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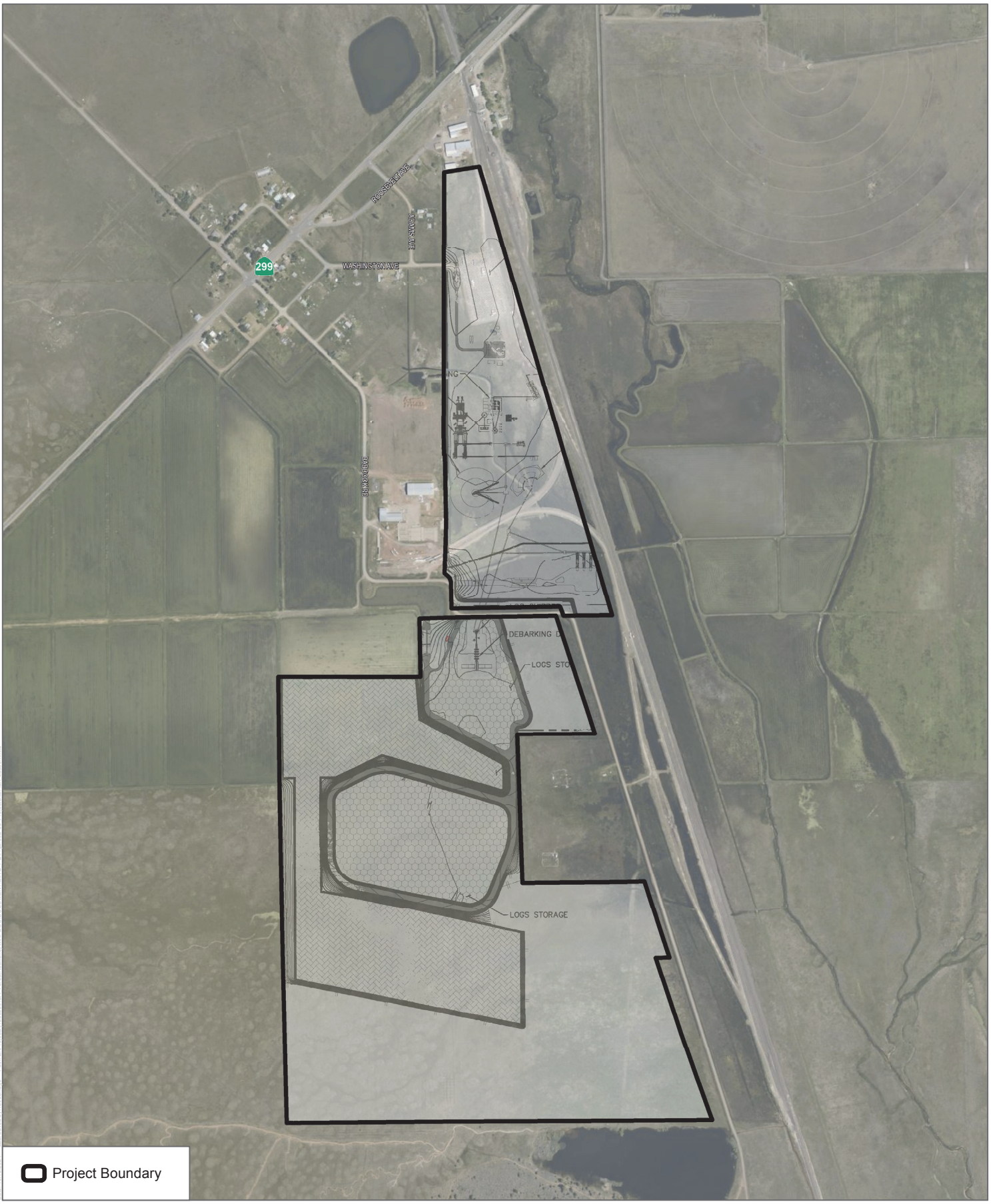


SOURCE: Bing Maps 2020, Lassen County 2015

DUDEK

0 500 1,000 Feet

**FIGURE 2-5**

Project Site Plan (Lassen Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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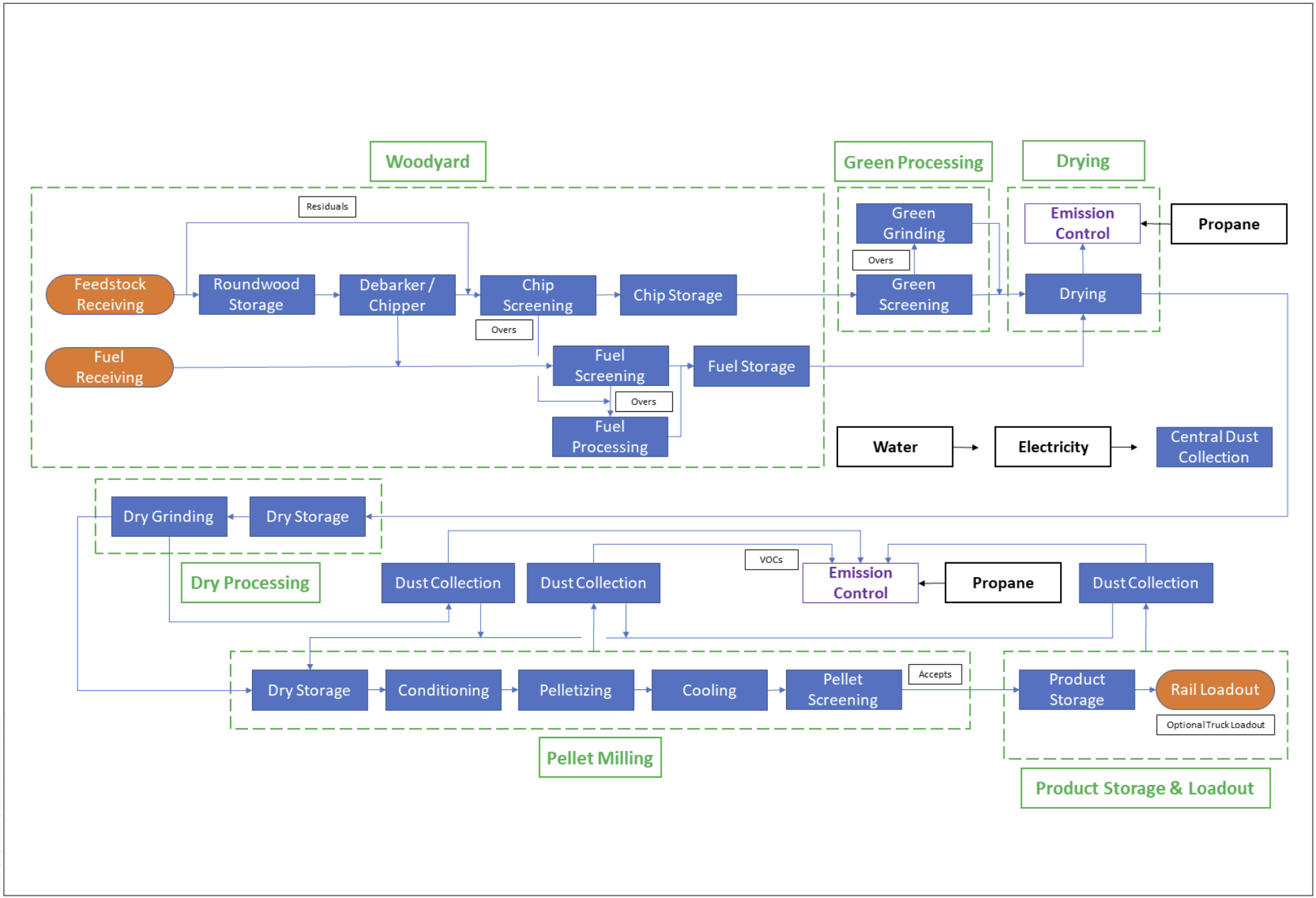


**FIGURE 2-6**

Process Flow Chart

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: USGS 7.5-Minute Series Keystone Quadrangle

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0 500 1,000 Feet

**FIGURE 2-7**

Project Location (Tuolumne Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps (Accessed 2020), Tuolumne County 2020

DUDEK

0 145 290 Feet

**FIGURE 2-8**

Project Site (Tuolumne Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps (Accessed 2020), Tuolumne County 2020

DUDEK

0 162.5 325 Feet

**FIGURE 2-9**

Project Site Plan (Tuolumne Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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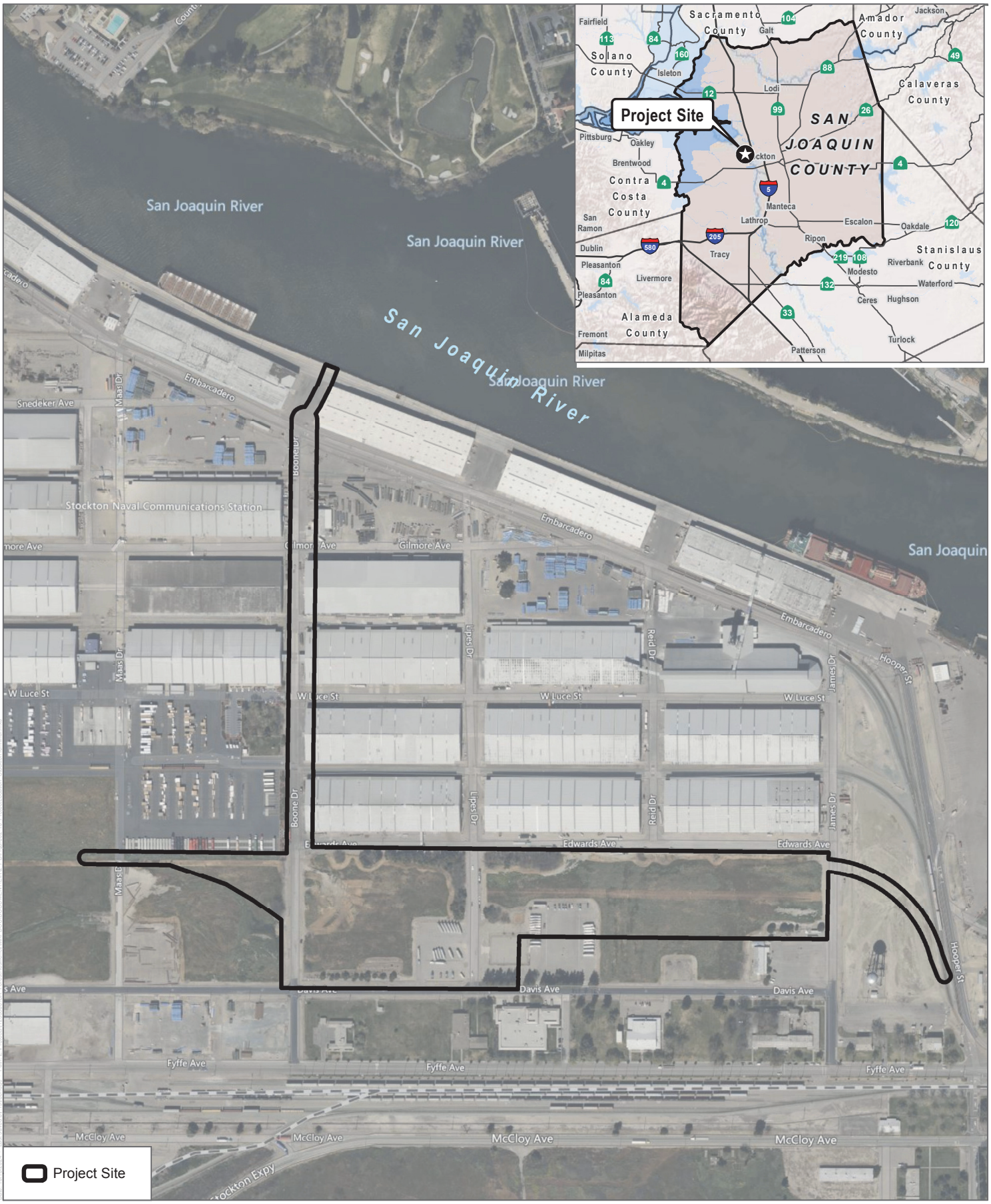


SOURCE: Bing Maps 2023, San Joaquin County 2021

**FIGURE 2-10**

Project Location (Port Rough Terminal, Port of Stockton)

Golden State Natural Resources Forest Resiliency Demonstration Project

DUDEK

0 250 500 Feet

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SOURCE: Bing Maps 2023, San Joaquin County 2021

DUDEK

0 250 500 Feet

**FIGURE 2-11**

Project Site Plan (Port Rough Terminal, Port of Stockton)

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 3 Environmental Setting, Impacts, and Mitigation Measures

## 3.0 Introduction to Analyses

This chapter provides analysis of the physical environmental effects of implementing the Golden State Natural Resources Forest Resiliency Demonstration Project (project). The following sections in this chapter evaluate the environmental impacts of the proposed project:

- 3.1 — Aesthetics
- 3.2 — Air Quality
- 3.3 — Biological Resources
- 3.4 — Cultural Resources
- 3.5 — Energy
- 3.6 — Geology and Soils
- 3.7 — Greenhouse Gas Emissions
- 3.8 — Hazards and Hazardous Materials
- 3.9 — Hydrology and Water Quality
- 3.10 — Land Use and Planning
- 3.11 — Noise and Vibration
- 3.12 — Population and Housing
- 3.13 — Public Services
- 3.14 — Transportation
- 3.15 — Utilities and Service Systems
- 3.16 — Wildfire

### 3.0.1 Section Organization

Each environmental resource section listed above generally has a similar format as described below.

- **Environmental Setting.** This section provides a general overview of the existing physical environmental conditions related to the topic being addressed, based on the conditions present at the time that the Notice of Preparation (NOP) for the EIR was released (June 2023).
- **Regulatory Setting.** This section describes applicable federal, state, and local laws, regulations, and plans relevant to the environmental resource topic and the project.
- **Impacts and Mitigation Measures.** This section identifies thresholds of significance used to evaluate whether an impact is considered significant, based on standards derived from Appendix G of the California Environmental Quality Act (CEQA) Guidelines.

This section evaluates and analyzes project impacts, states the level of significance prior to mitigation, and proposes mitigation measures for significant impacts that would reduce such impacts, if feasible. A statement regarding the level of significance of each impact after mitigation precedes the mitigation measures for that impact.

Cumulative impacts are discussed in each environmental resource section following the description of the project-specific impacts. The cumulative impact analysis considers the effects of the proposed project together with, and against the backdrop of, other past, present, or reasonably foreseeable future projects proposed in the project vicinities and regions. The cumulative impact analysis is based on the same setting, regulatory framework, and significance thresholds presented for each respective resource topic. Additional mitigation measures may be identified if the analysis determines that the proposed project's incremental contribution to a significant cumulative impact would be cumulatively considerable and, therefore, significant in and of itself. Section 0, 3.0.3

Cumulative Impacts Overview, below describes the assumptions and methodology for assessing cumulative impacts.

## 3.0.2 Significance Determinations

In accordance with CEQA, specifically Public Resources Code Section 21068, a "significant effect on the environment" means a substantial or potentially substantial adverse change in the environment. The significance thresholds used for each environmental resource topic are presented in each section of this chapter immediately before the discussion of impacts. For each impact described, one of the following significance determinations is made:

- ***No Impact.*** This determination is made if there is no potential that the proposed project could affect the resource at issue, either because the resource is not present, or the project has no potential to affect it.
- ***Less than Significant.*** This determination applies if there is a potential for some limited impact on a resource, but the impact is not significant in accordance with the significance standard.
- ***Less than Significant with Mitigation.*** This determination applies if there is the potential for a substantial adverse effect in accordance with the significance standard, but mitigation is available to reduce the impact to a less-than-significant level.
- ***Potentially Significant.*** This determination applies to impacts that are potentially significant prior to consideration of feasible mitigation measures.
- ***Significant and Unavoidable.*** This determination applies to impacts that are significant, and for which there appears to be no feasible mitigation available to substantially reduce the impact.

## 3.0.3 Cumulative Impacts Overview

The section below presents the CEQA requirements pertaining to the cumulative analysis and the cumulative projects that have been considered in the cumulative impact analysis presented for each environmental resource topic.

### 3.0.3.1 CEQA Guidelines Requirements

CEQA Guidelines Section 15130(a) requires that an environmental impact report (EIR) discuss cumulative impacts of a project "when the project's incremental effect is cumulatively considerable." As defined in CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. Pursuant to CEQA Guidelines Section 15065(a)(3), "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," the lead agency need not consider the effect significant.

CEQA requires an evaluation of cumulative impacts when they are significant. When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. Furthermore, according to CEQA Guidelines Section 15130 (a)(1), there is no need to evaluate cumulative impacts to which the project does not contribute.

An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus not significant when, for example, a project funds its fair share of a mitigation measure designed to alleviate the cumulative impact. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide detail as great as that provided for the impacts that are attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness and should focus on the cumulative impact to which the identified project contributes.

### 3.0.3.2 Cumulative Projects and Scope of Analysis

The analysis of cumulative impacts may consider either (1) a list of past, present, and probable future projects producing cumulative impacts or (2) a summary of growth projections contained either in an adopted plan that evaluates conditions contributing to cumulative impacts or in a certified environmental document for such a plan.

The cumulative analysis in this EIR relies upon the list method. Projects that are relevant to the cumulative analysis include projects that could:

- Contribute incremental environmental effects on the same resources as, and would have similar impacts to, those discussed in this EIR applicable to the proposed project.
- Be located within the defined geographic scope for the cumulative effect. The defined geographic scope is dependent on the environmental resource affected.
- Contribute impacts that coincide with proposed project impacts during either construction (short-term) or operation (long-term).

Separate lists were developed for each project component

#### Feedstock Acquisition

Feedstock acquisition activities have the potential to occur in a wide geographic area, within a variety of landscapes, over multiple years. Therefore, exact project lists are not feasible to identify. In addition, by design, feedstock activities focus on unmarketable material which limits the number of other cumulative projects that would interact with the proposed projects. Nevertheless, there are project types within the Working Area that can be described. The objectives of the proposed project include reducing excess fuel loads in forests and timberland to promote forest resiliency and reduce vulnerability to catastrophic wildfire. Therefore, there are certain project types that are considered in the cumulative scenario:

#### Timber Harvesting

Commercial timber harvesting results in the removal of vegetation cover and is generally more intensive than other forms of fuel reduction. For example, even-aged management systems such as clear-cutting removes all vegetation in the target area. Timber harvested in California is generally sourced from three land ownership categories: industrial timberland, nonindustrial private forest land, and public lands. Under the Forest Practice Rules, commercial timber harvesting on non-federal lands is subject to various regulations and permitting mechanisms. These include Nonindustrial Timber Management Plans, Timber Harvesting Plans, Emergencies, and Exemptions,

all of which require approval by the California Department of Forestry and Fire Protection (CAL FIRE). Many permits for timber harvesting allow for multiple years to complete the proposed harvesting operations.

Both private and national forest timber harvests have declined for a number of reasons in the past three decades. In 2016, there were a total of 80 primary forest products facilities operating in California. These included 32 sawmills, 23 bioenergy plants, 12 bark and mulch facilities, 2 veneer plants, 1 particleboard plant, and 10 manufacturers of other primary wood products (University of Montana 2019). In 2021, 1,798,782 thousand board feet (MFBM) of timber was harvested in California. Of that, private and tribal entities accounted for 1,586,774 MFBM, the state accounted for 14,038 MFBM, the United States Forest Service (USFS) accounted for 287,620 MFBM, and the Bureau of Land Management or other public organizations accounted for 1,069 MFBM (University of Montana 2023).

## CAL FIRE Programs

### CAL FIRE Vegetation Management Program (VMP)

CAL FIRE's Vegetation Management Program (VMP) intends to reduce wildland fire fuel hazards and other resource management issues on State Responsibility Area (SRA) land. VMP is a cost-sharing program that uses prescribed burning, chemical, manual, and mechanical treatments to reduce fuel hazards. Implementation of VMP projects is at the discretion of CAL FIRE Units in contract with private landowners. Projects that are identified through Fire Management Plans or are within the unit's priority areas for fire prevention are of most value to the unit and will typically be prioritized (CAL FIRE 2023a). Over the last 14 years, an average of 7,000 acres have been treated annually (CAL FIRE 2023b). Projects approved under this program are ongoing with CAL FIRE's participation as funding and staffing allows.

### CAL FIRE California Vegetation Treatment Program (CalVTP)

The California Vegetation Treatment Program (CalVTP) is implemented by CAL FIRE and other project proponents. The intent of CalVTP is to reduce the risk of wildfire and to avoid the detrimental impacts of wildfire on people, property, and natural resources within 20.3 million acres of the CAL FIRE State Responsibility area (SRA). Vegetation treatments through CalVTP are targeted to occur on approximately 250,000 acres a year, although actual acres treated each year fluctuate based on a number of factors. The number of treated acres through CalVTP count towards CAL FIRE's portion of the annual statewide goal of 500,000-acres of vegetation treatment on non-federal lands. CalVTP consists of three treatments: wildland-urban interface fuel reduction, fuel breaks, and ecological restoration. Treatment activities include prescribed burning, mechanical treatment, manual treatment, prescribed herbivory, and herbicides. The CalVTP was adopted by the CAL FIRE Board in December of 2019 and 62 projects of varying sizes across the state have been approved under the program since (Ascent Environmental 2019; CAL FIRE 2023b).

### CAL FIRE California Forest Improvement Program (CFIP)

The CAL FIRE California Forest Improvement Program (CFIP) also funds vegetation management programs to provide eligible landowners technical and financial assistance with planning, reforestation, and resource management investments to improve the quality and value of forestland. Projects under CFIP are non-commercial operations typically used to modify sub-merchantable trees or trees lacking any commercial value (CAL FIRE 2023c). As shown in Table 3-1 below, approximately 89,000 acres of land have undergone vegetation management projects through the CFIP. It is estimated that approximately 6,500 acres are treated annually under CFIP.

### CAL FIRE Demonstration Forests

CAL FIRE operates 14 Demonstration State Forests, which together represent the most common forest types in the State. The forests account for 85,000 acres and provide for research and demonstration opportunities relating to natural resource management. The Demonstration Forests also provide the public with a variety of recreational opportunities, fish and wildlife habitat, and watershed protection. Revenue generated from timber in the Demonstration Forests provides funds for research, infrastructure, recreation, and administration.

## Federal Projects

Federal agencies also conduct vegetation management projects on federally owned lands. The implementation of the National Fire Plan and Healthy Forests Restoration Act has resulted in the USDA Forest Service and other federal agencies implementing fuel reduction projects and related activities within the recent years. Vegetation treatment projects are reported by federal agencies through the National Fire Plan Operations and Reporting System. Goals and objectives of federal agency vegetation management projects are generally consistent with the CalVTP objectives to utilize vegetation management as a method or tool to protect life, property, and natural resources from wildfire.

## Other Vegetation and Fuels Treatment Programs

State, regional, and local agencies conduct vegetation treatments within the SRA. Such treatments are being implemented by agencies that own or manage land including the California Department of Fish and Wildlife (CDFW), California State Parks, University of California, California State University, counties, water and irrigation districts, conservation districts, park and open space districts, and flood control districts. Other local agencies, non-profits, and other organizations conduct vegetation treatments in the Local Responsibility Area (LRA). LRA vegetation treatments are partially reflected in the acreage described in Table 3-1 under prescribed burning within the state and defensible space acreages in LRA land.

In addition, there are several other programs, plans, or directives that directly or indirectly contribute to a variety of vegetation treatments in California. These include but are not limited to: Public Resources Code 4291 – Defensible Space, Executive Order B-42-17 (Tree Mortality), Executive Order N-05-19, the California 2030 Natural and Working Lands Climate Change Implementation Plan, California Forest Carbon Plan, Habitat Conservation Plans, and Natural Communities Conservation Plans.

Table 3-1 below presents a summary of the past and present cumulative projects (2004-2018) discussed above.

**Table 3-1. Summary of Past and Present Cumulative Projects (2004-2018)**

| Year | CAL FIRE VMP | *Prescribed Burning | CAL FIRE CFIP | Timber Harvesting Federal | Timber Harvesting CAL FIRE | Federal Mechanical Treatments (outside SRA) | Total |
|---|---|---|---|---|---|---|---|
| 2004 | 4,322 | 27,633 | 15,649 | 64,160 | 229,658 | 52,610 | 394,032 |
| 2005 | 8,377 | 64,305 | 23,592 | 46,252 | 164,520 | 51,596 | 358,642 |
| 2006 | 9,965 | 87,882 | 7,659 | 49,226 | 145,854 | 51,367 | 351,953 |
| 2007 | 6,980 | 39,728 | 4,091 | 39,835 | 151,552 | 55,668 | 297,854 |
| 2008 | 8,949 | 49,761 | 13,338 | 37,023 | 124,387 | 43,996 | 277,454 |
| 2009 | 4,295 | 44,808 | 6,704 | 29,748 | 119,594 | 36,150 | 241,299 |

**Table 3-1. Summary of Past and Present Cumulative Projects (2004-2018)**

| Year | CAL FIRE VMP | *Prescribed Burning | CAL FIRE CFIP | Timber Harvesting Federal | Timber Harvesting CAL FIRE | Federal Mechanical Treatments (outside SRA) | Total |
|---|---|---|---|---|---|---|---|
| 2010 | 6,053 | 27,469 | 6,693 | 23,675 | 113,015 | 38,216 | 215,121 |
| 2011 | 8,067 | 35,120 | 0 | 27,168 | 123,230 | 40,318 | 233,904 |
| 2012 | 7,786 | 16,482 | 0 | 27,505 | 131,873 | 48,699 | 232,346 |
| 2013 | 3,246 | 22,021 | 779 | 29,521 | 128,238 | 37,825 | 221,630 |
| 2014 | 701 | 13,033 | 1,676 | 26,444 | 142,942 | 27,733 | 212,529 |
| 2015 | 2,652 | 27,555 | 1,331 | 24,565 | 97,843 | 34,718 | 188,664 |
| 2016 | 6,029 | 10,095 | 2,408 | 30,956 | 110,302 | 32,271 | 192,061 |
| 2017 | 9,203 | 37,066 | 2,719 | 29,470 | 93,083 | 24,081 | 195,622 |
| 2018 | 10,443 | 59,850 | 2,589 | 29,285 | 36,212 | 27,021 | 165,400 |
| **Total** | **97,068** | **562,808** | **89,228** | **514,833** | **1,912,303** | **602,269** | **3,778,511** |

**Source:** Final Program EIR for the California Vegetation Treatment Program (CAL FIRE 2023b).
**Note:**
* The state acreage for prescribed burning may overlap with treatment acreages reported under the VMP.
Although no fuel reduction acreage was recorded in 2011 and 2012, expenditures within the CFIP program did occur.
Cal VTP was approved in 2019 and is therefore not represented in the table.

## Lassen Facility

No cumulative projects were identified relative to the proposed Lassen Facility. The County has no active development applications within Big Valley. No similar projects (such as biomass energy) are proposed within the County.

## Tuolumne Facility

1. Chicken Ranch Rancheria New Hotel and Casino Project
2. Tuolumne Bioenergy Woody Biomass Pellet Manufacturing Facility
3. Tuolumne Biomass LLC Biomass Utilization Project
4. Yosemite Junction
5. Social and Ecological Resilience Across the Landscape (SERAL) Forest Health Project Phase 1 – Stanislaus National Forest

Four projects have been identified in the vicinity of the proposed project that could contribute to potential cumulative effects. A fifth project, SERAL, is a forestry project, but due its location it is discussed here as a County project rather than part of the Feedstock Acquisition cumulative setting.

Project 1 is a 398,000 square foot 4-story hotel and 3 story casino resort on a 42-acre project site located in western Tuolumne County, approximately 6.8 miles northeast of the Tuolumne Facility. The project would replace the existing casino on site and include slot machines, table games, bars, a food area, 180-200 hotel rooms, a spa, pool deck, restaurant, and two 4-story parking structures. The project has been approved by the tribal government and a notice of completion was filed for the project on April 13, 2021. The anticipated opening date is July 2024.

Project 2, Tuolumne Bioenergy, (also referred to as "Heartwood") is a woody biomass pellet manufacturing facility, located approximately 13.4 miles northeast of the Tuolumne Facility, in the community of Sonora. The project includes a manufacturing facility, storage areas, two storage silos, outdoor equipment, landscaped, and concrete areas. The project sources biomass primarily from "slash" from forest fuels treatment and thinning activities. Secondary sources are sourced from agricultural waste trees and orchards. The project expects to produce approximately 31,000 tons annually for domestic home heating purposes. The project has been approved by Tuolumne County however, the project applicant has not yet applied or obtained any construction permits.

Project 3, Tuolumne Biomass LLC, is located approximately 3.7 miles northwest of the Tuolumne Facility. The project intends to utilize woody biomass material from forest stewardship projects, including forest restoration and wildfire mitigation activities, to manufacture a number of value-added products. The approximate 17-acres project site would include a truck scale, access road, log deck yard, outdoor storage, merchandizing line, millwright shop, retention pond, on-site wastewater disposal, water storage, warehouse building, and an office. At full capacity the project plans to utilize 20,000 tons of biomass to convert into products. The project has been approved by Tuolumne County and the project applicant has applied for and obtained a grading permit.

Project 4, Yosemite Junction (LUNR-24-13) is located at the junction of SR 120 and SR 108 (7520 SR 120, Jamestown). This County has received an application (LUNR-24-13) for this approximately 4-acre commercial development. The proposed project includes a restaurant/bar, convenience store, gas station, visitor center, and 8 RV sites. The County will initiate the CEQA process for the project once the application is deemed complete.

Project 5, SERAL, is located on 118,000 acres in Tuolumne County, almost entirely to the north and west of Highway 108. The project is a fuel reduction treatments operation funded by CAL FIRE for Tuolumne County to reduce fuels and shift vegetation structure and composition to better align with the County's natural range in variation and allow for a more resilient landscape to combat high severity fire, insects, disease, drought, and climate change. A notice of exemption for the project was filed on February 13, 2023.

### Port of Stockton Projects

1. Port of Stockton BayoTech Hydrogen Production and Dispensing Facility Project
2. TC NO. CAL. Development Warehousing and Distribution Facility Project
3. McDonald Island Dredged Material Placement Site Project
4. Port of Stockton Rail Bridge Replacement and Rail Improvements Project
5. Denmar Natural Soda Ash Export Terminal at the Port of Stockton

Five projects have been identified in the Port of Stockton that may overlap or contribute to cumulative impacts (Port of Stockton 2023).

Project 1 is located on a 5-acre project site in the Port of Stockton East Complex, adjacent to the Port of Stockton location approximately .8 mile southeast. The project involves the development, construction, and operation of a hydrogen-generation, compression, and storage facility to support a demand for hydrogen fuel. A notice of intent to adopt the project's Mitigated Negative Declaration was filed by the Port of Stockton.

Project 2 is located is located on a 102-acre project site in the Port of Stockton West Complex, approximately 850ft south of the Port of Stockton location. The project includes construction and operation of a 655,200 square foot distribution warehouse on a portion of the project site and remediation of contaminated soils throughout the site.

Also included in the project is an outdoor storage area, parking, trailer storage. The final environmental impact report for this project is currently in preparation.

Project 3 is located on McDonald Island, along the Stockton Deepwater Ship Channel, approximately 7.4 miles southeast of the Port of Stockton location. The project includes constructing a new and expanded 18-acre dredged material placement site operated as part of the U.S. Army Corps of Engineers ongoing Stockton Operations and Maintenance program. A notice of intent to adopt the project's Mitigated Negative Declaration was posted by the Port of Stockton.

Project 4 involves the replacement of a functionally obsolete rail bridge and the construction of a new lead track, rail underpass, and rail classification yard in the Port of Stockton West Complex. The project also includes a new rail underpass and associated modifications to road underpasses and overpasses to increase efficiency of train operations within the Port of Stockton. The project site is located in the Port's West and East Complexes, with some rail work approximately 1,100 feet south of the Port of Stockton location. A notice of intent to adopt the project's Mitigated Negative Declaration was posted by the Port of Stockton on June 25, 2021. The project was approved by the Port Commission.

Project 5 involves the construction of the Denmar Natural Soda Ash Export Terminal located in the central portion of the Port of Stockton West Complex, approximately 350 feet west of the Port of Stockton location. The project would construct and operate a bulk terminal at existing Berths 18 and 19 and include shiploaders, parking, buildings, conveyors, towers, and storage facilities on warehouse sites. The project was approved by the Port Commission.

## 3.0.4 References

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# 3.1 Aesthetics

This section of the EIR evaluates potential impacts to aesthetics associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing visual conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California (Port of Stockton), and evaluates the potential for project-related aesthetic impacts. One scoping comment was received regarding aesthetics in response to the Notice of Preparation (NOP). Lassen County noted that State Route 299 is considered a County Scenic Corridor (see Appendix A for comment letters).

## 3.1.1 Environmental Setting

### 3.1.1.1 Sustainable Forest Management Projects

#### On and Off-Site Conditions

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities. The visual landscape in these activity areas will vary. Generally, forest lands are characterized by lack of development and dense vegetation. Visual quality is typically high within federal and state forests.

#### Scenic Highways

The California Scenic Highway Program is discussed in Section 3.1.2.2, below. Numerous designated or eligible scenic highways occur within the feedstock area (Caltrans 2018).

#### Light and Glare

Federal, state, and private forestlands are characterized by a lack of light and glare sources. Other rural areas in which vegetation management treatment projects occur may contain building and security lighting, while street and parking lot lighting would be less common.

#### Viewers

Viewers in federal and state forests include travelers on public roads, and may include people engaged in outdoor recreation (hikers, campers, etc.). Federal and state employees and those employed in the resource industry are also typical viewer groups. Recreational/tourist viewers would be considered sensitive viewers, while employees would not.

Viewers in rural areas will include residents and workers, as well as recreational visitors.

### 3.1.1.2 Northern California (Lassen Facility) Site

#### On-Site Conditions

The project site is located in Nubieber, California (Lassen County), approximately 3 miles southwest of the census-designated place of Bieber in northwestern Lassen County (see Figure 2-3, Project Location (Lassen)). The project site was previously part of a sawmill operation, and was also used to load lumber and wood products onto railcars. The Burlington Northern Sante Fe (BNSF) Railroad forms the eastern boundary of the site. The site includes a railroad siding, a gravel deck, internal roadways, a well pump house and water tower. The water tower is 102 feet tall. The buildings from the prior use are located north of the project site, and were separated from the main parcel through a lot line adjustment. A portion of the site, including the gravel deck and pump house, is licensed to Sierra Pacific Industries (SPI) for loading of lumber and wood products onto railcars and refilling water trucks.

The majority of the undeveloped areas of the project site consist of non-native grassland with a mix of annual grasses and forbs. Mowed agricultural fields are present in the northern portion of the project site. Also included are six upland ditches, one seasonal wetland swale, and seven seasonal wetlands. The seasonal wetland and seasonal wetland swale are located in the southeastern portion of the facility site. These features collect water seasonally and are discernible from the adjacent upland areas by a distinct change in vegetation. The five upland ditches located throughout the project site are unlined, earthen water conveyance systems that were constructed in upland habitat and exhibit a mild break in slope and change in vegetation. Ditches within the project site are generally 5 to 6 feet wide at the top of bank and have an ordinary high water mark width of 1 to 2 feet. The project site is relatively flat, with an average elevation of 4,120 feet above mean sea level (Appendix C2).

The northern parcel (APN 001-270-086) of the project site is designated as Town Center by the County's General Plan and zoned A-1 (General Agriculture). The southern parcels of the project site (APNs 001-270-026, 001-270-029, and 013-040-013) is designated as Intensive Agriculture by the General Plan and zoned Exclusive Agricultural, Agricultural Preserve Combining District (E-A-A-P).

Visual quality at the north end of the site is fairly low, consisting of disturbed grasslands with scattered paved areas and some structures, giving way to more moderate agricultural quality towards the southern end.

#### Surrounding Land Uses

An agricultural chemical company (Helena Agri-Business) and two residences are located immediately adjacent to west of the site. To the north is a parcel with buildings associated with the previous mill operations on the project site, and a communications tower. Further north are SR 299 and agricultural lands. Agricultural land is located to the east (across the railroad line) and south. Surrounding land is designated as Intensive Agriculture in all directions (Lassen County 1999). The project site is surrounded by widely scattered rural development and open space, generally also composed of cropland, sagebrush scrub, and wet meadow.

#### Scenic Highways

According to the California Department of Transportation (Caltrans) Scenic Highway Mapping System, there are no officially designated scenic highways that pass by the project site or are near the project site. The project site is adjacent to an eligible state scenic highway, State Route 299 (SR 299), which is also classified as a County Scenic Corridor by Lassen County. The next closest eligible state scenic highway is a segment of SR 139 located approximately 13.5 miles northeast of the project site (Caltrans 2018).

### Light and Glare

Currently, the project site is partially developed, formerly part of a wood processing sawmill. No permanent sources of existing light are located on the project site. Existing sources of light generated from off-site areas include lights from trains, vehicle lights from SR 299 and nearby roads, light from the agricultural chemical company and residences to the west of the project site, and light from the historical remanufacturing/mill buildings north of the project site. Surrounding land uses contain typical lighting, such as exterior night lighting, street lighting, and security lighting. These surrounding land uses also include windows and other glass or metal expanses that may result in minimal localized glare.

### Viewers

Viewer exposure varies depending on several factors including the angle of view (i.e., normal, inferior, or superior viewing angles); view distance (foreground, middle ground, and background); relationship to sun angle (backlighting versus front or side lighting); the extent of visibility (i.e., whether views are panoramic or limited by vegetation, topography, or other land uses); and viewer screening conditions (e.g., whether the project facilities will be sky lined on ridgelines, backscreened by topography and/or vegetation, or screened by structures or vegetation in the foreground). Viewer exposure also considers the duration of view based on viewer activity (e.g., travel route, residential, recreation) and often relates to speed of travel (pedestrian, vehicular, or stationary).

The project site is located west of the BNSF Railroad. Primary access to the site is from Washington Avenue and Babcock Road. Babcock Road connects to State Route 299. While the site is not adjacent to SR 299, it is visible from the highway. As described above, the County considers SR 299 to be a scenic corridor. Figure 3.1-1 shows the view of the site from SR 299, at the railway overpass. As discussed above and in Section 3.1.2.3, below, SR 299 is considered a scenic corridor. The existing industrial buildings (which are not part of the project site) are visible within the foreground, the rail siding and water tower are visible in the middleground, and Ricketts Hill in the background. Other public roadways in proximity to the site include Roosevelt Avenue, Adams Avenue, and Babcock Road to the west of the site. Viewers along the local roadways would primarily consist of persons driving to and from the businesses and houses west of the project site. Private viewpoints include the residences west of the project site and railroad personnel on the BNSF line.

## 3.1.1.3 Central Sierra Nevada (Tuolumne Facility) Site

### On-Site Conditions

The project site is approximately 9 miles southwest of the community of Jamestown, in Tuolumne County, California, and in the western foothills of the Sierra Nevada Mountain Range (see Figure 2-7, Project Location (Tuolumne)). The Tuolumne site is located immediately southeast of the junction of State Route 108/120 and La Grange Road (Route J59). The site is approximately 58.56 acres. Elevations on the project site range from approximately 1,070 feet above mean sea level (AMSL) in the northwest corner of the site to 1,140 feet AMSL in the eastern portion of the site (Appendix C5). The Tuolumne site is partially developed with existing structures and other features generally concentrated within the center of the site, as shown in Figure 2-8, Project Site (Tuolumne). This includes buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with the abandoned mill.

The existing structures on site consist of a one-story entrance station in the southwest portion of the site, two multicolumn metal water tanks, both approximately 100 feet in height, located at the southern and northern ends

of the site, and a one-story square-in plan building shed in the southeast portion of the site. Directly north of the shed are seven stalls, including four smaller stalls and three larger stalls, all of which are constructed of masonry units and rise approximately 20 feet in height. North of the stalls is a two-story office building with a white metal panel exterior. Immediately south and west of the two-story office building are attached machinery for the creation of decorative landscaping bark. This machinery includes a standard chip screen, bark hog shredder, conveyer belts, elevators, and storage silos. An additional smaller office with a white metal panel exterior is located northwest of the two-story office building. North of the two office buildings are two concrete incline loading docks. The loading dock closest to the office buildings runs west to east and leads to a metal storage container on the eastern end of the dock. The second loading dock runs north to south and leads to a truck pull up on the northern end of the dock. The northern portion of the site contains two concrete building foundations that remain following building demolitions sometime prior to 1987.

Currently, 9.6 acres of the total 58.56 acres of the project site are paved. The site has two existing accessways: one for truck access at the southwest area of the site and one for employee access at the northwest area of the site, both from La Grange Road, which connects to CA-120 northwest of the site. The site is bordered by Sierra Northern Railroad to the west that travels along La Grange Road and intersects near the southwestern project site boundary.

The majority of the undeveloped areas of the project site consist of annual grassland with some young blue oak shrubs. Blue oak woodland is concentrated in the northwestern portion of the project site. There are two patches of riparian woodland in the northern portion of the project site. The project site is surrounded by widely scattered rural development and open space, generally also composed of scattered oak woodland and annual grassland. The project site contains a variety of aquatic resources, including wetland and non-wetland waters. There are two freshwater emergent wetlands and two seasonal wetlands located in the northern and southern portions of the site. These features are discernible from the adjacent upland areas by a distinct change in vegetation. There is one vernal pool in the southeastern corner of the project site. An ephemeral drainage at the southern edge of the project site conveys overflow from a vernal pool and directs it through a culvert south of the project site. A freshwater pond in the northern portion of the project site is fed by two seasonal drainages originating east to northeast of the project site. Additionally, there are four humanmade detention basins constructed throughout the project site to collect and store run-off: one in the southern portion of the site, one in the northeastern portion of the site, and two located near the mid-west portion of the site. One perennial drainage is located near the southern portion of the project site, and one intermittent drainage occurs in the northeast corner of the project site.

The current 58.56-acre site was once part of a larger mill site that included the 8.39-acre parcel to the southwest and two smaller (1.48-acre and 1.43-acre) parcels to the northwest. A wood shavings plant was constructed on the 8.39-acre parcel adjacent to the southwest under a Site Development Permit granted in 1990. This wood shavings plant is now owned and operated by American Wood Fibers. The two smaller parcels each contain a single-family residence, built in 1969 as caretaker housing for the mill, and have since been sold for residential housing.

The site is zoned M-2 (Heavy Industrial), which is described in Section 17.40.020 of the Tuolumne County Ordinance Code and is classified as Heavy Industrial by the Tuolumne County General Plan (County of Tuolumne 2018; 2023).

The visual quality of the site is primarily low, consisting of previously developed and vacant mill structures. The undeveloped northerly portion of the site may be considered moderate quality.

## Surrounding Land Uses

The project site is surrounded by widely scattered rural development and open space generally composed of scattered oak woodland and annual grassland. The site is bounded to the north by vacant partially wooded land. Wooded land is located to the east of the site. Grass covered land is located to the south of the site. A wood shaving plant owned by American Wood Fibers is located adjacent to the west side of the site, and two residences are located adjacent to the northwest corner of the site. Agricultural land is located to the north, east, and south. The CALFIRE Green Springs Station is located south of the project site and south of La Grange Road. A majority of the adjacent lands are under Williamson Act (California Land Conversation Act) contracts, restricting them to agricultural or related use.

## Scenic Highways

According to Caltrans Scenic Highway Mapping System, there are no officially designated scenic highways that pass by the project site or are near the project site. The closest eligible state scenic highway is SR 108, east of SR 120, located approximately 3.7 miles to the north of the project site. Eligible highways farther to the east include SR 120, located approximately 4.5 miles to the northeast of the project site, and a segment of SR 49 , located approximately 4.6 miles to the northeast of the project site (Caltrans 2018).

## Light and Glare

Currently, the project site is partially developed as a wood processing mill, which was active to some degree until mid-2020. The wood processing sawmill is not currently in use, although some external lighting is present (and generally inactive). Existing structures do not include reflective materials that could result in glare. Existing sources of light and glare generated from off-site areas include lights from trains; vehicle lights from SR 108, SR 120 and other nearby roads; and the wood shaving plant and residences to the northwest of the project site are received on the project site. Surrounding land uses contain typical lighting, such as exterior night lighting, street lighting, and security lighting. These surrounding land uses also include windows and other glass or metal expanses that may result in minimal localized glare.

## Viewers

As described above in section 3.1.1.2, viewer exposure varies depending on several factors including the angle of view; view distance; relationship to sun angle; the extent of visibility; and viewer screening conditions. Viewer exposure also considers the duration of view based on viewer activity and often relates to speed of travel.

The project site is located immediately southeast of the junction of SR 120 and La Grange Road. Primary access to the site is from La Grange Road. Green Springs Road intersects La Grange Road at the American Wood Fibers location. The project site is bordered by Sierra Northern Railroad to the west that travels along La Grange Road and intersects near the southwestern project site boundary. Viewers on SR 120 would include a variety of travelers, including residents, workers, and visitors. Viewers along the local roadways would primarily consist of persons driving to and from the businesses, farms, and rural residences. The view from La Grange Road at the main project site driveway is shown in Figure 3.1-2. The existing gatehouse is visible in the foreground, existing structures in the middleground, and the Red Hills in the background. Private viewpoints include the two adjacent residences west of the project site and railroad personnel on the Sierra Northern line. The site also has partial visibility from the CALFIRE station on La Grange Road, and residences on La Grange Road – one located near the northwest corner of the project site, and two southeast of the site.

### 3.1.1.4 Port of Stockton

#### On-Site Conditions

The proposed facility would be located at the Port of Stockton, within the City of Stockton (City), directly south of the San Joaquin River and west of Interstate 5 (I-5), as shown in Figure 2-10, Port Location. The Port of Stockton is an active deep water port. The project site currently operates as a port berth and warehousing facility. The project site is located in the West Complex, which was previously a natural wetland known as Rough and Ready Island (Port of Stockton 2023a). The proposed GSNR facility would be located in the northwest quarter of the West Complex, on a relatively undeveloped site bordered by Davis Ave., Boone Dr., Edwards Ave., and Lipes Dr. The project site includes a concrete parking lot in the southeast corner.

The project site is of low visual quality, as a vacant industrial area with a paved, but not well maintained, parking area.

#### Surrounding Land Uses

There are a number of surrounding land uses within the project area. The West Complex Development Plan (WCDP), approved in 2004, identifies commercial and industrial parks, as well as other diversified land uses and infrastructure to aid Port activities for the undeveloped areas of Rough and Ready Island. Approximately 75 facilities or businesses operate out of the West Complex as of 2020. The West Complex is characterized by maritime terminals, railroad facilities, large warehouse and storage buildings, and stockpiles of various commodities (Port of Stockton 2023b). Surrounding land is designated as Industrial and Parks and Recreation to the north, Industrial to the east, Industrial and Residential Estate to the south, and Industrial to the west (City of Stockton 2017).

#### Scenic Highways

According to Caltrans Scenic Highway Mapping System, there are no officially designated scenic highways that pass by the project site or are near the project site. The closest eligible state scenic highway is SR 4, located approximately 18.8 miles to the west of the project site. The next closest scenic highways are SR 58, an officially designated scenic highway, and SR 4, an eligible state scenic highway, both approximately 19.3 miles to the southwest of the project site (Caltrans 2018).

#### Light and Glare

The project site is located within an active port. The project site itself is unlit but exposed to existing lighting, including outdoor lighting fixtures on structures, interior warehouse lighting, streetlights, and parking lot lighting. Typical glare associated with the land uses include windows and other metal building siding. Light sources from off-site areas include light from ships, trains, vehicle lights from surrounding roads, and surrounding Port facilities.

#### Viewers

As described above in section 3.1.1.2, viewer exposure varies depending on several factors including the angle of view; view distance; relationship to sun angle; the extent of visibility; and viewer screening conditions. Viewer exposure also considers the duration of view based on viewer activity and often relates to speed of travel.

The project site is located along the San Joaquin River to the north and various railroad tracks and roads within the Port. The Port of Stockton is a secured facility. Only authorized employees and visitors would have access to the site. Primary access to the Port is by Navy Drive Bridge, which connects the main Port ("East Complex") with the West Complex. Secondary access is provided by Daggett Road Bridge, on the southern side of the island. Rail access to the West Complex is provided by a railroad bridge north of the Navy Drive Bridge. Public views include boat traffic on the San Joaquin River and Louis Park on the north side of the San Joaquin River. Private views of the site would include residences north of the San Joaquin River and the Stockton Golf and Country Club. The project site is screened from these viewers by the dockside warehouses and multiple rows of interior warehouse buildings. Public viewers at Louis Park or boaters on the San Joaquin River may be considered moderately sensitive.

## 3.1.2 Regulatory Setting

### 3.1.2.1 Federal

#### U.S. Forest Service

In 2019, the lead agency and the U.S. Forest Service signed a Master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes all of the 18 national forests located in California. Individual Sustainable Forest Management Projects to reduce fuel loads and increase resiliency will be implemented through Supplemental Project Agreements and similar stewardship contracting mechanisms (SPAs). (While the MSA applies to the entirety of Region 5, only Sustainable Forest Management Projects within the Working Area described in Section 2.4 are contemplated under the proposed project.) The Forest Service's strategic plan (USDA 2015) includes four outcome-oriented goals:

1. Sustain Our Nation's Forests and Grasslands.
2. Deliver Benefits to the Public.
3. Apply Knowledge Globally.
4. Excel as a High-Performing Agency

The plan further identifies three strategic objectives for the first goal:

- Foster resilient, adaptive, ecosystems to mitigate climate change.
- Mitigate wildfire risk.
- Conserve open space.

#### National Wild and Scenic Rivers Act

The National Wild and Scenic Rivers Act was passed on October 2, 1968 to preserve certain selected rivers of the United States possessing outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. The Act designates rivers as a wild, scenic, or recreational river based on certain conditions contained in the Act. Designated rivers shall be required to prepare a comprehensive management plan for such river segment. Each designated river is administered by the federal agencies, or state agencies if the state has established their own Wild and Scenic Rivers Act.

### 3.1.2.2 State

#### California Scenic Highway Program

The California Scenic Highway Program was created in 1963 with the intent "to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment." The state laws that govern the Scenic Highway Program are Sections 260 through 263 of the Streets and Highways Code. A highway may be designated scenic based on the natural landscape visible by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the views of the highway. The Scenic Highway Program includes both officially designated scenic highways and highways that are eligible for designation. It is the responsibility of local jurisdictions to apply for scenic highway approval, which requires the adoption of a Corridor Protection Program (Caltrans n.d.). In addition, once a scenic highway is designated, the local jurisdiction is responsible for regulating development within the scenic highway corridor. The Lassen Facility is adjacent to an eligible State Scenic Highway. There is no designated or eligible state Scenic Highway within the Tuolumne Facility or Port of Stockton.

#### California Wild and Scenic Rivers Act

The California Wild and Scenic Rivers Act (Public Resources Code Sec. 5093.50 et seq.) was passed in 1972 to preserve California's designated rivers possessing extraordinary scenic, recreation, fishery, or wildlife values. This act was patterned after the 1968 National Wild and Scenic Rivers Act, and both share similar criteria and definitions regarding the protection of rivers, the process used to designate rivers, and in the prohibition of new water impoundments on designated rivers. Unlike the national act, the California Wild and Scenic Rivers Act provides protection only up to the first line of permanent vegetation and does not require a management plan for designated rivers. The California Legislature is responsible for classifying or reclassifying rivers by statute, though the Resources Secretary may recommend classifications. State designated rivers may be added to the federal system upon the request of the state Governor and the approval of the Secretary of the Interior. Adding state rivers to the federal system under this act does not require approval of the Legislature or Congress. State rivers added to the federal system are managed by the state.

### 3.1.2.3 Local

#### Lassen County

##### Lassen County General Plan

Lassen County General Plan, adopted September 1999, contains a Land Use Element, Natural Resources Element, Agriculture Element, Wildlife Element, Open Space Element, Circulation Element, Safety Element, and Seismic Safety Element.

###### Natural Resources Element

The Scenic Resources section of the Natural Resources Element includes the following goals and policies relevant to the proposed project with regard to aesthetics:

Goal N-23. Scenic resources of high quality which will continue to be enjoyed by residents and visitors and which will continue to be an asset to the reputation and economic resources of Lassen County.

NR78 Policy. The County has identified areas of scenic importance and sensitivity along state highways and major County roads and has designated those areas as "Scenic Corridors". (Refer to the General Plan land use map and related designations in various area plans, which may also be regarded as "scenic highway corridors".) The County will develop and enforce policies and regulations to protect areas designated as scenic corridors from unjustified levels of visual deterioration.

### Implementation Measures:

- **NR-U:** The County shall adopt policies to minimize adverse impacts which will significantly deteriorate the scenic qualities of visually sensitive areas.

NR80 Policy. In the course of adopting policies pertaining to scenic resources in other general plan elements and area plans, the County may consider additional and more particular policies and measures to protect scenic resources and prevent or reduce the adverse visual impacts of development in visually sensitive areas.

Goal N-24. Protection of the scenic qualities of the county's night sky.

NR81 Policy. The County shall maintain and enforce policies, development standards and mitigation measures to control lighting generated by development and to minimize the unnecessary adverse impacts of such lighting in the vicinity of the development and on the general scenic qualities of the night sky in the area.

NR82 Policy. The County will encourage projects within Lassen County but outside the County's jurisdictional authority to include provisions to minimize the adverse intrusion of lighting on the surrounding area and the night sky in general.

### Scenic Resources and Scenic Vistas

The County utilizes an evaluation system to classify scenic resources:

- **Class I:** This classification is given to areas having the greatest scenic resource value because of one or more of the following features:
  1. Contains distinctive landscape feature(s).
  2. Is subject to significant amounts of public exposure, especially in foreground and middle ground zones (i.e., along State or U.S. highways).
  3. Large percentage of observers have high expectations and sensitivity for scenic quality (e.g., recreational tourists).

- **Class II:** These areas have one or both of the following scenic resource characteristics:
  1. Scenic value relatively common to the region.
  2. Average sensitivity due to location near local travel routes and residential areas.

- **Class III:** These areas have one or both of the following scenic resource:
  1. Landscapes have relatively minimal scenic distinction from average scenery characteristics of the region.
  2. Have low visual sensitivity because of very low levels of public exposure due to isolation of the area.

- **Class IV:** Class IV areas are generally "urbanized" to the extent that qualities of the natural landscape are largely secondary, visually, to the urban landscape. Visual elements are related largely to structural improvements or other man-made elements including such features as subdivisions, shopping centers, and industrial areas (unless the man-made element is of significant scenic value, e.g., a golf course or reservoir).

The night sky of Lassen County is an important and sensitive scenic resource of the area. The County frequently imposes conditions of approval on projects to require shielding of lights and other measures to provide that lighting is, as much as possible, directed to the areas where it is needed and the adverse effects on the surrounding area is reduced.

### Scenic Highways

The Lassen County General Plan Land Use Map identifies “Scenic Highway Corridors” along all state highways, several county roads, and along some roads in the planning stages. Scenic Corridors identify areas bordering major highways which have significant or sensitive scenic values due to the existence of significant scenic features and the level of public exposure to those areas. The Lassen facility site is located nearby a Scenic Corridor, depicted in the Lassen County General Plan Land Use Map.

The following observations and recommendations for “Scenic Highway Corridors” were included:

- The basic resource of the recreation industry in Lassen County is its natural scenic quality. The quality must be protected, enhanced and appropriately exploited.
- The scenic highway includes the road itself and its right-of-way and the scenic areas traversed as visible from the highway. Thus the scenic corridor in which control should be exerted will vary in width in relation to sight distance from the road.
- The concept of Scenic Highways does not preclude development from occurring within the corridor covered by protective regulations. Appropriate uses along Scenic Highways can include grazing and other agriculture, homes for permanent and seasonal residents and, in planned locations, motels, restaurants and certain other commercial services. However, these basic principles should guide all development within the areas visible from the Scenic Highways:
  - The intensity and location of development should not impair natural scenic qualities.
  - The design of all development should be in character with the natural surroundings.
  - Where some attribute, physical or historic, indicates that an area should be left in its existing or natural state, public ownership or other rights should be acquired to insure preservation.
- The County should adopt an official County Scenic Highway designation for the routes specified. All uses along these routes or visible from them should be subject to special standards and controls which will achieve the broad goals of preserving the scenic qualities of Lassen County (Lassen County 1999).

### Land Use Element

The Intensive Agriculture designation identifies lands devoted to or having high suitability potential for the growing of crops and/or the raising of livestock on natural or improved pastureland and provide a variety of open space resources including wildlife habitat and scenic resources. The Lassen County General Plan does not identify any scenic vistas in the County (Lassen County 1999). The Lassen project site is designated as Town Center (northern parcel) and Intensive Agriculture (southern parcel).

### Lassen County Code

Title 18 of the Lassen County Code is the County's Zoning Code, which is intended to implement the General Plan. The Lassen Facility site is zoned as General Agriculture (A-1) and Exclusive Agricultural, Agricultural Preserve Combining District (E-A-A-P).

#### Chapter 18.16 A-1 General Agricultural District

The intent of the A-1 district is to include all the unincorporated territory of the county not indicated specifically to be used for precise districts of agriculture, residential, commercial, manufacturing, open space, institutional, conservation, timber production, floodplain or airport.

#### Chapter 18.66 E-A Exclusive Agricultural District

This district classification is intended to be applied to land areas which are used or are suitable for use for intensive agricultural production purposes and are designated in the general plan as land areas of fertile soils or other favorable agricultural production characteristics within which agricultural preserves may properly be created for purposes of utilizing provisions of law relating to agricultural zoning and agricultural preserves, and to preserve such areas and protect them from the encroachment of incompatible uses.

#### Chapter 18.82 A-P Agricultural Preserve Combining District

This district classification is intended to be applied in combination with other appropriate districts to establish the precise boundaries of agricultural preserves and to provide such additional restrictions upon the use of land as are necessary to comply with provisions of law which are applicable to agricultural preserves.

#### Chapter 18.108 Special Provisions

Section 18.108.155, Lighting, requires that: all lighting, exterior and interior, shall be designed and located so as to confine direct lighting to the premises. A light source shall not shine upon or illuminate directly on any surface other than the area required to be lighted. No lighting shall be of the type or in a location so as to constitute a hazard to vehicular traffic, either on private property or on abutting streets.

## Tuolumne County

### Tuolumne County General Plan

The Tuolumne County General Plan, updated December 2018, contains Section A: The Tuolumne County Built Environment, Section B: The Tuolumne County Economy, Section C: The Tuolumne County Community, and Section D: The Tuolumne County Natural Environment.

### Natural Resources Element

Chapter 16 of Section D, Natural Resources Element, includes the following objectives and policies relevant to the proposed project with regard to aesthetics:

Goal 16A. Balance property rights with the conservation of the environment and rural character of the County, which contributes to the quality of life of residents, encourages tourism and supports economic development.

Policy 16.A.5. Conserve scenic resources, landmarks and the natural landscape.

Policy 16.A.6. Encourage the protection of clusters of native trees and vegetation and outstanding individual native and non-native trees which help define the character of Tuolumne County.

#### Implementation Programs:

- **16.A.k:** - Establish an incentive program to retain existing vegetation, such as Heritage Trees, stands of oak woodlands, or clusters of native shrubs within new development.
- **16.A.l:** Maintain the Premature Removal of Native Oak Trees Ordinance.

### Scenic Resources and Scenic Vistas

The visual character within the unincorporated county is predominantly rural with dispersed small-town communities surrounded by open expanses consisting of agriculture, native vegetation, and low-density rural residential development. The topographic diversity of Tuolumne County ranges from the mountainous landscape and steep canyons of the High Sierras in the east to the foothills and gently undulating plains in the west. Deep river canyons are cut into the western slope of the Sierra Nevada in Tuolumne County. In their upper reaches in the higher Sierra, rivers and glacial sculpturing have carved massive granite cliffs (County of Tuolumne 2018).

The Tuolumne County General Plan identifies three vista points officially designated by Caltrans, located on SR 120 at post miles (PM) 19, 21 and 44. PM 19 and 21 can be found at Don Pedro Lake, and PM 44 "Rim of the World" overlooks the canyon containing the South Fork of the Tuolumne River (County of Tuolumne 2018). The Tuolumne Facility site is not within viewing distance of these vistas.

### Circulation Element

### Scenic Highways

Tuolumne County does not currently have any officially designated State Scenic Highways; however, Tuolumne County identifies portions of SR 49, 108, and 120 to be locally designated scenic routes. A scenic route is one which traverses an area of outstanding scenic quality (County of Tuolumne 2018).

## Tuolumne County Code

Title 17 of the Tuolumne County Ordinance Code is the County's Zoning Code, which is intended to implement the General Plan. The Tuolumne Facility site is zoned as M-2 (Heavy Industrial).

### Chapter 17.40 – Heavy Industrial District, or (M-2) District

The purpose of the M-2 district is to provide an area for heavy industry. Permitted uses in the M-2 district include processing agricultural products, sawmills, and general manufacturing.

### Chapter 17.54 - Height Regulations

The height limit for structures in the M-2 zoning district is fifty feet from grade. Height limits may be extended through approval of a use permit. The additional height granted by the use permit shall be added to the required side yard setback.

## City of Stockton

### City of Stockton General Plan

Adopted in December 2018, the City's 2040 General Plan provides a comprehensive plan for the growth and development of the City. The plan is comprised of four (4) separate Elements: Land Use, Transportation, Safety, and Community Health.

### Land Use Element

Section 3, Land Use Element, includes the following objectives and policies relevant to the proposed project with regard to aesthetics:

> Policy LU-1.3. Improve the visual quality of the urban environment to be more welcoming and inviting at key gateways and travel corridors into the city.
>
> > Action LU.1.3C: Require the incorporation of scenic views, including open space features like waterways, wetlands, natural landscapes, and parks, into design of the built environment.
>
> Policy LU-5.2. Protect natural resource areas, fish and wildlife habitat, scenic areas, open space areas, agricultural lands, parks, and other cultural/historic resources from encroachment or destruction by incompatible development.

#### Scenic Resources and Scenic Vistas

The city's location within the greater San Joaquin Valley and proximity to the Sacramento-San Joaquin Delta also reinforce the importance of avoiding impacts to sensitive natural, cultural, and scenic resources (City of Stockton 2017).

### City of Stockton Municipal Code

Municipal Code Title 16 Development Code is used to implement Stockton's General Plan by: classifying and regulating the uses of land and structures within the City of Stockton; protecting and promoting the public health, safety, and general welfare; and preserving and enhancing the aesthetic quality of the City. The project site is designated as industrial (City of Stockton 2017).

#### Chapter 16.16.020 – Zoning districts established

The PT zoning district is applied to areas of the City that are operated by "port districts" as formed under the Harbors and Navigation Code Section 6210 et seq., for the operation of port facilities, including wharves, dockage, warehousing, and related port facilities. The PT zoning district is consistent with the Industrial and Institutional land use designations of the General Plan and the Rough and Ready Island Development Plan for the Port of Stockton (as applicable).

#### Chapter 16.24.150 – PT (port) zoning district standards

The project site is zoned as PT (Port) District (City of Stockton 2023). The uses of land allowed within the PT (port) zoning district shall be in compliance with the Rough and Ready Island Development Plan for the Port of Stockton, California (development plan) within the area specified in the plan.

### Port of Stockton

#### West Complex Development Plan

As part of long-term planning for the West Complex, the Port identified and considered the types of development and operations that could occur based on existing infrastructure, approved land uses, and future regional consumer demand. The West Complex Development Plan (WCDP) was approved in 2004, along with certification of WCDP EIR. The Development Plan covers future uses within the approximately 1,459-acre West Complex, commonly known as Rough and Ready Island.

## 3.1.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to Aesthetics are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to Aesthetics would occur if the project would:

Except as provided in Public Resources Code Section 21099, would the project:

- Have a substantial adverse effect on a scenic vista?
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

# 3.1.4 Impact Analysis

## 3.1.4.1 Methodology

Following professionally accepted practice in visual analysis, visual impacts that cross a threshold of "substantial adverse effect" are defined as a consequence of three primary factors: (1) the existing scenic quality and character of an area (landscape attributes), (2) the level of viewer exposure and concern with visual change (viewer sensitivity), and (3) the level of actual change to existing visual character and quality caused by the project as seen by a given viewer group (FHWA 2015). The overall visual sensitivity, including the sensitivity and exposure of viewers, is established. This rating is then considered with the level of expected visual change experienced by key (existing) viewer groups and caused by the project to arrive at an assessment of potential impacts and their significance.

For this EIR, a scenic vista is defined as a publicly accessible viewpoint that provides expansive views of a highly valued landscape. Scenic vistas are those accessible from public vantage points, such as public roadways and parks. A viewpoint that is accessible only from private property is not considered a scenic vista. Viewpoints that have been designated by a local, state, or federal agency are assumed to meet this definition. Highly valued landscapes generally refer to views of expansive open space areas or other natural features, such as mountains, undeveloped hillsides, large natural water bodies, or coastlines. Certain urban settings or features, such as a striking or renowned skyline, may also represent a scenic vista.

Scenic highways are designated under the State Scenic Highway Program, described in Section 3.1.2.2. For purposes of this EIR, an eligible highway is treated as a designated scenic highway. For lighting and glare, the proposed project was compared to existing sources of lighting glare. Local lighting regulations are considered where applicable.

## 3.1.4.2 Project Impacts

Impact AES-1 The project would not have a substantial adverse effect on a scenic vista.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Feedstock for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects on California's private, state, tribal, and federal timberlands. Feedstock acquisition would not include construction or operation of structures or infrastructure. Public views may be affected by activities, such as the removal of dead or hazardous trees or brush, construction of shaded fuel breaks, and forest thinning operations, that would occur during active implementation of the Sustainable Forest Management Projects. These types of activities would not block any views, dominate a viewshed, or significantly disrupt views from a scenic vista. Moreover, these activities are subject to Project Design Features, as described in Section 2.4, to ensure protection of aesthetic values. PDF-AES-4 addresses scenic vistas. Additionally, as described in Chapter 2, feedstock acquisition would not occur in certain designated areas (which presumably have a higher potential for scenic vistas), including federally designated wilderness areas, Wild and Scenic Rivers, or National Monuments. Feedstock acquisition activities would occur primarily within federal and state forests, and private lands that are zoned for timberland production. As described further in Impact AES-3, the intent of these activities in the long-term is to improve forest health, which in turn maintains visual quality. This impact would be **less than significant.**

## Wood Pellet Production

### Lassen Facility

As described in Section 3.1.2.3, the Lassen County General Plan does not identify any scenic vistas in the County (Lassen County 1999), and is not within the viewshed of a highly valued landscape that would meet the definition of a scenic vista.. The project would not affect scenic vistas and **no impact** would occur.

### Tuolumne Facility

As described in Section 3.1.2.3, the Tuolumne County General Plan identifies three vista points officially designated by Caltrans, located on SR 120 at post miles (PM) 19, 21 and 44. PM 19 and 21 can be found at Don Pedro Lake, and PM 44 "Rim of the World" overlooks the canyon containing the South Fork of the Tuolumne River (County of Tuolumne 2018). The project site is located approximately 6.7 miles from PM 19, approximately 8.5 miles from PM 21, and approximately 25.5 miles from PM 44. The Tuolumne Facility site is not within viewing distance of these vistas, nor within the viewshed of any other areas or natural or artificial features that otherwise meet the definition of a highly valued landscape; therefore, **no impact** would occur.

## Transport to Market

### Port of Stockton

The City of Stockton identifies the greater San Joaquin Valley and proximity to the Sacramento-San Joaquin Delta to be important scenic resources of the City. The Port of Stockton is within the Legal Delta of the Sacramento San Juaquin Delta, as shown in Figure 3-6 of the City of Stockton General Plan (City of Stockton 2018). The proposed project would include a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, and a ship loadout system. The project features would be similar to the surrounding Port of Stockton features; therefore, the port of Stockton would have a **less than significant** impact on scenic vistas.

Impact AES-2 The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects on California's private, state, tribal, and federal timberlands. These activities will occur primarily within federal and state forests, and private lands that are zoned for timberland production. As described in Chapter 2, activities directly adjacent to a state scenic highway corridor will be more limited, including the removal of dead or diseased trees, and the thinning of overcrowded stands of trees, underbrush, and "ladder fuels" in order to reduce wildfire risk. Not all of the existing vegetation would be cleared, and large trees would remain, vividness, intactness, and unity of views would remain, therefore their presence would not substantially affect views from a from a state scenic highway. Moreover, these activities are subject to Project Design Features, as described in Section 2.4, to ensure protection of aesthetic values. PDF-AES-4 addresses views from state scenic highways. This impact would be **less than significant.**

## Wood Pellet Production

### Lassen Facility

According to the California State Scenic Highway System Map, there are no officially designated scenic highways that pass by the project site or are near the project site. However, the project site is approximately 0.1 miles from an eligible state scenic highway, SR 299 (Caltrans 2018). Furthermore, the Lassen County General Plan Land Use Map identifies "Scenic Highway Corridors" along all state highways, several county roads, and along some roads in the planning stages. Scenic Corridors identify areas bordering major highways which have significant or sensitive scenic values due to the existence of significant scenic features and the level of public exposure to those areas. The Lassen site is therefore considered to be within a scenic highway viewshed for purposes of analysis.

As discussed in Section 3.1.2.3, the County General Plan utilizes an evaluation system to classify scenic resources (Class I, II, III, VI). Class I describes areas having the greatest scenic resources. As described in Section 3.1.2.3, one of the criteria for a site to be classified as Class I is if the site is subject to significant amounts of public exposure, especially in foreground and middle ground zones (i.e., along State or U.S. highways) (Lassen County 1999). Because the project site is located close to an eligible state scenic highway, SR 299, the site may be classified as containing Class I scenic resources. However, the project site does not contain any "distinctive landscape features" (in the language of the General Plan), which also indicates a lack of scenic resources. In addition, according to the General Plan, the concept of a scenic highway does not preclude development from occurring within the corridor. Development within scenic corridors is allowed if: the intensity and location of the development does not impact natural scenic qualities; the design of all development is in character with the natural surroundings; and where some attribute, physical or historic, indicates that an area should be left in its existing or natural state, public ownership or other rights are acquired to insure preservation (Lassen County 1999). The site is largely flat, with few trees, composed primarily of disturbed grasslands with some wetland vegetation at the southern end. The site includes a gravel slab, internal roadways, a water tower, and a pump house. While the project site is visible in the middle ground from SR 299, the foreground includes existing (offsite) industrial buildings and infrastructure. The project site contains a 102-foot-tall water tower. The water tower and pump house, which are not historic (see Section. 3.4, Cultural Resources), would not be removed as part of the project. The facility would contain three pellet silos with heights of 100 feet on the eastern side of the site, near the rail siding, and south of the water tower. The conveyor system serving the silos would add an additional 10 to 12 feet. The stacker reclaimer located on the southern end of the site (farther from the highway) would have a central structure 90 feet high, with a boom that can reach a maximum height of 132 feet (at full extension). This structure is of open steel construction without siding or walls, which lessens the visual impact as well as reducing the potential for glare. The chip piles, which are located on the southern end of the site next to the stacker reclaimer, would have a maximum height of 84 feet. As described in Section 3.10, the development of the project is consistent with the allowed development and intensities under the zoning designation.

Therefore, while considered a scenic corridor for purposes of this analysis, there are no scenic resources at the project site that would be affected by the project. The project, while not directly adjacent to the highway, is visible in the middle ground view from the highway (see Figure 3.1-1). The project would be visible for a relatively short term period by vehicular traffic on the highway, and would not obscure or affect other scenic resources visible from the highway. Therefore, the impact would be **less than significant**.

### Tuolumne Facility

According to the California State Scenic Highway System Map, there are no officially designated state scenic highways that pass by the project site or are near the project site (Caltrans 2018). Although there are no officially designated state scenic highways in Tuolumne County, the General Plan identifies portions of SR 49, 108, and 120 to be locally designated scenic routes (County of Tuolumne 2018). SR 108 is located approximately 3.7 miles to the north of the project site, SR 120 is located approximately 4.5 miles to the northeast of the project site, and SR 49 is located approximately 4.6 miles to the northeast of the project site. The project site is not located within the vicinity of an officially designated, eligible, or locally designated state scenic highway. Therefore, implementation of the proposed project would not substantially damage scenic resources within a state scenic highway. **No impact** would occur.

## Transport to Market

### Port of Stockton

According to Caltrans Scenic Highway Mapping System, there are no officially designated scenic highways that pass by the project site or are near the project site (Caltrans 2018). The City of Stockton identifies the greater San Joaquin Valley and proximity to the Sacramento-San Joaquin Delta to be important scenic resources of the City (City of Stockton 2018). The Port of Stockton is not within view of these important scenic resources. Therefore, the Port of Stockton component of the project would have **no impact** on scenic resources within a state scenic highway.

Impact AES-3 In nonurbanized areas, the project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. In an urbanized area, the project would not conflict with applicable zoning and other regulations governing scenic quality.

## Feedstock Acquisition

### Sustainable Forest Management Projects

The Sustainable Forest Management Project would occur in nonurbanized areas, primarily within federal and state forests, and private timberlands. U.S. Forest Service Region 5 includes all of the 18 national forests located in California, where many of the feedstock activities are expected to occur. Feedstock acquisition activities would, by design, reduce vegetation within project sites. However, the intent of such projects is that significant vegetation would remain and that growth of mature trees would be improved by reducing overcrowding. Improvement of forest health and resiliency would have visual benefits. Moreover, these activities are subject to Project Design Features, as described in Section 2.4, to ensure protection of aesthetic values. PDF-AES—1 addresses transition between treated and untreated areas. PDF-AES-2 addresses staging areas. PDF-AES-3 addresses screening of public trails and recreational areas. Reducing the risk of catastrophic wildfire risk, which results in substantial adverse visual change, will help maintain visual quality of forest lands and other open space (shrub and grasslands). The reduction of timber “monocultures,” and non-native species, will also have a positive visual effect, returning treated closer to native conditions, and allowing reintroduction of natural fire processes. The overall visual impact of these activities would be **less than significant.**

## Wood Pellet Production

### Lassen Facility

CEQA Section 21071 defines an "urbanized area" as "(a) an incorporated city that meets either of the following criteria: (1) has a population of at least 100,000 persons, or (2) has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons." Both Nubieber (population 31) and Bieber (population 145) are unincorporated communities (Data USA 2020a). Therefore, the Lassen site is analyzed as a nonurbanized area.

Figure 3.1-3, Elevation Drawing of Lassen Facility, shows the westerly elevation of the proposed project. This elevation would be most visible from Babcock Road, looking east. The proposed project would result in the construction of a wood pellet production facility on a previously partially developed site. The facility would include a woodyard, green processing area, drying area, pellet mill, product storage, and loadout area. The stacker reclaimer, located on the southern end of the site (farther from the highway) would have a central structure 90 feet high, and a boom with a maximum height of 132 feet (at full extension). The chip piles adjacent to the stacker reclaimer would have a maximum height of 84 feet. The three pellet silos would be 100 feet in height (with an additional 10 to 12 feet of the conveyor system). Facility buildings would be 15 to 65 feet in height, except for the rail loading building which would be 75 feet.

The proposed project site is located on a portion of a larger property that included a mill site (which is not part of the proposed project site) and an area used by the mill operators (and currently used by SPI) to load rail cars. The existing site includes a railroad siding, a gravel deck, internal roadways, a well pump house and a 102 foot tall water tower. The stacker reclaimer or pellet silos would not be substantially taller than the existing water tower. The project would increase the amount of development on the project site. However, the project would be consistent with the character of the site's historic uses and surrounding development (including the agricultural chemical plant to the west and the remaining mill structures to the north). The building design and height would not be out of character for the project vicinity. The stacker reclaimer or pellet silos would not be substantially taller than the existing water tower, and would be further from the public views. As noted, the existing visual quality is low to moderate. The project would be subject to design review as part of the County's conditional use permit, which will ensure the project quality is consistent with community standards. The visual impact would therefore be **less than significant**.

### Tuolumne Facility

CEQA Section 21071 defines an "urbanized area" as "(a) an incorporated city that meets either of the following criteria: (1) has a population of at least 100,000 persons, or (2) has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons." The closest city to the project site is Jamestown. According to Data USA, as of 2020, the City of Jamestown has a population of 3,379 persons (Data USA 2020b). Thus, the Tuolumne site would be analyzed as a nonurbanized area.

Construction of the Tuolumne Facility would result in a new wood pellet processing facility, including a security house, a rail loading building, pellet storage silos, pellet storage & loadout baghouse, chip storage pile, a reclaimer at the highest position of the chip storage pile, and various smaller wood processing buildings. The stacker reclaimer would be the tallest structure on site, with a central structure 72 feet high, and a boom with a maximum height of 107 feet. The stacker reclaimer is of open steel construction without siding or walls. The chip

piles adjacent to the stacker reclaimer would have a maximum height of 69 feet. The pellet storage silos would be approximately 100 feet in height, with an additional 10-12 feet for the conveyor. Facility buildings would be 15 to 75 feet in height. The more intense building development would be further from the public views, east of the existing American Wood Fibers facility. Figure 3.1-4, Elevation Drawing of Tuolumne Facility, shows the western elevation of the facility. While portions of this elevation may be visible from La Grange Road, due to existing structures (such as the American Wood Fibers facility) and vegetation, the entire facility would not be visible from a public viewpoint.

As discussed in Section 3.1.2.3, the height limit in the M-2 zone is 50 feet. This may be exceeded through the approval of a conditional use permit, if the side setback is increased by a distance equal to the additional height granted. For the project, the silos (112 feet) would exceed the 50-height limit by 62 feet. The silos are located 160 feet from the western property line (which is the BSNF rail line). The stacker reclaimer can range from 72 feet to 107 feet high at full extension. The stacker reclaimer is located over 200 feet from the eastern property line. In addition, existing water towers on the site are approximately 100 feet in height.

The proposed project site is located on property previously developed as a wood product facility (which ceased operation in mid-2020). As described in Section 3.1.1.3 the site contains existing structures ranging in height from 20 to 100 feet. The site, as a former industrial site, is generally of low visual quality, with the more agricultural northerly portion of moderate quality. The project would introduce additional structures. The tallest structures, the stacker reclaimer and the storage silos, would not be much taller than the existing water towers. The new buildings would be consistent with existing structures, although floor area would be increased. Overall, the character and quality of the site would not be substantially changed, therefore, the impact would be **less than significant**.

## Transport to Market

### Port of Stockton

CEQA Section 21071 defines an "urbanized area" as "(a) an incorporated city that meets either of the following criteria: (1) has a population of at least 100,000 persons, or (2) has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons." As of July 1, 2022, the US Census Bureau estimated the population of the City of Stockton to be 321,819 persons (US Census Bureau 2022). Thus, the Port of Stockton would be considered an urbanized area under CEQA for the aesthetics analysis.

The project site is zoned as PT (Port) District (City of Stockton 2023). According to City Municipal Code Section 16.20.020, Industrial land uses such as warehouses, wholesaling and distribution are permitted in the PT Zone The proposed project would not conflict with the site's zoning and no impact to zoning would occur.

Development of the project would include a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, and a ship loadout system. The storage domes would be the highest project structure, at 151 feet in height (see Figure 3.1-5, Elevation Drawing at Port of Stockton Facility). While this is taller than the surrounding warehouses, the domes are not out of character with the Port, which contains similar domes to the east. In addition, the domes would not be near public viewpoints. The domes would be setback from the viewers on the north side of the San Joaquin River. The ship loadout system would include an elevated conveyor from the dome to the ship berth. This system would not be taller than the existing warehouses and would not represent a change in the visual character of the project area. Overall, the facility components would not create a visual impact inconsistent with the existing visual character and quality of the area. The project site is located in the Port of

Stockton West Complex, which has historically been used for port related activities, including warehousing. The project is visually compatible with the industrial development within the Port.

Therefore, the visual impact of Port of Stockton component of the project would be **less than significant**.

Impact AES-4 The project may create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Because the Sustainable Forest Management Projects would be in natural and vegetated areas, no substantial light or glare is currently generated from these areas. As discussed above, rural areas may have additional light sources. Feedstock acquisition would not result in new sources of lighting. Activities would be conducted during daylight. Light reflected from vehicles and equipment could result in glare to nearby viewers; however, it would be temporary and often located in rural areas and within vegetation, thereby reducing its visibility. This impact would be **less than significant.**

## Wood Pellet Production

### Lassen Facility

The project site is partially developed as a former wood processing sawmill. The site includes railroad siding, a gravel deck, internal roadways, a well pump house and water tower. The majority of project site is undeveloped areas consisting of non-native grassland with a mix of annual grasses and forbs, mowed agricultural fields, upland ditches, seasonal wetlands, and a seasonal wetland swale. The project would include demolition of the existing structures and the construction of a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, project storage, and loadout area. Development and operation of the project would introduce new sources of lighting and glare on the project site.

As described in Section 3.3.1.2, existing of-site sources of light and glare include lights from trains, vehicle lights from SR 299 and nearby roads, light and glare from the agricultural chemical company and residences to the west of the project site, and light and glare from the historical remanufacturing/mill buildings to the north of the project site are received on the project site. Typical off-site lighting consists of exterior night lighting, street lighting, and security lighting, in addition to windows and other glass or metal expanses that may result in minimal localized glare.

The majority of construction activities associated with the Project would occur 6 days per week, during the hours of 7:00 a.m. to 5:00 p.m.. In the event that work is required outside the standard construction hours (to reduce traffic or other impacts), lighting would be focused directly on work activity areas and would be temporary. As such, nighttime construction lighting impacts would be less than significant.

Upon completion, operations would consist of feedstock receiving and pellet production. Operations would be active 24 hours per day, 7 days per week, with up to 4 weeks total downtime allotted for planned and unplanned outages once at capacity. Feedstock deliveries would occur primarily during weekday daytime hours. As the project is operational 24 hours per day, and requires external lighting for operations and safety, there is potential for light trespass (light spillover onto adjacent properties) as well as to contribute to “sky glow” (the brightening of the night sky due to uncontrolled or excessive manmade lighting). While lighting would comply with Title 24 and local

requirements, due to size of the project, the rural nature of the project site, and the proximity of neighboring properties, the project could result in a **potentially significant** impact. However, with implementation of **MM-AES-1**, impacts would be reduced to less than significant.

### Tuolumne Facility

The project site is partially developed as a wood processing facility, which was in active operation until mid-2020. The project site includes buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with this pre-existing facility. The project would include demolition of the existing structures and the construction of a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, project storage and loadout area. Because the existing wood processing sawmill is not presently in active operation, development and operation of the project would introduce new sources of lighting on the project site. However, the project site is adjacent to an existing, active wood shavings plant, which produces light and glare at the project site.

The majority of construction activities associated with the project would occur 6 days per week, during the hours of 7:00 a.m. to 5:00 p.m. In the event that work is required outside the standard construction hours (to reduce traffic or other impacts), lighting would be focused directly on work activity areas and would be temporary. As such, nighttime construction lighting impacts would be less than significant.

Upon completion, operations would consist of feedstock receiving and pellet production. Operations be active 24 hours per day, 7 days per week, with up to 4 weeks total downtime allotted for planned and unplanned outages once at capacity. Feedstock deliveries would occur primarily during weekday daylight hours.

As the project is operational 24 hours per day, and requires external lighting for operations and safety, there is potential for light trespass (light spillover onto adjacent properties) as well as to contribute to “sky glow” (the brightening of the night sky due to uncontrolled or excessive manmade lighting). While lighting would comply with Title 24, due to size of the project, the rural nature of the project site, and the proximity of neighboring properties, the project could result in a **potentially significant** impact. However, with implementation of **MM-AES-1**, impacts would be reduced to less than significant.

## Transport to Market

### Port of Stockton

The proposed facility would be located at the Port of Stockton within the northwest quarter of the West Complex, on a relatively undeveloped site. As described in Section 3.1.1.4, approximately 75 facilities or businesses operate out of the West Complex as of 2020. The West Complex is characterized by maritime terminals, railroad facilities, large warehouse and storage buildings, and stockpiles of various commodities (Port of Stockton 2023b). The Port of Stockton is already developed and well lit. While the project may require additional lights at the storage facility, these lights would not introduce substantial light compared to the project vicinity, and would not be near any sensitive receptors. The proposed project would have a **less than significant** impact.

### 3.1.4.3 Cumulative Impacts

***The project would not result in cumulatively considerable impacts to scenic views or scenic resources within state scenic highways, or to the visual character and quality of the project sites.***

#### Feedstock Acquisition

Cumulative projects, described in Section 3.0, would be located on federal and state forests, and private lands that are zoned for timberland production. These projects, particularly commercial timber projects, have the potential to impact visual quality. Vegetation management and defensible space activities may also affect visual quality, but given the objectives of these projects, to reduce density but not eliminate vegetation, and to reduce the likelihood of catastrophic wildfire, the impact is less likely to be significant. As described in Section 3.1.4.2, direct impacts to visual character and quality from feedstock acquisition would be less than significant. In addition, other cumulative projects are not likely to be within the same viewshed. Therefore, for the reasons described above, impacts to aesthetics would not be cumulatively considerable.

#### Wood Pellet Production

##### Lassen Facility

The project would not impact a scenic vista, and there are no cumulative projects that would visually interact with the proposed project. The project would have a less than significant impact scenic resources within the SR 299 corridor. No cumulative projects have been identified that would impact this corridor in the vicinity of the project (the cumulative area is Big Valley, as described in Section 3.0). The proposed project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings, and no cumulative projects have been identified within the viewshed of the project site.

##### Tuolumne Facility

The Tuolumne County General Plan identifies three vista points. However, as previously described, the vista points along scenic routes are not in close proximity to the Tuolumne Facility project site. The project would not affect a scenic highway corridor, and therefore would not interact with other cumulative projects. The proposed project would not have a significant impact on visual character or quality. Cumulative projects in the County may result in visual changes, but would not occur within the same viewshed as the proposed project.

#### Transport to Market

##### Port of Stockton

The City of Stockton identifies the greater San Joaquin Valley and proximity to the Sacramento-San Joaquin Delta to be important scenic resources of the City. However, the cumulative projects and proposed project would not affect an identified scenic vista at the project site. There are no officially designated scenic highways that are near the project site, therefore, cumulative projects would not impact scenic resources within a state scenic highway.

Cumulative projects at the Port of Stockton may result in visual changes. However, these development projects are consistent with the zoning district and development standards, as is the proposed project. In combination with

planning future development, the project would not result in a cumulatively considerable contribution to a cumulative impact to visual character and quality.

***The project would not result in a cumulatively considerable increase in light or glare.***

### Feedstock Acquisition

The proposed feedstock acquisition activities would not introduce new sources of light or glare and would not result in a cumulatively considerable impact.

### Wood Pellet Production

While there are no cumulative projects close enough to the proposed site that lighting may interact or overlap, cumulative "sky glow" is a concern. Cumulative projects that do not properly shield or direct lighting downward may contribute to this cumulative impact. However, the implementation of MM AES-1 would reduce project contributions to this effect to a less than cumulatively considerable level.

### Transport to Market

#### Port of Stockton

The Port of Stockton is a developed, well-lit area. Cumulative projects would introduce new light sources, but would not represent a substantial increase. In addition, cumulative projects would also be required to comply with existing lighting standards to reduce lighting and glare impacts. Therefore light and glare impacts at the Port would not be cumulatively considerable.

## 3.1.4.4 Mitigation Measures

### Feedstock Acquisition

#### Sustainable Forest Management Projects

No mitigation measures are required as impacts would be less than significant.

### Wood Pellet Production

MM-AES-1 GSNR shall install shielded, downward directed lights at the pellet facilities. GSNR shall install the minimum number of lights and intensities for the intended use and use timer or motion-controlled lighting where feasible. All exterior lighting shall be retained on-site and shall be designed not spill onto adjacent properties or illuminate directly on any surface other than the area required to be lighted. A photometric plan shall be prepared and submitted as part of the building permit application for the pellet facilities to demonstrate compliance with this measure.

### Transport to Market

#### Port of Stockton

No mitigation measures are required as impacts would be less than significant.

### 3.1.4.5 Significance After Mitigation

Impacts AES-1 through AES-3 would be less than significant and do not require mitigation.

Implementation of Mitigation Measure (MM) AES-1 would reduce the impact of Impact AES-4 to **less than significant**. The measure would ensure that project lighting at the Lassen and Tuolumne sites are designed to avoid light trespass onto neighboring properties, and to reduce "sky glow." This MM is consistent with Lassen County General Plan Policy NR 82 and Code Section 18.108.155. Impacts for feedstock acquisition activities and transfer to market (Port of Stockton) would be less than significant and do not require mitigation.

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**FIGURE 3.1-1**

View of Lassen Site from SR 299

Golden State Natural Resources Forest Resiliency Demonstration Project

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**FIGURE 3.1-2**

View of Tuolumne Site from La Grange Road

Golden State Natural Resources Forest Resiliency Demonstration Project

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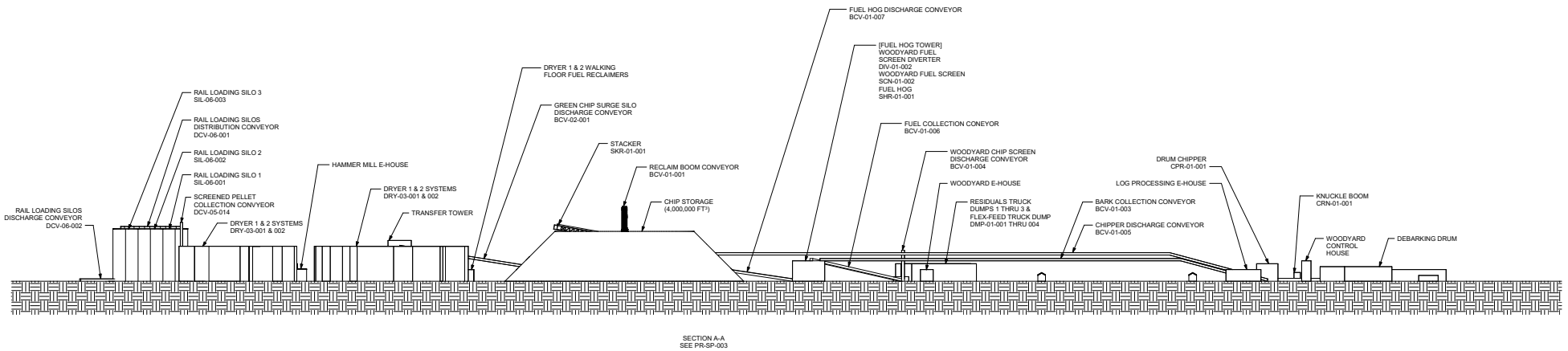


SOURCE: Nexus Project Development Services, 2023

**FIGURE 3.1-3**

Elevation Drawing of Lassen Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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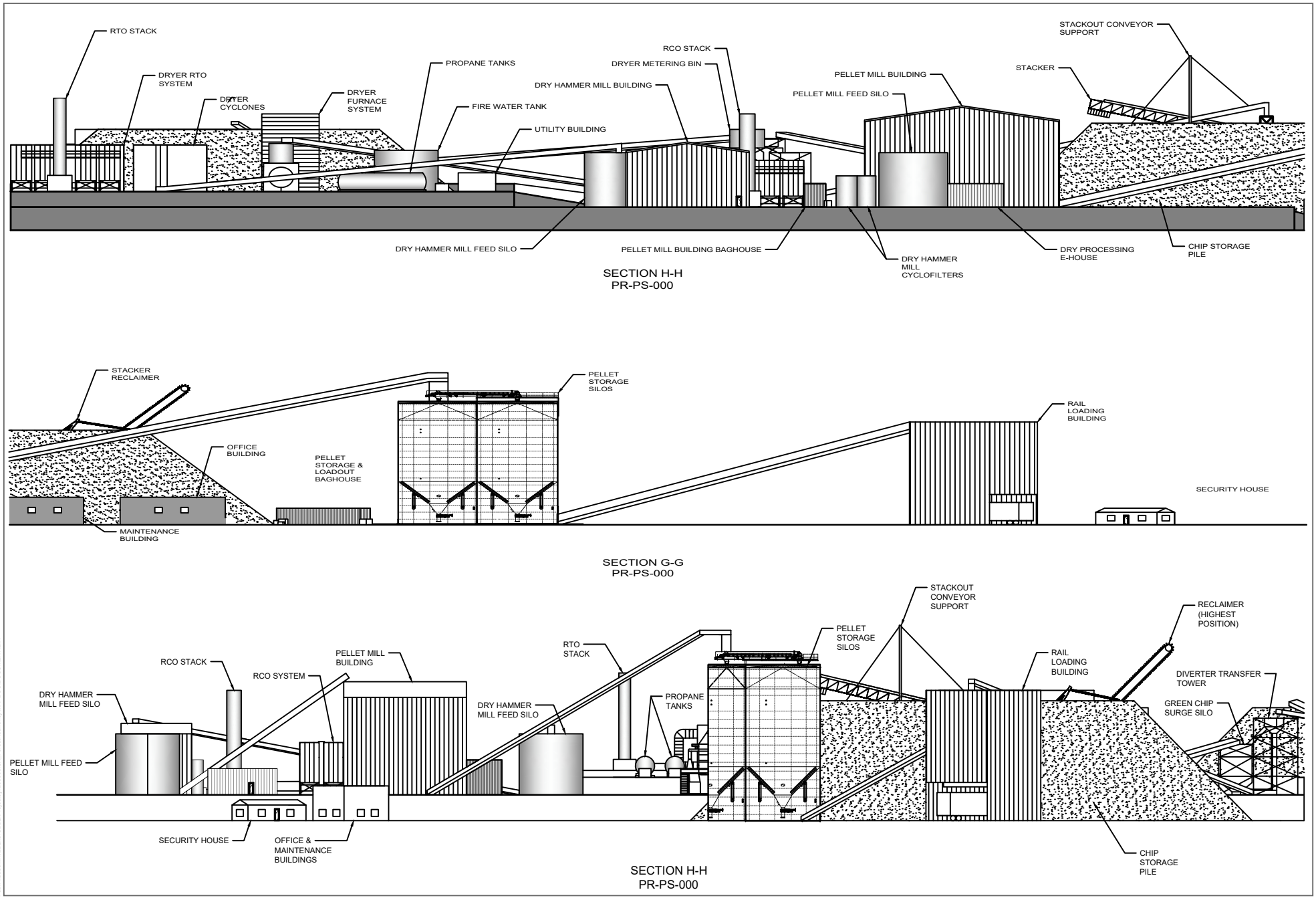


SOURCE: Nexus Project Development Services, 2023

**FIGURE 3.1-4**

Elevation Drawing of Tuolumne Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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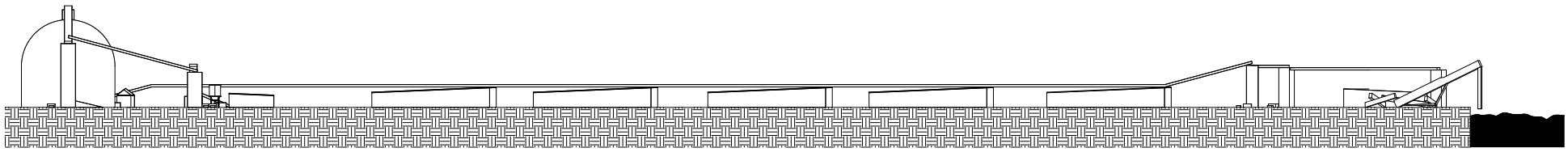

SOURCE: Nexus Project Development Services, 2023

**FIGURE 3.1-5**

Elevation Drawing of Port of Stockton Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 3.2 Air Quality

This section of the Draft EIR evaluates potential impacts to air quality associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project or project). This section describes the existing air quality conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal at the Port of Stockton, and evaluates the potential for project-related air quality impacts, considering proposed project design features (PDFs) and site design features (SDFs) that could reduce or eliminate associated impacts.

Scoping comments were received regarding air quality in response to the Notice of Preparation (NOP) (see Appendix A). The air quality related comments included concerns about criteria air pollutant emissions and toxic air contaminants (TACs) associated with the construction and operational "lifecycle" (i.e., from harvesting, processing, feedstock transport and storage, pellet production, rail transport, port operations, overseas transport, and combustion of the pellets to make electricity) of the proposed project. Concerns related to criteria air pollutants generated during construction and operation are addressed in Impacts AQ-1 and AQ-2 within Section 3.2.4.2. Concerns related to TACs are addressed in Impact AQ-3 within Section 3.2.4.2. Concerns were also related to potential odors associated with the pellet facilities and storage of pellets and feedstocks, which are addressed in Impact AQ-4 within Section 3.2.4.2. Finally, concerns pertaining to potential air pollution impacts at communities of color and low-income communities were received, which are addressed in Impact AQ-3 within Section 3.2.4.2.

## 3.2.1 Environmental Setting

### 3.2.1.1 Pollutants and Effects

#### 3.2.1.1.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards (AAQS), or criteria, for outdoor concentrations to protect public health. The national and California standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include $O_3$, nitrogen dioxide ($NO_2$), carbon monoxide (CO), sulfur dioxide ($SO_2$), particulate matter with an aerodynamic diameter less than or equal to 10 microns ($PM_{10}$), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following paragraphs.[1]

**Ozone.** $O_3$ is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and $O_3$ precursors. These precursors are mainly oxides of nitrogen ($NO_x$) and volatile organic compounds (VOCs), also referred to as reactive organic gases (ROGs). The maximum effects of precursor emissions on $O_3$ concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in $O_3$ formation, and ideal conditions occur during summer and early autumn on days with low wind

[1] The descriptions of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's "Criteria Air Pollutants" (EPA 2024a), as well as the California Air Resources Board's "Glossary" (CARB 2024a).

speeds or stagnant air, warm temperatures, and cloudless skies. $O_3$ exists in the upper atmosphere $O_3$ layer (stratospheric $O_3$) and at the Earth's surface in the troposphere (ground-level $O_3$).[2] The $O_3$ that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level $O_3$ is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" $O_3$. Stratospheric, or "good," $O_3$ occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric $O_3$ layer, plant and animal life would be seriously harmed.

$O_3$ in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to $O_3$ at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013).

Inhalation of $O_3$ causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to $O_3$ can reduce the volume of air that the lungs breathe in, thereby causing shortness of breath. $O_3$ in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from $O_3$ exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of $O_3$ exposure. While there are relatively few studies on the effects of $O_3$ on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to $O_3$ and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents, and adults who exercise or work outdoors, where $O_3$ concentrations are the highest, are at the greatest risk of harm from this pollutant.

**Nitrogen Dioxide.** $NO_2$ is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of $NO_2$ in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. $NO_x$ plays a major role, together with VOCs, in the atmospheric reactions that produce $O_3$. $NO_x$ is formed from fuel combustion under high temperature or pressure. In addition, $NO_x$ is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. $NO_2$ can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections.

A large body of health science literature indicates that exposure to $NO_2$ can induce adverse health effects. The strongest health evidence, and the health basis for the AAQS for $NO_2$, results from controlled human exposure studies that show that $NO_2$ exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between $NO_2$ exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to $NO_2$ than adults due to their greater breathing rate for their body weight and

[2] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

their typically greater outdoor exposure duration. Several studies have shown that long-term $NO_2$ exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher levels of exposure compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease.

**Carbon Monoxide.** CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO.

**Sulfur Dioxide.** $SO_2$ is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of $SO_2$ are coal and oil used in power plants and industries; as such, the highest levels of $SO_2$ are generally found near large industrial complexes. In recent years, $SO_2$ concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of $SO_2$ and limits on the sulfur content of fuels.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with $SO_2$ exposure, compared with the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of $SO_2$ (above 1 parts per million [ppm]) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. Older people and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects.

$SO_2$ is of concern both because it is a direct respiratory irritant and because it contributes to the formation of sulfate and sulfuric acid in particulate matter (NRC 2005). People with asthma are of particular concern, both because they have increased baseline airflow resistance and because their $SO_2$-induced increase in airflow resistance is

greater than in healthy people, and it increases with the severity of their asthma (NRC 2005). $SO_2$ is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

**Particulate Matter.** Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and $PM_{10}$ represent fractions of particulate matter. Coarse particulate matter ($PM_{10}$) consists of particulate matter that is 10 microns or less in diameter, which is about 1/7 the thickness of a human hair. Major sources of $PM_{10}$ include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter, which is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides ($SO_x$), $NO_x$, and VOCs.

$PM_{2.5}$ and $PM_{10}$ pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and $PM_{10}$ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas $PM_{10}$ tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

Several adverse health effects have been associated with exposure to both $PM_{2.5}$ and $PM_{10}$. For $PM_{2.5}$, short-term exposures (up to 24-hour duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all of the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to $PM_{10}$ have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits.

Long-term exposure (months to years) to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. The effects of long-term exposure to $PM_{10}$ are less clear, although several studies suggest a link between long-term $PM_{10}$ exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer.

**Ultrafine Particulate Matter.** Ultrafine particles (UFPs or $PM_{0.1}$) are particulate matter with a diameter less than 0.1 microns. While UFPs are a subset of regulated particulate matter, their exceptionally small size presents additional concerns related to regulation, accurate and reliable measurement, and health effects, as they can penetrate into regions of the human body that are not accessible to larger particles (Casuccio et. al. 2006, Marval and Tronville 2022, Kleeman et al. 2019). Predominant human-caused sources of UFPs include vehicle exhaust, stationary

sources (diesel, natural gas, and biofuel combustion) such as power plants and factories, and biomass burning. There are additional indoor sources of UFP such as combustion (cooking), heating, and house cleaning (Marval and Tronville 2022). UFP also have toxic properties, possibly because they can transport metals, oxidized organic compounds, and other toxic substances, though epidemiological studies have been generally inconclusive (Kleeman et al. 2019). Observed effects in animal and human studies include respiratory and cardiovascular effects such as lung function changes, airway inflammation, enhanced allergic responses, vascular thrombogenic effects, altered endothelial function, altered heart rate and heart rate variability, accelerated atherosclerosis, and increased markers of brain inflammation (Health Effects Institute 2013, Schraufnagel 2020). Of importance, UFP is not estimated or evaluated separately from $PM_{2.5}$ in this analysis as neither CARB nor EPA have established separate AAQS, air districts have not established numeric thresholds for $PM_{0.1}$ or other guidance for evaluating $PM_{0.1}$ under CEQA, and industry standard emission estimator models do not include methodology for estimating $PM_{0.1}$ from land use projects.

**Lead.** Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

**Sulfates.** Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of $SO_2$ in the atmosphere and can result in respiratory impairment, as well as reduced visibility.

**Vinyl Chloride.** Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

**Hydrogen Sulfide.** Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

**Visibility-Reducing Particles.** Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$.

**Volatile Organic Compounds.** Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of $O_3$ are referred to and regulated as VOCs

(also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of $O_3$ and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate AAQS for VOCs as a group.

#### 3.2.1.1.2 Non-criteria Air Pollutants

**Toxic Air Contaminants.** A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

**Diesel Particulate Matter.** Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70 the diameter of a human hair), and thus is a subset of $PM_{2.5}$. DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2022f). The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines, including trucks, buses, and cars, and off-road diesel engines, including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new

allergies. Those most vulnerable to non-cancer health effects are children, whose lungs are still developing, and older people, who often have chronic health problems.

**Odorous Compounds.** Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

**Valley Fever.** Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. When fungal spores are present, any activity that disturbs the soil, such as digging, grading, or other earth-moving operations, can cause the spores to become airborne and thereby increase the risk of exposure. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline sandy soils.

The fungus is very prevalent in California's soils. Some of the California counties considered highly endemic for Valley Fever include Kern (264.9 per 100,000), Kings (111.0 per 100,000), Tulare (65.7 per 100,000), San Luis Obispo (51.5 per 100,000), Fresno (44.3 per 100,000), Madera (32.4 per 100,000), and Ventura (28.3 per 100,000), which accounted for 50.5% of the reported cases in 2022 (CDPH 2022). In contrast, in 2022 the statewide annual incident rate was 19.1 per 100,000 people.

None of the counties within the Lassen Feedstock area that Sustainable Forest Management Projects could take place are considered highly endemic areas for Valley Fever. However, Fresno County, Madera County, Tulare County, and Merced County are located within the Tuolumne Feedstock area, and therefore, Sustainable Forest Management Projects could take place in these counties.

Neither Lassen County, Tuolumne County, nor San Joaquin County, where the Lassen Facility, Tuolumne Facility, and Port of Stockton are respectively located, are considered highly endemic areas for Valley Fever. The latest report from the California Department of Public Health (CDPH) indicated that Lassen County had 3.4 cases per 100,000 people, Tuolumne County had 3.7 cases per 100,000 people, and San Joaquin County had 13.3 cases per 100,000 people (CDPH 2022).

**Naturally Occurring Asbestos.** Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers, with principal forms including chrysotile, crocidolite, amosite, tremolite, actinolite, and anthophyllite (OEHHA 2000). Naturally occurring asbestos (NOA) is found in some areas throughout California, most commonly where ultramafic rock or serpentinite rock is present, including in the Klamath Mountains and Coast Ranges. When construction activities occur in areas with NOA in the soils or rock, the asbestos fibers can become airborne and may be inhaled, which can cause chronic local inflammation and disrupt orderly cell division, both of which can facilitate the development of asbestosis (a noncancerous lung disease involving fibrotic scarring of the lungs) and cancer (OEHHA 2000). To address some of the health concerns associated with the possible exposure to NOA, CARB adopted two statewide Asbestos Airborne

Toxic Control Measures to prohibit the use of serpentine or ultramafic rock for unpaved surfaces and mitigate the dust emissions from grading, mining, and other construction activities (CARB 2017a).

**Wildfire Smoke.** Wildfire smoke is comprised of a mixture of gaseous pollutants (e.g., CO), TACs (e.g., polycyclic aromatic hydrocarbons [PAHs]), water vapor, and particle pollution (EPA 2023a). Particle pollution represents a main component of wildfire smoke and the principal public health threat. "Particle pollution" (also referred to as particles, particulate matter, or PM) is a general term for a mixture of solid and liquid droplets suspended in the air. There are many sources of particle pollution; the most common is combustion-related activities, such as wildfires. Because of the variety of sources, particles come in many sizes and shapes. Some particles are so small that they are only visible using an electron microscope. Particles can be made up of different components, including acids (e.g., sulfuric acid), inorganic compounds (e.g., ammonium sulfate, ammonium nitrate, and sodium chloride), organic chemicals, soot, metals, soil or dust particles, and biological materials (e.g., pollen and mold spores). There is evidence of an increase in the risk of both cardiovascular- and respiratory-related effects in response to wildfire smoke exposure, particularly as the intensity of wildfire smoke increases.

### 3.2.1.2 Sustainable Forest Management Projects

#### Meteorological and Topographical Conditions

In 2019, the Golden State Finance Authority (GSFA) and the U.S. Forest Service signed a Master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes all of the 18 national forests located in California. Feedstock for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). While the MSA applies to the entirety of Region 5, only Sustainable Forest Management Projects within the Working Area described in Chapter 2.4 are contemplated under the proposed project. The feedstock would originate from private, state, tribal, and federal timberlands located within these areas. In addition, the Working Area includes public and private forested lands in Nevada and Oregon, including parts of Regions 4 and 6 of the USFS in western Nevada and southern Oregon, respectively.[3]

California's climate exhibits a Mediterranean pattern, marked by hot, arid summers and cool, wet winters. California includes a diverse range of geographical conditions, including oceans, valleys, mountains, and deserts. These geographic features play a crucial role in trapping pollutants within a certain region and preventing their dispersion, resulting in an air basin.

Feedstock activity within the Northern feedstock boundary (Lassen Feedstock area) may occur within the Northeast Plateau Air Basin, North Coast Air Basin, Sacramento Valley Air Basin, and Mountain Counties Air Basin. Feedstock activity within Southern feedstock boundary (Tuolumne Feedstock area) may occur within the San Joaquin Valley Air Basin, Mountain Counties Air Basin, Sacramento Valley Air Basin, and Great Basin Valleys Air Basin (see Figure 3.2-1, Feedstock Areas – California Air Districts).

[3] As set forth in Section 2.4 within Chapter 2, any feedstock acquisition activities occurring in Oregon or Nevada will be required to undergo environmental review under NEPA or under a law of the applicable state requiring preparation of a document containing essentially the same points of analysis as NEPA. Consequently, those activities are not separately discussed in detail here; however, the nature of those activities, the associated emissions, and their effects upon air quality within and outside the state, are identical to Sustainable Forest Management Projects occurring within California, and those aspects of the discussion in this chapter are equally applicable to those activities.

## Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. The data collected at these locations inform the attainment or nonattainment designation of counties and air basins. Sustainable forest management project activities implemented under the project would occur within every air basin described above, as such, there would be a high degree of variation in how the emissions of these projects would affect the ambient concentrations of criteria air pollutants within an air basin. For the reasons stated above (e.g., topography, meteorology, emissions sources, location), ambient concentrations of criteria air pollutants differ between air basins.

## Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 3.2-1 depicts the current attainment status of the all California counties located within the Working Area of the Lassen Facility or the Tuolumne Facility in respect to the NAAQS and CAAQS.

## Table 3.2-1. Attainment Status of Counties Located Within the Working Area of the Lassen and Tuolumne Facilities

| County | Ozone | | Nitrogen Dioxide | | Carbon Monoxide | | Sulfur Dioxide | | $PM_{10}$ | | $PM_{2.5}$ | | Lead | | Sulfates | | Hydrogen Sulfide | | Vinyl Chloride | | VSP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS |
| Alpine | U | U/A | A | U/A | U | U/A | A | U/A | N | U | A | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Amador | N | N | A | U/A | U | U/A | A | U/A | U | U | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Butte | N | N | A | U/A | A | U/A | A | U/A | N | U | N | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Calaveras | N | N | A | U/A | U | U/A | A | U/A | N | U | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| El Dorado[a] | N | N | A | U/A | U | U/A | A | U/A | N | U | U | N | A | U/A | A | / | U | / | U | / | U | / |
| Fresno | N | N | A | U/A | A | U/A | A | U/A | N | A | N | N | A | U/A | A | / | U | / | U | / | U | / |
| Lassen | A | U/A | A | U/A | U | U/A | A | U/A | U | U | A | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Madera | N | N | A | U/A | U | U/A | A | U/A | N | A | N | N | A | U/A | A | / | U | / | U | / | U | / |
| Mariposa | N | N | A | U/A | U | U/A | A | U/A | U | U | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Merced | N | N | A | U/A | U | U/A | A | U/A | N | A | N | N | A | U/A | A | / | U | / | U | / | U | / |
| Modoc | A | U/A | A | U/A | U | U/A | A | U/A | U | U | A | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Mono | N | U/A | A | U/A | A | U/A | A | U/A | N | N | A | U/A | A | U/A | A | / | A | / | U | / | U | / |
| Nevada | N | N | A | U/A | U | U/A | A | U/A | N | U | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Placer[b] | N | N | A | U/A | U | U/A | A | U/A | N | U | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Plumas | U | U/A | A | U/A | A | U/A | A | U/A | N | U | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Sacramento | N | N | A | U/A | A | U/A | A | U/A | N | A | A | N | A | U/A | A | / | U | / | U | / | U | / |
| San Joaquin[c] | N | N | A | U/A | A | U/A | A | U/A | N | A | N | N | A | U/A | A | / | U | / | U | / | U | / |
| Shasta | N | U/A | A | U/A | U | U/A | A | U/A | A | U | A | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Sierra | U | U/A | A | U/A | U | U/A | A | U/A | N | U | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Siskiyou | A | U/A | A | U/A | U | U/A | A | U/A | A | U | A | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Stanislaus | N | N | A | U/A | A | U/A | A | U/A | N | A | N | N | A | U/A | A | / | U | / | U | / | U | / |
| Sutter | N | U/A | A | U/A | A | U/A | A | U/A | N | U | N | U/A | A | U/A | A | / | U | / | U | / | U | / |

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| County | Ozone | | Nitrogen Dioxide | | Carbon Monoxide | | Sulfur Dioxide | | $PM_{10}$ | | $PM_{2.5}$ | | Lead | | Sulfates | | Hydrogen Sulfide | | Vinyl Chloride | | VSP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS | CAAQS | NAAQS |
| Tehama | N | U/A | A | U/A | U | U/A | A | U/A | N | U | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Trinity | A | U/A | A | U/A | U | U/A | A | U/A | A | U | A | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Tuolumne | T | N | A | U/A | A | U/A | A | U/A | U | A | U | U/A | A | U/A | A | / | U | / | U | / | U | / |
| Yuba | N | U/A | A | U/A | U | U/A | A | U/A | N | U | N | U/A | A | U/A | A | / | U | / | U | / | U | / |

**Source:** EPA 2024b; CARB 2024b

**Notes**: N = nonattainment; A = attainment; U = unclassified; U/A = unclassifiable/attainment; T = nonattainment/transitional; / = no data or not applicable

[a] The eastern portion of El Dorado County (Lake Tahoe Air Basin) is in attainment for the CAAQS and NAAQS for ozone, $PM_{2.5}$, and $PM_{10}$; however, the western portion (Mountain Counties Air Basin) is in nonattainment for ozone and unclassified for $PM_{10}$. A fraction of the County located in the Mountain Counties Air Basin is also in nonattainment for the $PM_{2.5}$ NAAQS.

[b] The eastern portion of Placer County (Lake Tahoe Air Basin) is in attainment for the CAAQS and NAAQS for ozone; however, the western portion (Sacramento Valley Air Basin and Mountain Counties Air Basin) is in nonattainment for ozone. The far western portion (Sacramento Valley Air Basin) and far eastern portion (Lake Tahoe Air Basin) is in attainment the $PM_{2.5}$ CAAQS, and the middle portion (Mountain Counties Air Basin) is designated unclassified for the $PM_{2.5}$ CAAQS. The far western portion (Sacramento Valley Air Basin) is also in nonattainment for the $PM_{2.5}$ NAAQS.

[c] The western portion (San Joaquin Valley Air Basin) is in nonattainment. The San Joaquin Valley Air Basin is in attainment for the $PM_{10}$ and $PM_{2.5}$ NAAQS.

### Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, older adults, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air-pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air-pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005).

Each air district defines sensitive receptors differently; however, there are general commonalities between definitions that generally match how the State defines sensitive receptors (e.g., facilities that house or attract children, older adults, people with illnesses, hospitals, schools, convalescent facilities, and residential areas). Feedstock activities would occur across the jurisdiction of 17 air districts; six of these districts specifically define sensitive receptors as follows:

- Sacramento Metropolitan AQMD, San Joaquin Valley APCD, Shasta County AQMD, El Dorado APCD: These four air districts define sensitive receptors identically as "facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors" (Sacramento Metropolitan AQMD 2009, San Joaquin Valley APCD 2000, Shasta County AQMD 2003, El Dorado County APCD 2002)
- Butte County AQMD defines sensitive receptors as "people that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling units" (Butte County AQMD 2024)
- Tehama County APCD defines a sensitive receptor as "a location where human populations, especially children, seniors, or sick persons are found, and there is reasonable expectation of continuous human exposure according to the averaging period for the AAQS (e.g., 24-hour, 8-hour). These typically include residences, hospitals, and schools" (Tehama County APCD 2015).

Because feedstock activity would occur over various areas and the specific locations for each Sustainable Forest Management Project have not yet been determined, the nearest sensitive receptor for any particular feedstock activity cannot be identified at this time; however, it is reasonable to anticipate that residential and other sensitive land uses may be nearby roadways where feedstock transport would occur. Within the forests where feedstock would be gathered, sensitive receptors are not anticipated be within close proximity.

## 3.2.1.3 Northern California (Lassen Facility) Site

### Meteorological and Topographical Conditions

#### Northeast Plateau Air Basin

The Northeast Plateau Air Basin (NEPAB) is located in the northeastern most corner of California and encompasses Siskiyou County, Modoc County, and Lassen County, where the Lassen Facility is located. The topography of the NEPAB is rugged and elevated, including the Klamath Mountains, the Cascade Mountains, and the Modoc Plateau. The prevalence of mountains and hills in the region results in a wide range of climate conditions, including distinct

precipitation, temperature, and wind differences from other air basins in California. The region experiences typical seasonal conditions, such as wet and cold winters and hot and dry summers. With only approximately 80,000 residents across 3 counties, the NEPAB is sparsely populated compared to other air basins in California, and has few weather and air quality monitoring stations. Similar to other rural areas, the region does not suffer from high concentrations of the criteria air pollutants associated with major urban centers, such as ozone and nitrogen oxides, but instead deals more with the particulate emissions from dust and wood smoke.

## Local Ambient Air Quality

There are no monitoring stations within Lassen County, but neighboring air districts monitor local ambient air quality in the vicinity of the Lassen Facility and the NEPAB. Due to the lack of monitoring sites in the vicinity of the Lassen Facility, the available local ambient air quality may not be truly representative of the site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2021 to 2023 are presented in Table 3.2-2.

The Yreka monitoring station, located at 530 Foothill Drive, Yreka, California, is the air quality monitoring station nearest to the facility measuring $O_3$ and $PM_{2.5}$, located approximately 87 miles northwest of the facility. The Yreka monitoring station is in Siskiyou County, which is in attainment for $O_3$ and $PM_{2.5}$, as is Lassen County. The Chico monitoring station, located at 984 East Avenue, Chico, California, is the nearest monitoring station to the facility measuring $NO_2$ and CO, located approximately 102 miles southwest of the facility. The Chico monitoring station is in Butte County, which is in attainment for $NO_2$ and CO, as is Lassen County. The Eureka monitoring station, located at 717 South Avenue, Eureka, California, is the air quality monitoring station nearest to the facility measuring $SO_2$ concentrations, located approximately 159 miles west of the facility. The Eureka monitoring station is in Humboldt County, which is in attainment for $SO_2$, as is Lassen County. The Shasta Lake-La Mesa Avenue monitoring station, located at 4066 La Mesa Avenue, Shasta Lake, California is the nearest monitoring station to the facility measuring $PM_{10}$, located approximately 69 miles west of the facility. The Shasta Lake-La Mesa monitoring station is in Shasta County, which is in attainment for $PM_{10}$, as is Lassen County. The number of days exceeding the AAQS is also shown in Table 3.2-2.

### Table 3.2-2. Lassen Facility Local Ambient Air Quality Data

| Averaging Time | Unit | Agency/ Method | Ambient Air Quality Standard | Measured Concentration by Year | | | Exceedances by Year | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| **Ozone ($O_3$)[1]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 0.09 | 0.077 | 0.087 | 0.070 | 0 | 0 | 0 |
| Maximum 8-hour concentration | ppm | California | 0.070 | 0.070 | 0.071 | 0.066 | 0 | 1 | 0 |
| | | National | 0.070 | 0.070 | 0.070 | 0.066 | 0 | 0 | 0 |
| **Nitrogen Dioxide ($NO_2$)[2]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 0.18 | 0.031 | 0.029 | 0.031 | 0 | 0 | 0 |
| | | National | 0.100 | 0.032 | 0.030 | 0.031 | 0 | 0 | 0 |

## Table 3.2-2. Lassen Facility Local Ambient Air Quality Data

| Averaging Time | Unit | Agency/ Method | Ambient Air Quality Standard | Measured Concentration by Year | | | Exceedances by Year | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| Annual concentration | ppm | California | 0.030 | 0.005 | 0.005 | ND | — | — | --- |
| | | National | 0.053 | 0.005 | 0.005 | 0.005 | — | — | --- |
| **Carbon Monoxide (CO)[3]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 20 | ND | ND | ND | ND | ND | ND |
| | | National | 35 | 1.8 | 1.6 | 1.7 | 0 | 0 | 0 |
| Maximum 8-hour concentration | ppm | California | 9.0 | ND | ND | ND | ND | ND | ND |
| | | National | 9 | 1.5 | 1.2 | 1.3 | 0 | 0 | 0 |
| **Sulfur Dioxide ($SO_2$)[4]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | National | 0.075 | 0.001 | 0.001 | 0.001 | 0 | 0 | 0 |
| Maximum 24-hour concentration | ppm | National | 0.14 | 0.001 | 0.001 | 0.001 | 0 | 0 | 0 |
| Annual concentration | ppm | National | 0.030 | <0.001 | <0.001 | <0.001 | — | — | --- |
| **Coarse Particulate Matter ($PM_{10}$)[5,a]** | | | | | | | | | |
| Maximum 24-hour concentration | µg/m³ | California | 50 | 112.4 | ND | ND | ND (3) | ND (0) | ND (0) |
| | | National | 150 | 116.6 | ND | ND | ND (0) | ND (0) | ND (0) |
| Annual concentration | µg/m³ | California | 20 | ND | ND | ND | — | — | — |
| **Fine Particulate Matter ($PM_{2.5}$)[1,a]** | | | | | | | | | |
| Maximum 24-hour concentration | µg/m³ | National | 35 | 134.6 | 302.5 | 235.1 | 32.5 (30) | 8.5 (7) | 17.8 (17) |
| Annual concentration | µg/m³ | California | 12 | 14.7 | ND | 11.1 | — | — | — |
| | | National | 9.0 | 14.5 | 9.4 | 10.9 | — | — | — |

**Sources:** CARB 2024c; EPA 2024c.

1 CARB 2024c, Yreka-Foothill Drive monitoring station
2 CARB 2024c, Chico-East Avenue monitoring station
3 EPA 2024c, Chico-East Avenue monitoring station
4 EPA 2024c, Eureka-South Avenue monitoring station
5 CARB 2024c, Shasta Lake 4066-La Mesa Avenue monitoring station

**Notes:** ppm = parts per million by volume; — = not available; µg/m³ = micrograms per cubic meter; ND = insufficient data available to determine the value; <0.001 designates values less than 0.005.

Data represent the highest concentrations experienced over a given year.

Exceedances of national and California standards are only shown for $O_3$ and particulate matter. Daily exceedances for particulate matter are estimated days because $PM_{10}$ and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour $O_3$, annual $PM_{10}$, or 24-hour $SO_2$, nor is there a California 24-hour standard for $PM_{2.5}$.

[a] Measurements of $PM_{10}$ and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

## Attainment Designation

Table 3.2-1 (Section 3.2.1.2) presents the current attainment status of Lassen County with respect to the NAAQS and CAAQS. In summary, Lassen County is designated as an attainment or unclassified area for all national and California criteria air pollutant standards.

## Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, older adults, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air-pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air-pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005).

The Lassen County APCD does not have its own definition of sensitive receptors; however, there is general commonalities between definitions that generally match how the State defines sensitive receptors (e.g., facilities that house or attract children, older adults, people with illnesses, hospitals, schools, convalescent facilities, and residential areas).

The closest off-site sensitive receptor to the Lassen Facility is a residence located 184 feet to the west of the facility.

## Environmental Conditions

### CalEnviroScreen, SB 535, AB 1550, and AB 617

CalEnviroScreen is a mapping tool that helps identify California communities that are most affected by many sources of pollution, where people are often especially vulnerable to pollution's effects. CalEnviroScreen ranks census tracts in California based on potential exposures to pollutants, adverse environmental conditions, socioeconomic factors and the prevalence of certain health conditions. Data used in the CalEnviroScreen model come from national and state sources.

Disadvantaged communities in California pursuant to SB 535 are identified using CalEnviroScreen. These especially burdened communities are targets for investment funds from the state's Cap-and-Trade Program to improve public health, quality of life, and economic conditions.

Low-Income Communities pursuant to AB 1550 are census tracts with median household incomes at or below 80 percent of the statewide median income (CARB 2021a). AB 1550 directs investments to benefit these low-income communities.

Community Air Reduction Program Communities pursuant to AB 617 are 19 communities selected by CARB to participate in the program, whose focus is to reduce the impact of air pollution in vulnerable regions.

The Lassen Facility is not in a disadvantaged community pursuant to SB 535 (CalEPA 2022), nor is it a Community Air Protection Program pursuant to AB 617 (CARB 2023a). However, it is in a Low-Income Community pursuant to AB 1550 (CARB 2023b).

The Lassen Facility achieves a score of 19 on the CalEnviroScreen (OEHHA 2023). The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the State.

#### Healthy Places

The Healthy Places Index® (HPI) is a project of the Public Health Alliance of Southern California. The HPI is a powerful and easy-to-use data and policy platform created to advance health equity through open and accessible data. Neighborhood-by-neighborhood, the HPI maps data on social conditions that drive health—like education, job opportunities, clean air and water, and other indicators that are positively associated with life expectancy at birth. Community leaders, policymakers, academics, and other stakeholders use the HPI to compare the health and well-being of communities, identify health inequities and quantify the factors that shape health.

The Lassen Facility has an HPI score of 17.0 (Public Health Alliance of Southern California 2022). The maximum HPI score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

### 3.2.1.4 Central Sierra Nevada (Tuolumne Facility) Site

#### Meteorological and Topographical Conditions

#### Mountain Counties Air Basin

The Mountain Counties Air Basin (MCAB) is located in northern California, encompassing seven air districts and nine counties, including Tuolumne County where the Tuolumne Facility is located. The MCAB is a roughly 11,000 square mile basin along the northern Sierra Nevada Mountain Range and the border with Nevada. The topography in the MCAB is highly variable, ranging from 10,000 feet of elevation in the Sierra Nevada Mountains to hundreds of feet of elevation in the western portion of the basin near the Sacramento Valley. This topographical variation results in localized sets of climatic conditions, including large amounts of precipitation and extreme cold months in the winter in the Sierra Nevada range but warmer and drier conditions in the lower-lying regions of the basin. The mountainous topography of the basin precludes dispersion in certain areas, enabling the high concentration of criteria air pollutants; according to CARB, all the counties within the MCAB are designated as either in nonattainment, nonattainment-transitional, or unclassified for ozone and particulate matter both federally and at the state level. The susceptibility of the MCAB to the concentration of certain criteria air pollutants, such as ozone, particulate matter, and carbon monoxide, remains a focus in the collaboration efforts between the seven constituent air districts to monitor and continue to improve air quality in the region.

#### Local Ambient Air Quality

There is one monitoring station within Tuolumne County, and neighboring air districts monitor local ambient air quality in the vicinity of the Tuolumne Facility and the MCAB. Due to the lack of monitoring sites in the vicinity of the Tuolumne Facility, the available local ambient air quality is not truly representative of the site and may overestimate background concentrations. Air quality monitoring stations usually measure pollutant concentrations 10 feet above

ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2021 to 2023 are presented in Table 3.2-3.

The Sonora monitoring station, located at 251 S Barretta, Sonora, California, is the air quality monitoring station nearest to the Tuolumne Facility that measures $O_3$, located approximately 12 miles northwest of the Tuolumne Facility. The Sonora monitoring station is in Tuolumne County, which is in nonattainment-transitional for $O_3$. The Turlock monitoring station, located at 900 S Minaret Street, Turlock, California, is the nearest monitoring station to the facility that measures $NO_2$, located approximately 30 miles west of the facility. The Turlock monitoring station is in Stanislaus County, which is in attainment for $NO_2$, as is Tuolumne County. The Modesto monitoring station, located at 814 14th Street, Modesto, California, is the air quality monitoring station nearest to the facility that measures CO concentrations, located approximately 30 miles west of the facility. The Modesto monitoring station is in Stanislaus County, which is in attainment for CO, as is Tuolumne County. The Fresno monitoring station, located at 4727 N First Street, Fresno, California approximately 80 miles south of the facility was referenced for $SO_2$ concentrations. The Fresno monitoring station is in Fresno County, which is in attainment for $SO_2$, as is Tuolumne County. Lastly, the San Andreas monitoring station, located at 501 Gold Strike Road, San Andreas, California approximately 30 miles west of the facility was referenced for both $PM_{10}$ and $PM_{2.5}$ concentrations. The San Andreas monitoring station is in Calaveras County, which is in nonattainment for $PM_{10}$, while Tuolumne County is unclassified for $PM_{10}$. Calaveras County is unclassified for $PM_{2.5}$, as is Tuolumne County. The number of days exceeding the AAQS is also shown in Table 3.2-3.

## Table 3.2-3. Tuolumne Facility Local Ambient Air Quality Data

| Averaging Time | Unit | Agency/ Method | Ambient Air Quality Standard | Measured Concentration by Year | | | Exceedances by Year | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| **Ozone ($O_3$)[1]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 0.09 | 0.097 | 0.089 | 0.086 | 1 | 0 | 0 |
| Maximum 8-hour concentration | ppm | California | 0.070 | 0.081 | 0.074 | 0.075 | 3 | 1 | 2 |
| | | National | 0.070 | 0.081 | 0.073 | 0.074 | 2 | 1 | 2 |
| **Nitrogen Dioxide ($NO_2$)[2]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 0.18 | 0.040 | 0.045 | 0.047 | 0 | 0 | 0 |
| | | National | 0.100 | 0.040 | 0.045 | 0.047 | 0 | 0 | 0 |
| Annual concentration | ppm | California | 0.030 | 0.006 | 0.008 | 0.007 | — | — | — |
| | | National | 0.053 | 0.007 | 0.009 | 0.008 | — | — | — |
| **Carbon Monoxide (CO)[3]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 20 | ND | ND | ND | ND | ND | ND |
| | | National | 35 | 2.1 | 1.8 | 4.6 | 0 | 0 | 0 |
| Maximum 8-hour concentration | ppm | California | 9.0 | ND | ND | ND | ND | ND | ND |
| | | National | 9 | 1.5 | 1.5 | 1.4 | 0 | 0 | 0 |

## Table 3.2-3. Tuolumne Facility Local Ambient Air Quality Data

| Averaging Time | Unit | Agency/ Method | Ambient Air Quality Standard | Measured Concentration by Year | | | Exceedances by Year | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| **Sulfur Dioxide ($SO_2$)[4]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | National | 0.075 | 0.008 | 0.003 | 0.005 | 0 | 0 | 0 |
| Maximum 24-hour concentration | ppm | National | 0.14 | 0.003 | 0.001 | 0.002 | 0 | 0 | 0 |
| Annual concentration | ppm | National | 0.030 | <0.001 | <0.001 | <0.001 | — | — | — |
| **Coarse Particulate Matter ($PM_{10}$)[5,a]** | | | | | | | | | |
| Maximum 24-hour concentration | µg/m³ | California | 50 | 116.1 | 39.9 | 42.4 | 8.0 (8) | 0.0 (0) | 0.0 (0) |
| | | National | 150 | 121.4 | 43.4 | 43.8 | 0.0 (0) | 0.0 (0) | 0.0 (0) |
| Annual concentration | µg/m³ | California | 20 | 19.8 | 12.1 | ND | — | — | — |
| **Fine Particulate Matter ($PM_{2.5}$)[5,a]** | | | | | | | | | |
| Maximum 24-hour concentration | µg/m³ | National | 35 | 94.3 | 25.9 | 29.3 | 7.0 (7) | 0.0 (0) | 0.0 (0) |
| Annual concentration | µg/m³ | California | 12 | 8.5 | ND | ND | — | — | — |
| | | National | 9.0 | 8.4 | 6.0 | 5.5 | — | — | — |

**Sources:** CARB 2024c; EPA 2024c.

1 CARB 2024c, Sonora-Barretta Street monitoring station data

2 CARB 2024c, Turlock-S Minaret Street monitoring station data

3 EPA 2024c, Modesto-14th Street monitoring station data

4 EPA 2024c, Fresno-Garland monitoring station data

5 CARB 2024c, San Andreas-Gold Strike Road monitoring station data

**Notes:** ppm = parts per million by volume; — = not available; µg/m³ = micrograms per cubic meter; ND = insufficient data available to determine the value; <0.001 indicates values less than 0.0005.

Data represent the highest concentrations experienced over a given year.

Exceedances of national and California standards are only shown for $O_3$ and particulate matter. Daily exceedances for particulate matter are estimated days because $PM_{10}$ and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour $O_3$, annual $PM_{10}$, or 24-hour $SO_2$, nor is there a California 24-hour standard for $PM_{2.5}$.

a Measurements of $PM_{10}$ and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

### Attainment Designation

Table 3.2-1 (Section 3.2.1.2) presents the current attainment status of Tuolumne County with respect to the NAAQS and CAAQS. In summary, Tuolumne County is designated as a nonattainment area for the national 8-hour $O_3$

standard, and nonattainment-transitional for California $O_3$ standards. Tuolumne County is designated as unclassified or attainment for all other national and state criteria air pollutant standards.

### Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, older adults, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air-pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air-pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005).

The Tuolumne County APCD does not have its own definition of sensitive receptors; however, there is general commonalities between definitions that generally match how the State defines sensitive receptors (e.g., facilities that house or attract children, older adults, people with illnesses, hospitals, schools, convalescent facilities, and residential areas).

The closest off-site sensitive receptor to the Tuolumne Facility is a residence located 174 feet away west of the facility.

### Environmental Conditions

#### CalEnviroScreen, SB 535, AB 1550, and AB 617

The Tuolumne Facility is not in a disadvantaged community pursuant to SB 535 (CalEPA 2022), nor is it in a Low-Income Community pursuant to AB 1550 (CARB 2023b), or in a Community Air Protection Program pursuant to AB 617 (CARB 2023a).

The Tuolumne Facility achieves a score of 44 on the CalEnviroScreen (OEHHA 2023). The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the State.

#### Healthy Places

The Tuolumne Facility has an HPI score of 31.8 (Public Health Alliance of Southern California 2022). The maximum HPI score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

## 3.2.1.5 Port of Stockton

### Meteorological and Topographical Conditions

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Meteorological and topographical conditions, however, also are important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of criteria air pollutants. This analysis was prepared in accordance with the San Joaquin Valley Air Pollution Control District (San Joaquin Valley APCD) Guidance for

Assessing and Mitigating Air Quality Impacts (San Joaquin Valley APCD Guidance) (San Joaquin Valley APCD 2015a). These factors are described below.

## Topography

The project lies within the San Joaquin Valley Air Basin (SJVAB), which consists of eight counties and is spread across 25,000 square miles of Central California. The SJVAB is bordered on the east by the Sierra Nevada Mountains (8,000 to 14,491 feet in elevation), on the west by the Coast Ranges (averaging 3,000 feet in elevation), and to the south by the Tehachapi Mountains (6,000 to 7,981 feet in elevation). The San Joaquin Valley comprises the southern half of California's Central Valley and is approximately 250 miles long and averages 35 miles wide, with a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where San Joaquin Valley opens to the San Francisco Bay at the Carquinez Strait. At its northern end is the Sacramento Valley, which comprises the northern half of California's Central Valley. The region's topographic features restrict air movement through and out of the SJVAB. As a result, the SJVAB is highly susceptible to pollutant accumulation over time (San Joaquin Valley APCD 2015a).

## Climate

The San Joaquin Valley is in a Mediterranean Climate Zone, influenced by a subtropical high-pressure cell most of the year and characterized by warm, dry summers and cooler winters. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in winter. Summertime maximum temperatures in San Joaquin Valley often exceed 100°F.

The vertical dispersion of air pollutants in the San Joaquin Valley can be limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude in the troposphere. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. A temperature inversion can act like a lid, restricting vertical mixing of air above and below an inversion because of differences in air density and thereby trapping air pollutants below the inversion. The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions. Most of the surrounding mountains are above the normal height of summer inversions (1,500–3,000 feet). Wintertime high-pressure events can often last many weeks, with surface temperatures often lowering into the 30s°F. During these events, fog can be present, and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet (San Joaquin Valley APCD 2015a).

## Wind Patterns

Wind speed and direction play an important role in dispersion and transport of air pollutants. Winds in the San Joaquin Valley most frequently blow from the northwesterly direction, especially in the summer. The region's topographic features restrict air movement and channel the air mass toward the southeastern end of the San Joaquin Valley. Marine air can flow into the SJVAB from the Sacramento–San Joaquin River Delta and over Altamont Pass and Pacheco Pass, where it can flow through the San Joaquin Valley, over the Tehachapi Pass, into the Mojave Desert Air Basin. The Coastal Range and the Sierra Nevada are barriers to air movement to the west and east, respectively. A secondary but significant summer wind pattern is from the southeasterly direction and can be associated with nighttime drainage winds, prefrontal conditions, and summer monsoons. During winter, winds can be very weak, which minimizes the transport of pollutants and results in stagnation events.

Two significant diurnal wind cycles that occur frequently in San Joaquin Valley are the sea breeze and mountain-valley upslope and drainage flows. The sea breeze can accentuate the northwest wind flow, especially on summer

afternoons. Nighttime drainage flows can accentuate the southeast movement of air down the San Joaquin Valley. In the mountains during periods of weak synoptic scale winds, winds tend to be upslope during the day and downslope at night. Nighttime and drainage flows are pronounced during the winter when flow from the easterly direction is enhanced by nighttime cooling in the Sierra Nevada. Eddies can form in the valley wind flow and can re-circulate a polluted air mass for an extended period (San Joaquin Valley APCD 2015a).

### Temperature, Sunlight, and Ozone Production

Solar radiation and temperature are particularly important in the chemistry of $O_3$ formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily $O_3$) results from atmospheric ROGs and $NO_2$ under the influence of sunlight. $O_3$ concentrations are very dependent on the amount of solar radiation, especially during late spring, summer, and early fall. $O_3$ levels typically peak in the afternoon. After the sun goes down, the chemical reaction between $NO_x$ and $O_3$ begins to dominate. This reaction tends to reduce $O_3$ concentrations in the metropolitan areas through the early morning hours. At sunrise, $NO_x$ tends to peak, partly due to low levels of $O_3$ at this time, and also due to the morning commuter vehicle emissions of $NO_x$.

Reaction rates generally increase with temperature, which results in greater $O_3$ production at higher temperatures. However, extremely hot temperatures can "lift" or "break" the inversion layer. Typically, if the inversion layer remains intact, $O_3$ levels peak in the late afternoon. If the inversion layer breaks and the resultant afternoon winds occur, $O_3$ levels peak in the early afternoon and decrease in the late afternoon as the contaminants are dispersed or transported out of the SJVAB. $O_3$ levels are low during winter periods when there is much less sunlight to drive the photochemical reaction (San Joaquin Valley APCD 2015a).

### Precipitation, Humidity, and Fog

Precipitation and fog can result in the reduction or increase in some pollutant concentrations. For instance, $O_3$ needs sunlight for its formation, and clouds and fog can block the required solar radiation. In addition, wet fog can cleanse the air during winter as moisture collects on particles and deposits them on the ground. Fog with less moisture content, however, can contribute to the formation of secondary ammonium nitrate particulate matter.

The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations. Between winter storms, high pressure and light winds allow cold, moist air to pool on the San Joaquin Valley floor, resulting in strong low-level temperature inversions and very stable air conditions, which can lead to Tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of particulate matter.

### Urban Heat Island Effect

The "urban heat island" refers to the effect of urbanized areas on surface and air temperature compared to their rural surroundings. Buildings, roads, and other "hardscape" create an island of higher temperatures within the regional landscape. As described by the U.S. Environmental Protection Agency (EPA), "[u]rban heat islands are caused by development and the changes in radiative and thermal properties of urban infrastructure as well as the impacts buildings can have on the local microclimate—for example tall buildings can slow the rate at which cities cool off at night. Heat islands are influenced by a city's geographic location and by local weather patterns, and their intensity changes on a daily and seasonal basis" (EPA 2008a). The term is generally used to refer to community-wide effects, particularly for large metropolitan cities. The potential adverse effects of the urban heat island effect include increased energy consumption, elevated emissions of air pollutants and greenhouse gases (GHGs), compromised human health and comfort, and impaired water quality. Increased temperatures due to the urban

heat island effect may also lead to increased energy consumption, which has implications for air quality and GHG emissions. In addition to energy-related increases in air emissions, elevated air temperatures increase the rate of ground-level $O_3$ formation. Communities have adopted various strategies to deal with these environmental impacts, such as increasing vegetation and using more energy-efficient building materials. These strategies are often part of more general energy savings or "sustainability" practices and are not identified as "urban heat island effect" mitigation, but nevertheless they provide the benefits of reducing surface and atmospheric heat islands.

## Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. The San Joaquin Valley APCD monitors local ambient air quality in the vicinity of the Port of Stockton, and all the following monitoring stations are located within San Joaquin County. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2021 to 2023 are presented in Table 3.2-4. The Stockton-University Park monitoring station, located at 702 N Aurora Street, Stockton, California, is the air quality monitoring station nearest to the Port measuring $O_3$, $NO_2$, and particulate matter, located approximately 3 miles east of the Port. The Bethel Island monitoring station, located at 5551 Bethel Island Road, Bethel Island California, is the nearest monitoring station to the Port measuring $SO_2$, located approximately 3 miles away from the Port. The data collected at these two stations are considered to be representative of the air quality experienced in the project vicinity. The number of days exceeding the AAQS is also shown in Table 3.2-4.

### Table 3.2-4. Port of Stockton Local Ambient Air Quality Data

| Averaging Time | Unit | Agency/ Method | Ambient Air Quality Standard | Measured Concentration by Year | | | Exceedances by Year | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| **Ozone ($O_3$)[1]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 0.09 | 0.040 | 0.141 | 0.086 | 0 | 1 | 0 |
| Maximum 8-hour concentration | ppm | California | 0.070 | 0.037 | 0.114 | 0.069 | 0 | 1 | 0 |
| | | National | 0.070 | 0.036 | 0.113 | 0.068 | 0 | 1 | 0 |
| **Nitrogen Dioxide ($NO_2$)[1]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 0.18 | 0.034 | 0.044 | 0.045 | 0 | 0 | 0 |
| | | National | 0.100 | 0.034 | 0.044 | 0.045 | 0 | 0 | 0 |
| Annual concentration | ppm | California | 0.030 | ND | 0.008 | ND | — | — | -- |
| | | National | 0.053 | ND | 0.008 | 0.008 | — | — | — |
| **Carbon Monoxide (CO)[2]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | California | 20 | ND | ND | ND | ND | ND | ND |
| | | National | 35 | 1.4 | 2.6 | 2.2 | 0 | 0 | 0 |
| | ppm | California | 9.0 | ND | ND | ND | ND | ND | ND |

## Table 3.2-4. Port of Stockton Local Ambient Air Quality Data

| Averaging Time | Unit | Agency/ Method | Ambient Air Quality Standard | Measured Concentration by Year | | | Exceedances by Year | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| Maximum 8-hour concentration | | National | 9 | 1.0 | 1.7 | 1.4 | 0 | 0 | 0 |
| **Sulfur Dioxide ($SO_2$)[3]** | | | | | | | | | |
| Maximum 1-hour concentration | ppm | National | 0.075 | 0.009 | 0.005 | 0.004 | 0 | 0 | 0 |
| Maximum 24-hour concentration | ppm | National | 0.14 | 0.004 | 0.002 | 0.003 | 0 | 0 | 0 |
| Annual concentration | ppm | National | 0.030 | 0.001 | 0.001 | 0.001 | — | — | — |
| **Coarse Particulate Matter ($PM_{10}$)[1]** | | | | | | | | | |
| Maximum 24-hour concentration | µg/m³ | California | 50 | 72.2 | 81.3 | 81.5 | ND (3) | 25.3 (24) | ND (23) |
| | | National | 150 | 69.5 | 80.6 | 81.7 | ND (0) | 0.0 (0) | ND (0) |
| Annual concentration | µg/m³ | California | 20 | ND | 26.2 | ND | — | — | |
| **Fine Particulate Matter ($PM_{2.5}$)[1]** | | | | | | | | | |
| Maximum 24-hour concentration | µg/m³ | National | 35 | 39.5 | 51.9 | 40.6 | ND (1) | 6.2 (6) | ND (6) |
| Annual concentration | µg/m³ | California | 12 | ND | 10.2 | ND | — | — | — |
| | | National | 9.0 | ND | 10.1 | 10.6 | — | — | — |

**Sources:** CARB 2024c; EPA 2024c.

1 CARB 2024c, Stockton-University Park Street monitoring station data

2 EPA 2024c, Stockton-University Park Street monitoring station data

3 EPA 2024c, Bethel Island monitoring station data

**Notes:** ppm = parts per million by volume; — = not available; µg/m³ = micrograms per cubic meter; ND = insufficient data available to determine the value.

Data represent the highest concentrations experienced over a given year.

Exceedances of national and California standards are only shown for $O_3$ and particulate matter. Daily exceedances for particulate matter are estimated days because $PM_{10}$ and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour $O_3$, annual $PM_{10}$, or 24-hour $SO_2$, nor is there a California 24-hour standard for $PM_{2.5}$.

a Measurements of $PM_{10}$ and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

### Attainment Designation

Table 3.2-1 (Section 3.2.1.2) presents the current attainment status of the San Joaquin Valley Air Basin with respect to the NAAQS and CAAQS. In summary, the EPA has designated the SJVAB as a nonattainment area for the

national 8-hour $O_3$ standard, and CARB has designated the SJVAB as a nonattainment area for the California 1-hour and 8-hour $O_3$ standards. The SJVAB has been designated as a nonattainment area for the California 24-hour and annual $PM_{10}$ standards, a nonattainment area for the national 24-hour and annual $PM_{2.5}$ standards, and as a nonattainment area for the California annual $PM_{2.5}$ standard. The SJVAB is designated as unclassified or attainment for all other criteria air pollutants.

### Sensitive Receptors

The San Joaquin Valley APCD identifies sensitive receptors as facilities that house or attract children, older adults, people with illnesses, hospitals, schools, convalescent facilities, and residential areas (San Joaquin Valley 2015a).

The closest off-site sensitive receptor to the Port is a residence located 1,024 to the north of the Port.

### Environmental Conditions

#### CalEnviroScreen, SB 535, AB 1550, and AB 617

The Port is located within a census tract that is designated as both a disadvantaged community pursuant to SB 535 (CalEPA 2022) and a Community Air Protection Program Community pursuant to AB 617 (CARB 2023a). It is not, however, located in a Low Income Community pursuant to AB 1550 (CARB 2023b).

Designated as a disadvantaged community, the census tract that surrounds the Port suffers from a combination of economic, health, and environmental burdens that include poverty, high unemployment, pollution, and other hazards.

The Port is also within one of 19 communities that CARB has selected to participate in the Community Air Protection Program, necessitating the community implement a Community Emissions Reduction Program (CERP) to address its air quality issues, including the burden of high cumulative exposure to pollutants.

The Port achieves a score of 54 on the CalEnviroScreen (OEHHA 2023). The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the State.

#### Healthy Places

The Port has an HPI score of 15.7 (Public Health Alliance of Southern California 2022). The maximum HPI score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

## 3.2.1.6 Existing Emissions and Effects of Wildfires

While air quality in California has generally improved in recent decades due to increased regulatory control, emissions from wildfires have trended upward and are projected to increase as climate change increases the frequency and severity of wildfires (Kinney 2008).

Wildfires produce harmful complex mixtures of criteria air pollutants and toxic air contaminants that are dependent on the type of biomass or structures burned and the conditions for burning. These criteria air pollutants can include PM, CO, $NO_x$, VOCs, and water vapor. Research shows a strong association between exposure to $PM_{2.5}$ from wildfire smoke and increasing severity of asthma, other respiratory diseases, such as chronic obstructive pulmonary disease (COPD), inflammation or infections, including bronchitis and pneumonia, emergency department visits, and

hospital admissions. Long-term exposure to $PM_{2.5}$ is linked to a wide range of human health effects, such as respiratory and heart related illnesses and hospitalizations, adverse brain effects, depression, memory loss, learning disorders, reduced lung function growth in children, and premature death (CARB 2024d).

As shown in Table 3.2-5, annual PM emissions are correlated with acres burned from wildfire. In 2020, wildfires in California contributed approximately 1.2 million tons of $PM_{2.5}$.

### Table 3.2-5. Annual PM Emissions and Acres Burned from Wildfire, 2000-2022

| Year | $PM_{10}$ (thousand tons per year) | $PM_{2.5}$ (thousand tons per year) | Acres Burned (million)* |
|---|---|---|---|
| 2000 | 71 | 60 | 0.2 |
| 2001 | 91 | 77 | 0.2 |
| 2002 | 168 | 142 | 0.5 |
| 2003 | 163 | 138 | 1.0 |
| 2004 | 58 | 49 | 0.3 |
| 2005 | 25 | 21 | 0.2 |
| 2006 | 155 | 132 | 0.7 |
| 2007 | 172 | 146 | 1.0 |
| 2008 | 617 | 523 | 1.4 |
| 2009 | 92 | 78 | 0.4 |
| 2010 | 23 | 20 | 0.1 |
| 2011 | 35 | 29 | 0.2 |
| 2012 | 153 | 130 | 0.7 |
| 2013 | 176 | 149 | 0.6 |
| 2014 | 234 | 199 | 0.5 |
| 2015 | 246 | 208 | 0.8 |
| 2016 | 122 | 104 | 0.5 |
| 2017 | 398 | 337 | 1.3 |
| 2018 | 497 | 421 | 1.6 |
| 2019 | 56 | 48 | 0.3 |
| 2020 | 1,393 | 1,181 | 4.1 |
| 2021 | 1,268 | 1,075 | 2.4 |
| 2022 | 96 | 82 | 0.3 |

**Source:** CARB 2023c.
**Notes:** $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
* These acreages do not include areas where wildland vegetation data for model inputs are not available, e.g., developed areas and croplands

In addition to criteria air pollutants, TACs such as aldehydes, metals, hydrogen cyanide, and toxic VOCs can be in smoke from structural fires that contain plastics, chemically-treated wood, and other artificial materials. The concentration of pollution from wildfires is set to shave nearly a year off the life expectancy of residents in California's most polluted counties if pollution levels persist (Greenstone & Hasenkopf 2023).

## 3.2.2 Regulatory Setting

### 3.2.2.1 Federal

#### Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The U.S. Environmental Protection Agency (EPA) is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric $O_3$ protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: $O_3$, CO, $NO_2$, $SO_2$, $PM_{10}$, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for $O_3$, $NO_2$, $SO_2$, $PM_{10}$, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for $O_3$, $NO_2$, $SO_2$, $PM_{10}$, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan that demonstrates how those areas will attain the NAAQS within mandated time frames.

#### Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 187 substances and chemical families were identified as HAPs.

#### U.S. Forest Service

The U.S. Forest Service operates as a federal agency within the United States Department of Agriculture. Its primary mission is to manage and conserve national forests and grasslands. Established in 1905, the agency has evolved over time, adapting to changing environmental, social, and economic contexts. Its regulatory authority stems from various laws, including the Weeks Act of 1911, which allowed the federal government to acquire private lands for inclusion in the National Forest System. The U.S. Forest Service exercises its power through regulations, policies, and cooperative agreements with states, tribes, and other stakeholders. Its responsibilities encompass forest management, wildfire prevention, recreation, and resource utilization, all aimed at ensuring sustainable use and protection of forested lands.

### 3.2.2.2 California

#### Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with

subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. As stated previously, an ambient air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harm to the public's health. For each pollutant, concentrations must be below the relevant CAAQS before a basin can attain the corresponding CAAQS. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for $O_3$, CO, $SO_2$ (1-hour and 24-hour), $NO_2$, $PM_{10}$, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded.

California air districts (e.g., Air Pollution Control Districts [APCDs] and Air Quality Management District's [AQMDs]) have based their thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the air basin can accommodate without affecting the attainment date for the NAAQS or CAAQS. Since an ambient air quality standard is based on maximum pollutant levels in outdoor air that would not harm the public's health, and air district thresholds pertain to attainment of the ambient air quality standard, this means that the thresholds established by air districts are also protective of human health. The NAAQS and CAAQS are presented in Table 3.2-6.

## Table 3.2-6. Ambient Air Quality Standards

| Pollutant | Averaging Time | California Standards[a] | National Standards[b] | |
|---|---|---|---|---|
| | | Concentration[c] | Primary[c,d] | Secondary[c,e] |
| $O_3$ | 1 hour | 0.09 ppm (180 µg/m³) | — | Same as primary standard[f] |
| | 8 hours | 0.070 ppm (137 µg/m³) | 0.070 ppm (137 µg/m³)[f] | |
| $NO_2$[g] | 1 hour | 0.18 ppm (339 µg/m³) | 0.100 ppm (188 µg/m³) | Same as primary standard |
| | Annual arithmetic mean | 0.030 ppm (57 µg/m³) | 0.053 ppm (100 µg/m³) | |
| CO | 1 hour | 20 ppm (23 mg/m³) | 35 ppm (40 mg/m³) | None |
| | 8 hours | 9.0 ppm (10 mg/m³) | 9 ppm (10 mg/m³) | |
| $SO_2$[h] | 1 hour | 0.25 ppm (655 µg/m³) | 0.075 ppm (196 µg/m³) | — |
| | 3 hours | — | — | 0.5 ppm (1,300 µg/m³) |
| | 24 hours | 0.04 ppm (105 µg/m³) | 0.14 ppm (for certain areas)[g] | — |
| | Annual | — | 0.030 ppm (for certain areas)[g] | — |
| $PM_{10}$[i] | 24 hours | 50 µg/m³ | 150 µg/m³ | Same as primary standard |
| | Annual arithmetic mean | 20 µg/m³ | — | |
| $PM_{2.5}$[i] | 24 hours | — | 35 µg/m³ | Same as primary standard |
| | Annual arithmetic mean | 12 µg/m³ | 9.0 µg/m³ | 15.0 µg/m³ |

## Table 3.2-6. Ambient Air Quality Standards

| Pollutant | Averaging Time | California Standards[a] | National Standards[b] | |
|---|---|---|---|---|
| | | Concentration[c] | Primary[c,d] | Secondary[c,e] |
| Lead[j,k] | 30-day average | 1.5 µg/m³ | — | — |
| | Calendar quarter | — | 1.5 µg/m³ (for certain areas)[k] | Same as primary standard |
| | Rolling 3-month average | — | 0.15 µg/m³ | |
| Hydrogen sulfide | 1 hour | 0.03 ppm (42 µg/m³) | — | — |
| Vinyl chloride[j] | 24 hours | 0.01 ppm (26 µg/m³) | — | — |
| Sulfates | 24 hours | 25 µg/m³ | — | — |
| Visibility reducing particles | 8 hours (10:00 a.m. to 6:00 p.m. PST) | Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70% | — | — |

**Source:** CARB 2024e.

**Notes:** $O_3$ = ozone; ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; $NO_2$ = nitrogen dioxide; CO = carbon monoxide; mg/m³= milligrams per cubic meter; $SO_2$ = sulfur dioxide; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; PST = Pacific Standard Time.

a California standards for $O_3$, CO, $SO_2$ (1-hour and 24-hour), $NO_2$, suspended particulate matter ($PM_{10}$, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than $O_3$, $NO_2$, $SO_2$, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The $O_3$ standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For $PM_{10}$, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the national 8-hour $O_3$ primary and secondary standards were lowered from 0.075 to 0.070 ppm.

g To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

h On June 2, 2010, a new 1-hour $SO_2$ standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 $SO_2$ national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

l On February 7, 2024, the national annual $PM_{2.5}$ primary standard was lowered from 12 µg/m³ to 9.0 µg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³.

The existing 24-hour $PM_{10}$ standards (primary and secondary) of 150 μg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

j CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5-μg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

## Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. CARB has adopted several Airborne Toxic Control Measures (ATCM) that reduce diesel emissions, including:

- Diesel Particulate Matter Control Measure for On-Road Heavy-Duty Diesel-Fueled Residential and Commercial Solid Waste Collection Vehicles (13 CCR 2020, 13 CCR 2021;
- ATCM for Diesel Particulate Matter from Portable Engines Rated 50 horsepower and greater (17 CCR 93116);
- ATCM for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities where TRUs operate (13 CCR 2477 and Article 8);
- ATCM to limit diesel-fueled commercial motor vehicle idling (13 CCR 2485);
- ATCM for In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.);
- ATCM for In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

In addition, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

Asbestos is strictly regulated due to its serious adverse health effects, including asbestosis and lung cancer, and based on its natural widespread occurrence and its use as a building material. CARB has established two ATCMs for naturally occurring asbestos. The first asbestos ATCM applies to Surfacing Applications (17 CCR 93106) (e.g., restricts the content of asbestos material used in surfacing applications, such as unpaved roads and parking lots), and the second asbestos ATCM is for Construction, Grading, Quarrying and Surface Mining Operations (17 CCR 93105) (i.e., requires implementation mitigation measures to minimize asbestos-laden dust during these activities).

Pursuant to the ATCM for Surfacing Applications, unless one of the exemptions detailed in the ATCM applies, no person shall use, apply, sell, supply, or offer for sale or supply any restricted material for surfacing, unless it has been tested using an approved asbestos bulk test method and determined to have an asbestos content that is less than 0.25%. As defined in this ATCM, "restricted material" means any of the following:

1. Aggregate material extracted from property where any portion of the property is located in a geographic ultramafic rock unit; and
2. Aggregate material extracted from property that is NOT located in a geographic ultramafic rock unit if the material has been:
    a. Evaluated at the request of the Air Pollution Control Officer and determined to be ultramafic rock or serpentine;
    b. Tested at the request of the Air Pollution Control Officer and determined to have an asbestos content of 0.25 percent or greater; or
    c. Determined by the owner/operator of a facility to be ultramafic rock, serpentine, or aggregate material that has an asbestos content of 0.25% or greater.
3. Any mixture of aggregate material that contains 10% or more of any of the materials listed above, or any combination thereof, shall also be considered "restricted material."

Pursuant to the ATCM for Construction, Grading, Quarrying and Surface Mining Operations, an Asbestos Dust Mitigation Plan is required for any project with greater than 1 acre of surface disturbance if any portion of the area to be disturbed is mapped as having serpentine or ultramafic rock, or if any portion of the area to be disturbed has naturally occurring asbestos as determined by the owner/operator or the Air Pollution Control Officer. The Asbestos Dust Mitigation Plan, which must include dust mitigation practices that are sufficient to ensure that no equipment or operation emits dust that is visible crossing the property line, would be required to be submitted to and approved by the local air district before any clearing, grading, or construction begins.

### California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This Section also applies to sources of objectionable odors.

### Air Quality and Land Use Handbook

CARB published the Air Quality and Land Use Handbook in 2005 to provide important air quality information about certain types of facilities (e.g., freeways, refineries, distribution centers, etc.) that should be considered when siting sensitive land uses such as residences. CARB provides recommended siting distances from certain types of

facilities when locating new sensitive land uses. The recommendations are advisory and should not be interpreted as defined "buffer zones. If a project is within the siting distance, CARB recommends further analysis. Where possible, CARB recommends a minimum separation between new sensitive land uses and existing sources.

#### Safety Training on Valley Fever Assembly Bill 203

AB 203 adds Section 6709 to the Labor Code and requires employers to provide effective Valley Fever awareness and prevention training for all construction employees at risk of prolonged exposure to dust in Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Santa Barbara, Tulare, and Ventura Counties annually and again before an employee begins work that is reasonably anticipated to cause exposure to substantial dust disturbance.

#### Commercial Harbor Craft Regulation

CARB adopted a Commercial Harbor Craft (CHC) Regulation in 2008 to reduce criteria air pollutant and toxic emissions from vessels like tugboats and barges. These regulations required older engines to be replaced with cleaner ones. The 2022 amendments expanded the scope to more vessel types and mandated even cleaner technologies, aiming to improve public health by reducing harmful emissions. These changes began taking effect in early 2023, with ongoing assessments of low-emission technologies by a Technical Working Group until 2032.

#### Mobile Cargo Handling Equipment Regulation

CARB adopted a Mobile Cargo Handling Equipment (CHE) Regulation in 2005 to reduce criteria air pollutant and toxic emissions at California's ports and intermodal railyards. The regulation was fully implemented in 2017 and targets any motorized vehicle used to handle or perform activities at these ports and yards. Currently, CARB is in the process of implementing further regulation to reduce emissions with the implementation of zero-emission technologies.

#### Ocean-Going Vessel Fuel Regulation

CARB approved the Ocean-Going Vessel At-Berth Regulation in 2007 to reduce emissions from container ships, passenger ships, and refrigerated-cargo ships at six California ports. CARB is also committed to develop new regulations to further reduce emissions and reduce the exposure to nearby port communities.

### 3.2.2.3 Local

#### Lassen County Air Pollution Control District

The Lassen County APCD is the local air district governing the Lassen County region. Lassen County is located in Northeastern California and is part of the Northeastern Plateau Air Basin.

#### Applicable Rules

- Rule 2:0 – Permits Required. This rule requires an Authority to Construct to be obtained and authorized by the Air Pollution Control Officer prior to any article, machine, equipment, or other contrivance being built which may cause the issuance of air contaminants. In addition, a Permit to Operate must be obtained before any article, machine, equipment, or other contrivance is operated or used.

- **Rule 4:2 – Nuisance.** This rule prohibits discharge of air contaminants or other material from any source that cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or that endanger the comfort, repose, health, or safety of any such persons, or the public, or that cause to have natural tendency to cause injury or damage to business or property.
- **Rule 4:3 – Particulate Matter.** This rule prohibits the discharge from any single combustion source whatsoever particulate matter in excess of 0.2 grains per cubic foot of gas at standard conditions, as defined in Rule 1:2u., nor from any non-combustion source whatsoever particulate matter in excess of 0.3 grain per cubic foot of gas at standard conditions, as defined in Rule 1:2u., over a period of one hour.
- **Rule 4:18 – Fugitive Dust Emissions.** This rule contains provisions to prevent particulate matter from becoming airborne.
- **Rule 4:20 – Federal New Source Performance Standards (NSPS).** This rule adopts by reference the rules, standards, criteria and requirements of Part 60, Chapter 1, Title 40, Code of Federal Regulations, which apply to all new sources of air contaminants or modifications to existing sources for identified category types subject to NSPS.
- **Rule 4:21 – National Emission Standards for Hazardous Air Pollutants (NESHAPs).** This rule adopts by reference the NESHAP provisions of Part 61, Chapter 1, Title 40, Code of Federal Regulations.
- **Rule 6:4 – Requirements.** This rule applies Best Available Control Technology (BACT) requirements to a new source under the following conditions: A new stationary source emits more than 68 kg (150 lbs.) per day of reactive organic compounds or nitrogen oxides or sulfur oxides or particulate matter; or 249 kg (550 lbs.) per day of carbon monoxide; or 1,450 g (3.2 lbs.) per day of lead, or .04 lbs/day of asbestos; or .0022 lbs/day of beryllium; or .55 lbs/day of mercury; or 5.48 lbs/day of vinyl chloride; or 16.44 lbs/day of fluorides; or 38.35 lbs/day of sulfuric acid mist; or 54.79 lbs/day of hydrogen sulfide or total reduced sulfur or sulfur compounds.
- **Rule 7:1 – Purpose and General Requirements.** Regulation 7 outlines the requirements of Title V of the federal Clean Air Act as they have been adopted by Lassen County APCD. Sources subject to Regulation 7 as outlined in Rule 7:2 shall obtain a Title V operating permit pursuant to Rule 7:1.
- **Rule 7:2 – Applicability.** Per Rule 7:2(a), the Title V permitting program under Regulation 7 is applicable to any major sources. A major source as is a stationary source that has the potential to emit a regulated air pollutant or a HAP in quantities equal or exceeding 100 tons per year of PM ($PM_{10}$ and $PM_{2.5}$), $NO_X$, $SO_X$, VOC, or CO, or 10 tons per year of one HAP or 25 tons per year of combined HAPs.

## Lassen County

### Lassen County General Plan

Lassen County adopted their General Plan in 2000 (Lassen County 1999). The County's General Plan includes various goals and policies related to directly and indirectly improving air quality. Applicable goals and policies include the following:

Goal N-22. Air quality of high standards to safeguard public health, visual quality, and the reputation of Lassen County as an area of exceptional air quality.

NR74 Policy. The Board of Supervisors will continue to consider, adopt and enforce feasible air quality standards which protect the quality of the County's air quality.

NR75 Policy. The County shall consider the appropriateness and feasibility of air pollution control requirements for individual projects and may grant variances to specific requirements pursuant to established procedural guidelines.

NR76 Policy. Federal and state agencies shall be encouraged to assist the County in protecting the quality of its resources.

NR77 Policy. In the course of adopting policies pertaining to air resources in other County planning elements and are plans, the County may consider additional and more particular policies and measures to protect the quality of air resources.

## Tuolumne County Air Pollution Control District

The Tuolumne County APCD is the local air district governing the Tuolumne County region. Tuolumne County is located in the southern part of the Mountain Counties Air Basin.

### Applicable Rules

- **Rule 205 – Nuisance.** This rule prohibits discharge of air contaminants or other material from any source that cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or that endanger the comfort, repose, health, or safety of any such persons, or the public, or that cause to have natural tendency to cause injury or damage to business or property.
- **Rule 207 – Particulate Matter.** A person shall not release or discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, particulate matter emissions in excess of 0.1 grains per cubic foot of dry exhaust gas at standard conditions.
- **Rule 401 – Permit Required.** This rule requires any person building, altering, or replacing any source of air contaminants shall first obtain an Authority to Construct from the Air Pollution Control Officer. An Authority to Construct shall remain in effect until the Permit to Operate for that source for which the application was filed is either granted or denied or until termination pursuant to other provisions of this Regulation.
- **Rule 408 – Attainment Pollutant Air Quality Analysis.** Per Rule 408, a new facility shall use a model designated in Rule 407 to determine the increase in attainment pollutant concentrations in downwind zones and other Air Pollution Control Districts as a result of the proposed facility. Rule 408 applies only to attainment pollutants for which a facility is considered to be a major facility or major modification. As defined in Rule 102, a major facility is any facility which has the potential to emit 100 tons per year or more of a criteria pollutant or precursor.
- **Rule 411 – Emission Offset Eligibility.** This rule outlines the eligibility requirements for offsets generated and used within Tuolumne County APCD. Offset quantities must be calculated on an annual and daily basis and can be provided through the reduction of existing stationary and non-stationary sources. Offsets generated upwind in the same or adjoining Air Pollution Control District or within a 15-mile radius of the proposed project will have a required offset ratio of 1.2:1.
- **Rule 418 – Attainment Pollutant Control Technology.** Per Rule 418, any new facility subject to review under Rule 408 must apply best available control technology (BACT) to all new sources emitting an applicable attainment pollutant or precursor. BACT is defined in Rule 102 as an emission limitation, based on the maximum degree of reduction in emissions that is determined to be achievable through production processes or available control methods, systems, and techniques. BACT determinations may consider cost-effectiveness and adverse environmental impacts.

- **Rule 419 – Nonattainment Pollutant Air Quality Analysis.** This rule requires that a new facility shall use a model designated in Rule 407 to determine the increase in nonattainment pollutant concentrations in downwind zones and other Air Pollution Control Districts as a result of the proposed facility. Rule 419 applies only to nonattainment pollutants for which a facility is considered a major facility or major modification.
- **Rule 421 – Contribution to Violation of National Ambient Air Quality Standard.** Per Rule 421, any new facility subject to review under Rule 419 which is determined to contribute to concentrations exceeding the NAAQS must meet the following requirements:
  1. Each new source must meet an emission limitation that is equivalent to Lowest Achievable Emissions Rate (LAER) for the source and the applicable nonattainment pollutant or precursor.
  2. The applicant must certify that all facilities owned or operated within California are in compliance or are on approved schedules of compliance for applicable emissions limits or standard in the State Implementation Plans (SIP).
  3. Offsets shall be provided pursuant to the requirements of Rule 411.
- **Rule 424 – Authority to Construct Decision.** This rule requires the Air Pollution Control Officer to issue a preliminary decision on the approval of an Authority to Construct within one year of the application being deemed complete. For facilities with the potential to emit more than 100 tons per year of any criteria pollutant or precursor, public notice of the decision shall be posted in at least one newspaper within 10 days of the preliminary approval of the permit and shall provide a 30-day period for comments to be submitted.
- **Rule 427 – Construction or Reconstruction of Major Sources that Emit Hazardous Air Pollutants.** Rule 427 requires owners and operators of stationary sources that emit HAPs to install best available control technology for toxics (T-BACT) to any constructed or reconstructed major source of HAPs. A major source of HAPs is defined as a facility which has the potential to emit greater than 15 tons per year of a single HAP or greater than 25 tons per year of all HAPs combined.
- **Rule 429 – Federal New Source Review.** Rule 429 implements the applicable requirements of 40 CFR Part 51.165 as a result of Tuolumne County APCD's marginal nonattainment of the 2015 8-hour $O_3$ NAAQS. Per Rule 429-II.A.1, the preconstruction review requirements of the Rule apply to the proposed construction of any new major stationary source or major modification within the District that is major for a nonattainment pollutant. Rule 429-III incorporates the definitions of 40 CFR 51.165(a) by reference. Per 40 CFR 51.165(a)(1)(iv), for an area of marginal ozone nonattainment, the major stationary source threshold corresponds to 100 tons per year of $NO_X$ or VOC.
- **Rule 500 – Title V Permits.** Rule 500, *Additional Procedures for issuing Permits to Operate for Sources Subject to Title V of the 1990 Federal Clean Air Act Amendments*, implements the requirements of Title V of the federal Clean Air Act and is applicable to major sources located within Tuolumne County APCD. Per Rule 500, Section II.U, a major source is defined as a stationary source which has the potential to emit a regulated air pollutant or a HAP in quantities equal to or exceeding the lesser of any of the following thresholds:
  1. 100 tons per year of any regulated air pollutant;
  2. 50 tons per year of volatile organic compounds or oxides of nitrogen for a federal nonattainment area classified as serious, 25 tons per year for an area classified as severe, or, 10 tons per year for an area classified as extreme;
  3. 70 tons per year of $PM_{10}$ for a federal $PM_{10}$ nonattainment area classified as serious;
  4. 10 tons per year of one HAP or 25 tons per year of two or more HAPs; or
  5. Any lesser quantity threshold promulgated by the U.S. EPA.

## Tuolumne County

### Tuolumne County General Plan

Tuolumne County adopted their General Plan Update in 2018 (Tuolumne County 2018). The County's General Plan includes various goals and policies related to directly and indirectly improving air quality. Applicable goals and policies include the following:

Goal 15A. Develop and sustain an air quality program that protects the public health and ambient air quality while encouraging the economic vitality of local businesses and industries.

Policy 15.A-1. Accurately determine and fairly mitigate the local and regional air quality impacts of land development projects proposed in the County.

Policy 15.A-2. Integrate land use planning, transportation planning, and air quality planning to make the most efficient use of public resources and to create a more livable environment.

Policy 15.A-3. Avoid converting land designated for industrial use to non-industrial land use designations where that change would result in land where sensitive receptors could be located in in proximity to industry, and avoid converting land to industrial use where the existing surrounding land uses support sensitive receptors, to minimize the health risks to the public resulting from criteria and toxic air pollutant emissions.

Policy 15.A-4. Reduce air emissions from project construction.

Goal 15B. Reduce traffic congestion, vehicle trips and their emissions through more efficient infrastructure, low emission technologies, and support for trip reduction programs.

Policy 15.B.1. Create a land use pattern that will encourage people to walk, bicycle or use public transit for a significant number of their daily trips.

Policy 15.B.2. Develop a modern transportation system that incorporates alternative transportation modes into the system design.

Goal 15C. Reduce criteria and toxic air pollutant emissions from wood-burning fireplaces and other wood-burning appliances.

Policy 15.C.1. Require development to reduce criteria and toxic air pollutant emissions from the use of wood burning appliances, through low emission technology, and maximize the use of energy conservation and clean or renewable energy sources.

Goal 15D. Maintain an effective open burning enforcement program that protects the public health and welfare while recognizing the need to reduce vegetative matter for the purposes of fire hazard reduction, wildland vegetation management and forest ecosystem management.

Policy 15.D.1. Work closely with federal, state and local agencies to minimize the emissions and smoke impacts from fire hazard reduction and forest management burn activities and during wildfire episodes.

Goal 18A. Reduce Greenhouse Gas (GHG) emissions from community activities and County government facilities and operations within the County to support the State's efforts under Assembly Bill 32 and other state and federal mandates to mitigate the County's GHG emissions impacts.

Policy 18.A.4. Recognize that climate change may affect air quality and water quality creating health and safety hazards.

Policy 18.A.7. Encourage reduced consumption of fossil fuel energy by promoting alternative transportation methods and encouraging pedestrian oriented development to reduce the use of motor vehicles. See the Transportation Element and the Community Development and Design Element for a detailed listing of policies and implementation programs.

## San Joaquin Valley Air Pollution Control District

The San Joaquin Valley APCD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SJVAB. The San Joaquin Valley APCD jurisdiction includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings, and Tulare Counties, and the San Joaquin Valley portion of Kern County.

### Air Quality Plans

The San Joaquin Valley APCD has prepared several air quality attainment plans to achieve the $O_3$ and PM standards, the most recent of which include the 2020 Reasonably Available Control Technology Demonstration for the 2015 8-Hour Ozone Standard (San Joaquin Valley APCD 2020); 2016 Plan for the 2008 8-Hour Ozone Standard (San Joaquin Valley APCD 2016a); 2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan (San Joaquin Valley APCD 2014); 2022 Plan for the 2015 8-Hour Ozone Standard (San Joaquin Valley APCD 2022); 2004 Revision to the California State Implementation Plan for Carbon Monoxide (San Joaquin Valley APCD 2004); 2013 Plan for the Revoked 1-Hour Ozone Standard (San Joaquin Valley APCD 2013); 2007 $PM_{10}$ Maintenance Plan and Request for Redesignation (San Joaquin Valley APCD 2007a); 2012 $PM_{2.5}$ Plan (San Joaquin Valley APCD 2012); 2015 Plan for the 1997 $PM_{2.5}$ Standard (San Joaquin Valley APCD 2015b); 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard (San Joaquin Valley APCD 2016b); and the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards (San Joaquin Valley APCD 2018). The following sections summarize key elements of these and other recent air quality attainment plans.

#### Extreme 1-Hour Ozone Attainment Demonstration Plan

The Extreme 1-Hour Ozone Attainment Demonstration Plan, adopted by the San Joaquin Valley APCD Governing Board October 8, 2004, sets forth measures and emission-reduction strategies designed to attain the federal 1-hour $O_3$ standard by November 15, 2010, as well as an emissions inventory, outreach, and rate of progress demonstration. This plan was approved by the EPA on March 8, 2010; however, the EPA's approval was subsequently withdrawn effective November 26, 2012, in response to a decision issued by the U.S. Court of Appeals for the Ninth Circuit (*Sierra Club v. EPA*, 671 F.3d 955) remanding EPA's approval of these SIP revisions. Concurrent with the EPA's final rule, CARB withdrew the 2004 plan. The San Joaquin Valley APCD developed a new plan for the 1-hour $O_3$ standard, the 2013 Plan for the Revoked 1-Hour Ozone Standard, which it adopted in September 2013.

### 2007 8-Hour Ozone Plan

The 2007 8-Hour Ozone Plan, adopted by the Governing Board on April 30, 2007, sets forth measures and a "dual path" strategy to attain the federal 1997 8-hour $O_3$ standard by 2023 for the SJVAB by reducing emissions of $O_3$ and PM precursors (San Joaquin Valley APCD 2007b). The plan also includes provisions for improved pollution control technologies for mobile and stationary sources, as well as an increase in state and federal funding for incentive-based measures to reduce emissions. All local measures would have been adopted by the San Joaquin Valley APCD before 2012. This plan was approved by the EPA on April 30, 2012. On November 26, 2012, however, the EPA withdrew its determination that the plan satisfied the federal Clean Air Act requirements regarding emissions growth caused by growth in vehicle miles traveled. All other determinations in the EPA's March 1, 2012, rule approving the plan remain unchanged and in effect. The San Joaquin Valley APCD is currently in the process of developing an $O_3$ plan to address EPA's 2008 8-hour $O_3$ standard, with attainment required by 2032.

### 2009 Reasonably Available Control Technology State Implementation Plan

On April 16, 2009, the Governing Board adopted the Reasonably Available Control Technology Demonstration for Ozone State Implementation Plans (2009 RACT SIP) (San Joaquin Valley APCD 2009). In part, the 2009 RACT SIP satisfied the commitment by the San Joaquin Valley APCD for a new RACT analysis for the 1-hour $O_3$ plan (see discussion of the EPA withdrawal of approval in the Extreme 1-Hour Ozone Attainment Demonstration Plan summary above) and was intended to prevent all sanctions that could be imposed by the EPA for failure to submit a required SIP revision for the 1-hour $O_3$ standard. With respect to the 8-hour standard, the plan also assesses the San Joaquin Valley APCD's rules based on the adjusted major source definition of 10 tons per year (due to the SJVAB's designation as an extreme $O_3$ nonattainment area), evaluates San Joaquin Valley APCD rules against new Control Techniques Guidelines promulgated since August 2006, and reviews additional rules and rule amendments that had been adopted by the Governing Board since August 17, 2006, for RACT consistency.

### 2013 Plan for the Revoked 1-Hour Ozone Standard

The San Joaquin Valley APCD developed a plan for EPA's revoked 1-hour $O_3$ standard after the EPA withdrew its approval of the 2004 Extreme 1-Hour Ozone Attainment Demonstration Plan as a result of litigation. As a result of the litigation, the EPA reinstated previously revoked requirements for 1-hour $O_3$ attainment plans. The 2013 plan addresses those requirements, including a demonstration of implementation of reasonably available control measures and a demonstration of a rate of progress averaging 3% annual reductions of ROG or $NO_x$ emissions every 3 years. The 2013 Plan for the Revoked 1-Hour Ozone Standard was approved by the Governing Board on September 19, 2013 (San Joaquin Valley APCD 2013).

### 2014 RACT SIP

On June 19, 2014, the Governing Board adopted the 2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan (2014 RACT SIP) (San Joaquin Valley APCD 2014). The 2014 RACT SIP includes a demonstration that the San Joaquin Valley APCD rules implement RACT. The plan reviews each of the $NO_x$ reduction rules and concludes that they satisfy requirements for stringency, applicability, and enforceability, and meet or exceed RACT. The plan's analysis of further ROG reductions through modeling and technical analyses demonstrates that added ROG reductions will not advance SJVAB's $O_3$ attainment. Each ROG (i.e., VOC) rule evaluated in the 2009 RACT SIP, however, has been subsequently approved by the EPA as meeting RACT within the last 2 years. The $O_3$ attainment strategy, therefore, focuses on further $NO_x$ reductions.

### San Joaquin Valley APCD 2016 Plan for the 2008 8-Hour Ozone Standard

The San Joaquin Valley APCD adopted the 2016 Plan for the 2008 8-Hour Ozone Standard in June 2016. This plan demonstrates the practicable and expeditious attainment of the 75 parts per billion 8-hour $O_3$ standard (San Joaquin Valley APCD 2016a).

### San Joaquin Valley APCD 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard

The San Joaquin Valley APCD adopted the 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard on September 15, 2016. This plan addresses the EPA federal annual $PM_{2.5}$ standard of 12 micrograms per cubic meter (µg/m³), established in 2012. This plan includes an attainment impracticability demonstration and request for reclassification of the SJVAB from Moderate nonattainment to Serious nonattainment (San Joaquin Valley APCD 2016b).

### San Joaquin Valley APCD 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards

The San Joaquin Valley APCD adopted the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards on November 15, 2018. This plan addresses the EPA federal 1997 annual $PM_{2.5}$ standard of 15 µg/m³ and 24-hour $PM_{2.5}$ standard of 65 µg/m³, the 2006 24-hour $PM_{2.5}$ standard of 35 µg/m³, and the 2012 annual $PM_{2.5}$ standard of 12 µg/m³. This plan demonstrates attainment of the federal $PM_{2.5}$ standards as expeditiously as practicable (San Joaquin Valley APCD 2018).

### 2020 RACT Demonstration

The San Joaquin Valley APCD adopted the 2020 RACT Demonstration for the 2015 8-Hour Ozone Standard on June 18, 2020. San Joaquin Valley is classified as an Extreme nonattainment area for the 2015 $O_3$ standard. The 2020 RACT Demonstration includes a comprehensive evaluation of all NOx and ROG San Joaquin Valley APCD rules to ensure that each rule meets or exceeds RACT. The 2020 RACT Demonstration fulfills Clean Air Act requirements and demonstrates that all federal RACT requirements continue to be satisfied in San Joaquin Valley (San Joaquin Valley APCD 2020).

### San Joaquin Valley APCD 2022 Plan for the 2015 8-Hour Ozone Standard

The San Joaquin Valley APCD adopted the 2022 Ozone Plan on December 15, 2022. The Plan builds upon comprehensive strategies already in place from adopted District plans and CARB state-wide strategies to achieve attainment of the 70 parts per billion 8-hour $O_3$ standard. In addition to the District's strategies, CARB's 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy), as incorporated into the 2022 Ozone Plan, includes a number of commitments to reduce emissions from mobile sources, consumer products, pesticides, and primarily-federally and internationally regulated sources (San Joaquin Valley APCD 2022).

## Particulate Matter Attainment Plans

### 2007 $PM_{10}$ Maintenance Plan and Request for Redesignation

On September 20, 2007, the Governing Board approved the 2007 $PM_{10}$ Maintenance Plan and Request for Redesignation (San Joaquin Valley APCD 2007a). After achieving compliance with the annual and 24-hour NAAQS

for $PM_{10}$ during the period from 2003 to 2006,[4] the San Joaquin Valley APCD prepared the 2007 $PM_{10}$ Maintenance Plan and Request for Redesignation. The plan includes future emission estimates through 2020 and, based on modeling, projects that SJVAB will continue to attain the $PM_{10}$ NAAQS through 2020. The plan does not call for adoption of new control measures. Measures called for in the 2007 8-Hour Ozone Plan and 2008 $PM_{2.5}$ Plan (discussed below) will also produce $PM_{10}$ benefits; however, the plan does include a contingency plan if future $PM_{10}$ levels were to exceed the NAAQS. It also includes a request that the EPA redesignate the SJVAB to attainment status for the $PM_{10}$ NAAQS. On October 25, 2007, CARB approved the San Joaquin Valley APCD's plan with modifications to the transportation conformity budgets. On September 25, 2008, the EPA redesignated the SJVAB to attainment for the $PM_{10}$ NAAQS and approved the $PM_{10}$ maintenance plan.

### 2008 $PM_{2.5}$ Plan

The San Joaquin Valley APCD Governing Board adopted the 2008 $PM_{2.5}$ Plan on April 30, 2008 (San Joaquin Valley APCD 2008). This plan is designed to assist the SJVAB in attaining all $PM_{2.5}$ standards, including the 1997 federal standards, the 2006 federal standards, and the state standard, as soon as possible. On July 13, 2011, the EPA issued a proposed rule partially approving and disapproving the 2008 $PM_{2.5}$ Plan. Subsequently, on November 9, 2011, the EPA issued a final rule approving most of the plan with an effective date of January 9, 2012. However, the EPA disapproved the plan's contingency measures because they would not provide sufficient emissions reductions.

### 2012 $PM_{2.5}$ Plan

Approved by the Governing Board on December 20, 2012, the 2012 $PM_{2.5}$ Plan addresses attainment of EPA's 24-hour $PM_{2.5}$ standard of 35 µg/m³ established in 2006. In addition to reducing direct emissions of $PM_{2.5}$, this plan focuses on reducing emissions of $NO_x$, which is a predominant pollutant in the formation of $PM_{2.5}$ in the SJVAB. The plan relies on a multilevel approach to reducing emissions through San Joaquin Valley APCD efforts (industry, the general public, employers, and small businesses) and state/federal efforts (passenger vehicles, heavy-duty trucks, and off-road sources), as well as San Joaquin Valley APCD and state/federal incentive programs to accelerate replacement of on- and off-road vehicles and equipment (San Joaquin Valley APCD 2012).

### 2015 Plan for the 1997 $PM_{2.5}$ Standard

The Governing Board adopted the 2015 Plan for the 1997 $PM_{2.5}$ Standard on April 16, 2015 (San Joaquin Valley APCD 2015b). This plan addresses the EPA's annual $PM_{2.5}$ standard of 15 µg/m³ and 24-hour $PM_{2.5}$ standard of 65 µg/m³ established in 1997. Although nearly achieving the 1997 standards, the SJVAB experienced higher $PM_{2.5}$ levels in winter 2013–2014 due to the extreme drought, stagnation, strong inversions, and historically dry conditions; thus, the San Joaquin Valley APCD was unable to meet the attainment date of December 31, 2015. Accordingly, this plan also contains a request for a one-time extension of the attainment deadline for the 24-hour standard to 2018 and the annual standard to 2020. The plan builds on past development and implementation of effective control strategies. Consistent with EPA regulations for $PM_{2.5}$ plans to achieve the 1997 standards, the plan contains Most Stringent Measures, Best Available Control Measures, and additional enforceable commitments for further reductions in emissions, and ensures expeditious attainment of the 1997 standard.

[4] Attainment is achieved if the 3-year annual average $PM_{10}$ concentration is less than or equal to 50 µg/m³ and the expected 24-hour exceedance days is less than or equal to 1.

### 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard

On September 15, 2016, the Governing Board adopted the 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard (San Joaquin Valley APCD 2016b). This plan addresses the federal mandates for areas classified as "moderate nonattainment" for the 2012 $PM_{2.5}$ NAAQS of 12 µg/m³. Consistent with EPA's $PM_{2.5}$ Implementation Rule, the plan satisfies the mandate to submit a moderate nonattainment plan to EPA by October 2016, demonstrates impracticability of attaining the 2012 $PM_{2.5}$ standard by the moderate nonattainment deadline of 2021, includes a request to reclassify San Joaquin Valley to a "serious nonattainment" area for the 2012 $PM_{2.5}$ standard, satisfies all federal Clean Air Act requirements for moderate nonattainment areas, and demonstrates that emissions are continuing to be reduced in San Joaquin Valley.

### 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards

The San Joaquin Valley APCD adopted the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards on November 15, 2018. This plan addresses the EPA federal 1997 annual $PM_{2.5}$ standard of 15 µg/m³ and 24-hour $PM_{2.5}$ standard of 65 µg/m³, the 2006 24-hour $PM_{2.5}$ standard of 35 µg/m³, and the 2012 annual $PM_{2.5}$ standard of 12 µg/m³. This plan demonstrates attainment of the federal $PM_{2.5}$ standards as expeditiously as practicable (San Joaquin Valley APCD 2018).

### 2024 Plan for the 2012 $PM_{2.5}$ Standard

The San Joaquin Valley APCD adopted the 2024 Plan for the 2012 $PM_{2.5}$ Standard on June 20, 2024, to fulfill the remaining CAA requirements, including the final modeling analysis, attainment strategy, and emission reduction commitments, reasonable further progress/quantitative milestones, and contingency measures. This Plan demonstrates expeditious attainment of the 2012 $PM_{2.5}$ standard by 2030 (San Joaquin Valley APCD 2024a).

### Senate Bill 656 Particulate Matter Control Measure Implementation Schedule

Senate Bill (SB) 656 was enacted in 2003 and codified as California Health and Safety Code Section 39614. SB 656 seeks to reduce exposure to $PM_{10}$ and $PM_{2.5}$ and to make further progress toward attainment of the NAAQS and CAAQS for $PM_{10}$ and $PM_{2.5}$. SB 656 required CARB, in consultation with local air districts, to develop and adopt lists of "the most readily available, feasible, and cost-effective" PM control measures. Subsequently, the air districts were required to adopt implementation schedules for the relevant control measures in their districts. In June 2005, the San Joaquin Valley APCD adopted its SB 656 Particulate Matter Control Measure Implementation Schedule. The San Joaquin Valley APCD analysis of the CARB list concluded that all but one of the measures that apply to San Joaquin Valley APCD sources had been implemented or were in one of the San Joaquin Valley APCD's attainment plans for adoption within the next 2 years. The remaining measure pertains to a future amendment of a rule for gasoline transfer into stationary storage containers, delivery vessels, and bulk plants.

## Applicable Rules

The San Joaquin Valley APCD's primary means of implementing air quality plans is by adopting and enforcing rules and regulations. Stationary sources within the jurisdiction are regulated by the San Joaquin Valley APCD's permit authority over such sources and through its review and planning activities. Unlike stationary source projects, which encompass very specific types of equipment, process parameters, throughputs, and controls, air emissions sources from land use development projects are mainly mobile sources (traffic) and area sources (small dispersed stationary and other non-mobile sources), including exempt (i.e., no permit required) sources such as consumer

products, landscaping equipment, furnaces, and water heaters. Mixed-use land development projects may include nonexempt sources, including devices such as small to large boilers, stationary internal combustion engines, gas stations, and asphalt batch plants. Notwithstanding nonexempt stationary sources, which would be permitted on a case-by-case basis, the following San Joaquin Valley APCD regulations generally apply to land use development projects and are described below.

### Regulation IV – Prohibitions

- **Rule 4101: Visible Emissions –** The purpose of this rule is to prohibit the emissions of visible air contaminants to the atmosphere.
- **Rule 4102: Nuisance –** Prohibits discharge of air contaminants or other materials from any source which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such person or the public or which cause or have a natural tendency to cause injury or damage to business or property.
- **Rule 4201: Particulate Matter Concentration –** The purpose of this rule is to protect the ambient air quality by establishing a particulate matter emission standard.
- **Rule 4202: Particulate Matter –** Emission Rate – The purpose of this rule is to limit particulate matter emissions by establishing allowable emission rates. The calculation methods for determining the emission rate based on process weight are specified.
- **Rule 4601: Architectural Coatings –** The purpose of the rule is to limit VOC emissions from architectural coatings. This rule specifies architectural coatings storage, cleanup, and labeling requirements.
- **Rule 4641: Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations –** The purpose of this rule is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations.
- **Rule 4702: Internal Combustion Engines –** The purpose of this rule is to limit the emissions of nitrogen oxides ($NO_x$), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM), and sulfur oxides ($SO_x$) from internal combustion engines.

### Regulation VIII – Fugitive $PM_{10}$ Prohibition

- **Rule 8021: Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities –** The purpose of this rule is to limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities. The rule outlines Dust Control Plan requirements for certain applicable construction activities.
- **Rule 8031: Bulk Materials –** The purpose of the rule is to limit fugitive dust emissions from the outdoor handling, storage, and transport of bulk materials.
- **Rule 8041: Carryout and Trackout –** The purpose of this rule is to prevent or limit fugitive dust emissions from carryout and trackout.
- **Rule 8051: Open Areas –** The purpose of this rule is to limit fugitive dust emissions from open areas.
- **Rule 8061: Paved and Unpaved Roads –** The purpose of this rule is to limit fugitive dust emissions from paved and unpaved roads by implementing control measures and design criteria.
- **Rule 8071: Unpaved Vehicle/Equipment Traffic Areas –** The purpose of this rule is to limit fugitive dust emissions from unpaved vehicle and equipment traffic areas.

Pursuant to Rule 8021, Section 6.3, the project would be required to develop, prepare, submit, obtain approval of, and implement a dust control plan, which would reduce fugitive dust impacts to less than significant during project construction.

#### Regulation IX – Mobile and Indirect Sources

- **Rule 9410: Employer Based Trip Reduction –** The purpose of this rule is to reduce vehicle miles traveled (VMT) from private vehicles used by employees to commute to and from their worksites to reduce emissions of oxides of nitrogen, volatile organic compounds, and particulate matter.
- **Rule 9510: Indirect Source Review (ISR) –** The purpose of this rule is to fulfill the District's emission reduction commitments in the $PM_{10}$ and Ozone Attainment Plans, achieve emission reductions from the construction and use of development projects through design features and on-site measures, and provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures.

#### Rule 9510: Indirect Source Review

The ISR rule, which was adopted December 15, 2005, and went into effect March 1, 2006, requires developers of new residential, commercial, and some industrial projects to reduce $NO_x$ and $PM_{10}$ emissions generated by their projects. Pursuant to Rule 9510, the purpose of the ISR rule is to reduce emissions of $NO_x$ and $PM_{10}$ from new land development projects. In general, development contributes to air pollution in the SJVAB by increasing the number of vehicles and vehicle miles traveled. ISR applies to development projects that require discretionary approval from the lead agency. The ISR rule also applies to transportation and transit projects with construction exhaust emissions that equal or exceed 2 tons per year of $NO_x$ or $PM_{10}$. The ISR rule requires submittal of an air impact assessment application no later than the date on which the application is made for a final discretionary approval from the public agency. The air impact assessment contains the information necessary to calculate construction and operational emissions of a development project.

Section 6.0 of the ISR rule outlines general mitigation requirements for developments that include reduction in construction emissions of 20% of the total construction $NO_x$ emissions, and 45% of the total construction $PM_{10}$ exhaust emissions. The rule also requires the project to reduce operational $NO_x$ emissions by 33.3% and operational $PM_{10}$ emissions by 50% compared to the unmitigated baseline. Section 7.0 of the ISR rule includes fee schedules for construction or operational excess emissions of $NO_x$ or $PM_{10}$—those emissions above the goals identified in Section 6.0 of the rule. Monies collected from this fee are used by the San Joaquin Valley APCD to fund emissions reduction projects in the SJVAB on behalf of that project.

### San Joaquin Valley APCD Community Emissions Reduction Plans

The San Joaquin Valley APCD also administers the implementation of the AB 617 program within its jurisdictional boundaries, which includes the development of a CERP for the City of Stockton to identify cost-effective measures to achieve emission reduction targets in the community. Preparation of a CERP is done by the jurisdiction and is not prepared for individual projects. The reduction measures outlined in the City of Stockton's CERP, as approved by the San Joaquin Valley APCD in March 2021, encompasses a range of strategies to reduce community level exposure burden, including regulatory, enforcement, outreach and education, voluntary incentive-based programs, as well as partnerships with other agencies to address issues outside of the San Joaquin Valley APCD's direct regulatory authority (San Joaquin Valley APCD 2021).

## City of Stockton

### City of Stockton General Plan

The City of Stockton adopted their General Plan Update on December 4, 2018 (City of Stockton 2018). The County's General Plan, also called Envision Stockton 2040, includes various goals and policies related to directly and indirectly improving air quality. Applicable goals and policies include the following:

Goal SAF-4. Improve local air quality.

Policy SAF-4.1. Reduce air impacts from mobile and stationary sources of air pollution.

Policy SAF-4.2. Encourage major employers to participate in a transportation demand management program (TDM) that reduces vehicle trips through approaches such as carpooling, vanpooling, shuttles, car-sharing, bike-sharing, end-of-trip facilities like showers and bicycle parking, subscription bus service, transit subsidies, preferential parking, and telecommuting.

Policy SAF-4.3. Coordinate with the San Joaquin Valley Air Pollution Control District and non-profit organizations to promote public awareness on air quality issues and consistency in air quality impacts analyses.

Goal LU-1. Regional Destination. Become more of a regional destination that attracts destinations and invites residents to enjoy a diverse array of events and arts, entertainment, and dining options.

Policy LU-1.1. Encourage retail businesses and housing development in mixed-use developments along regional transportation routes and in areas that serve local residents.

Goal LU-2. Strong Downtown. Strengthen the Downtown to reinforce it as the region's center for government, business, finance, arts, entertainment, and dining.

Policy LU-2.5. Promote Downtown Stockton as a primary transit node that provides multi-modal connections throughout the city and region.

Goal LU-3. Authentic Neighborhoods. Protect and preserve the authentic qualities of Stockton's neighborhoods and historic districts

Policy LU-3.2. Retain narrower roadways and reallocate right-of-way space to preserve street trees and mature landscaping and enhance the pedestrian and bicycle network within and adjacent to residential neighborhoods.

Goal LU-5. Protected Resources. Protect, maintain, and restore natural and cultural resources.

Policy LU-5.3. Define discrete and clear city edges that preserve agriculture, open space, and scenic views.

Goal LU-6. Effective Planning. Provide for orderly, well-planned, and balanced development.

Policy LU-6.2. Prioritize development and redevelopment of vacant, underutilized, and blighted infill areas.

Policy LU-6.4. Ensure that land use decisions balance travel origins and destinations as in close proximity as possible, and reduce vehicle miles traveled (VMT).

## Port of Stockton

### Port of Stockton Clean Air Plan

The Port of Stockton adopted a Clean Air Plan in April 2023 (Port of Stockton 2023a). The Port of Stockton Clean Air Plan defines strategies for reducing air emissions in the near term while charting a long-term path for the Port to reach zero emissions. It focuses on the five main sources of Port-related emissions: heavy-duty trucks, cargo-handling equipment, harbor craft, ships, and locomotives, among other strategies. The strategies set forth in the Port of Stockton Clean Air Plan to reduce air- and climate-related community impacts are identified below.

#### Heavy-Duty Trucks

**TRUCKS-1.** Identify ways to route trucks away from the community and work with city and regional partners to implement the actions.

**TRUCKS-2.** Identify opportunities to pave unpaved lots and roads to reduce fugitive dust emissions from trucks.

**TRUCKS-3.** Collaborate with other agencies on a regional anti-idling plan and increased enforcement of idling limits at distribution centers, warehouses or other facilities within the Port.

**TRUCKS-4.** Identify ways to enhance goods movement efficiency and improve traffic flow, particularly around neighborhoods impacted by trucks.

**TRUCKS-5.** Assist truck operators in securing grant funds for zero-emission trucks and infrastructure.

**TRUCKS-6.** Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions truck transition.

**TRUCKS-7**. In partnership with tenants, facilitate the development and implementation of Zero-Emissions Truck Transition Plans at each facility to accelerate the introduction of zero-emission trucks.

#### Cargo-Handling Equipment

**EQUIP-1**. Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions equipment transition.

**EQUIP-2.** Seek grants to buy zero-emissions equipment and help terminal operators secure grants.

**EQUIP-3.** In partnership with tenants, facilitate the development and implementation of Zero-Emissions Terminal Transition Plans at each facility to accelerate the introduction of zero-emissions equipment.

**EQUIP-4.** Transition all Port-owned equipment to zero emissions by 2030 or in advance of the State regulation, whichever is earlier, when feasible.

**EQUIP-5.** Set a goal to transition tenant-owned equipment to zero emissions by 2035 or in advance of the State regulation, when feasible.

**EQUIP-6.** Evaluate the use of renewable diesel in cargo-handling equipment.

### Harbor Craft

**TUGS-1.** Provide assistance for harbor craft operators in securing grant funds to transition to cleaner tugboats and to fund zero-emission tugboat demonstrations.

**TUGS-2.** Require harbor craft operators to have shore power infrastructure at their berths and to use this infrastructure to eliminate at-berth idling emissions.

**TUGS-3.** Establish slow-speed zones near homes and community facilities to reduce noise and emissions around population centers.

**TUGS-4.** Evaluate ways to phase out the oldest harbor craft engines (Tier 0 and potentially Tier 1) through incentives or tariff requirements.

### Ships

**SHIPS-1.** Conduct technology demonstrations for barge- or land-based systems that eliminate at-berth emissions.

**SHIPS-2.** Develop an incentive program to encourage the deployment of the cleanest ships to Stockton.

### Rail

**RAIL-1.** Secure grants to help rail operators transition to the cleanest available locomotives and to demonstrate advanced zero-emission technologies.

**RAIL-2.** Evaluate the possibility of contractual conditions to require Central California Traction Company, the short-line rail operator, to deploy cleaner locomotives in advance of the State's locomotive regulation.

### Other Strategies

**FLEET-1.** Transition the Port's fleet of on-road vehicles to zero emissions by 2035.

**FLEET-2.** Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions on-road fleet transition.

**BARRIERS-1.** Evaluate potential locations for vegetative barriers and work with the community and regional partners to install such barriers, particularly around facilities and along truck routes in close proximity to residents, schools, and other neighborhood uses.

**TREES-1.** Expand the Port's urban greening program through more tree plantings, particularly in parts of the community that are highly impacted by trucks and Port-related uses.

## 3.2.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to air quality are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to air quality would occur if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan?
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
- Expose sensitive receptors to substantial pollutant concentrations?
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Appendix G indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether the project would have a significant impact on air quality.

Most California air districts recommend mass emission thresholds (e.g., pounds per day, tons per year) to determine whether a project's emissions of criteria air pollutant would be significant under CEQA and would result in a cumulatively considerable net increase of any criteria pollutant. As detailed below, the project includes multiple components and associated activities could occur in various air districts throughout the state.

Sustainable Forest Management Projects and feedstock sources may occur within the Working Area of each pellet facility. For the Lassen Facility, feedstock activity may occur within the following air districts:

- Butte County AQMD
- Lassen County APCD
- Modoc County APCD
- North Coast Unified AQMD
- Northern Sierra AQMD
- Shasta County AQMD
- Siskiyou County APCD
- Tehama County APCD

For the Tuolumne Facility, feedstock activity may occur within the following air districts:

- Amador County APCD
- Calaveras County APCD
- El Dorado APCD
- Feather River AQMD
- Great Basin Unified APCD
- Mariposa County APCD
- Northern Sierra AQMD
- Placer County APCD

- Sacramento Metropolitan AQMD
- San Joaquin Valley APCD
- Tuolumne County APCD

The thresholds for each of the above-referenced air districts are summarized in the Table 3.2-7 below. The phasing out of leaded gasoline started in 1976. As gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis or included in Table 3.2-7.

The Lassen Facility is located within the Lassen County APCD jurisdiction and would be subject to Lassen County APCD rules, regulations, and guidance. Lassen County APCD does not have established CEQA thresholds. Therefore, this analysis utilizes the Lassen County APCD Rule 6:4 Best Available Control Technology (BACT) Requirements.

The Tuolumne Facility is located within the Tuolumne County APCD jurisdiction and would be subject to Tuolumne County APCD rules, regulations, and guidance, including Tuolumne County APCD CEQA thresholds.

Transport of the wood pellets from the pellet facilities to the Port of Stockton would travel through multiple air districts along the BNSF railway. From Lassen to the Port of Stockton, the trains would travel through the following air districts:

- Lassen County APCD
- Northern Sierra AQMD
- Butte County APCD
- Feather River AQMD
- Sacramento Metro AQMD
- San Joaquin Valley APCD

Transport of wood pellets by train from the Tuolumne Facility to Port of Stockton would pass through two air districts: Tuolumne County APCD and San Joaquin Valley APCD.

The Port of Stockton is located within the San Joaquin Valley APCD jurisdiction and would be subject to San Joaquin Valley APCD rules, regulations, and guidance, including San Joaquin Valley APCD CEQA thresholds presented in their Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI).

Transport of the wood pellets by ship would travel through the San Joaquin Valley APCD jurisdiction and Bay Area AQMD jurisdiction.

The evaluation of whether the project would conflict with or obstruct implementation of the applicable air quality plan (CEQA Guidelines, Appendix G, Threshold 1) is based on (1) consistency with the underlying land use designations (e.g., General Plan designation), and (2) potential to exceed numeric thresholds established to determine if a project would result in a significant air quality impact. While each air district may have specific guidance on how to address Threshold 1, the above-referenced two approaches are the most commonly applied considerations in determining the potential for a project to conflict with an applicable air quality plan established by an air district. As such, these two criteria are applied to evaluate the project's potential impact under Threshold AQ-1.

To evaluate the potential for the project to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (CEQA Guidelines, Appendix G, Threshold 2), this analysis applies the appropriate air district's construction and operational criteria pollutants mass thresholds (daily and/or annual), as shown in Table 3.2-7.

Consistent with the San Joaquin Valley APCD GAMAQI, as well as other air district guidance, a project is considered to result in a cumulatively considerable net increase in $O_3$ if the project's construction or operational emissions would exceed the relevant air district VOC/ROG or $NO_x$ thresholds shown in Table 3.2-7. These emissions-based thresholds for $O_3$ precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse $O_3$ impacts to occur). This approach is used because $O_3$ is not emitted directly, and the effects of an individual project's emissions of $O_3$ precursors (VOC and $NO_x$) on $O_3$ levels in ambient air cannot be determined reliably or meaningfully through air quality models or other quantitative methods. Thus, if an area is nonattainment for $O_3$, exceedance of the applicable VOC/ROG or $NO_x$ thresholds will result in a significant impact under CEQA Guidelines, Appendix G, Threshold 2 relating to $O_3$.

The Lassen County APCD and Tuolumne County APCD do not have guidance on preparing an ambient air quality analysis (AAQA). Therefore, the San Joaquin Valley APCD GAMAQI was relied upon for this purpose in all three jurisdictions, and a 100 pound per day screening threshold was applied for onsite emissions. If the screening threshold was exceeded, an AAQA was prepared in accordance with San Joaquin Valley APCD APR 1925, *Policy for District Rule 2201 AAQA Modeling* (San Joaquin Valley APCD 2024b).

The assessment of the project's potential to expose sensitive receptors to substantial pollutant concentrations (CEQA Guidelines, Appendix G, Threshold 3) includes a qualitative CO hotspot analysis and a quantitative health risk assessment. The cancer risk threshold applied for Lassen County APCD and Tuolumne County APCD is 10 in 1 million and non-cancer hazard index (chronic and acute) of 1. The cancer risk threshold for San Joaquin Valley APCD is 20 in 1 million and non-cancer hazard index (chronic and acute) of 1.

The potential for the project to result in other emissions, specifically an odor impact (CEQA Guidelines, Appendix G, Threshold 4), is based on the project's anticipated construction and operational activity, land use types, and the potential for the project to create an odor nuisance pursuant to air district nuisance rules.

**Table 3.2-7. Criteria Air Pollutant Thresholds of Significance by California Air District**

| Air District | VOC (ROG) | | NOX | | $PM_{10}$ | | $PM_{2.5}$ | | SOX | | CO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation |
| Amador County APCD | No thresholds | | | | | | | | | | | |
| Bay Area AQMD (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Southern Sonoma, and Southwest Solano County) | 54 lb/day | 54 lb/day 10 tpy | 54 lb/day | 54 lb/day or 10 tpy | 82 lb/day (exhaust) BMPs for fugitive dust | 82 lb/day or 15 tpy None for fugitive dust | 54 lb/day (exhaust) BMPs for fugitive dust | 54 lb/day or 10 tpy None for fugitive dust | No threshold | | No threshold | 9.0 ppm (8- hour average, 20.0 ppm (1-hour average) |
| Butte County AQMD | 137 lb/day or 4.5 tpy | 25 lb/day | 137 lb/day or 4.5 tpy | 25 lb/day | 80 lb/day | 80 lb/day | 80 lb/day | 80 lb/day | No threshold | | | |
| Calaveras County ACPD | 150 lb/day | 150 lb/day | 150 lb/day | 150 lb/day | 150 lb/day | 150 lb/day | No thresholds | | | | | |
| El Dorado County AQMD | 82 lb/day | | 82 lb/day | | No thresholds | | | | | | | |
| Feather River AQMD (Sutter and Yuba County) | 25 lb/day multiplied by project length; not to exceed 4.5 tpy | 25 lb/day | 25 lb/day multiplied by project length; not to exceed 4.5 tpy | 25 lb/day | 80 lb/day | | No thresholds | | | | | |
| Great Basin Unified APCD (Inyo, Mono, and Alpine County) | No thresholds | | | | | | | | | | | |
| Lassen County APCDa | 150 lb/day | | 150 lb/day | | 150 lb/day | | 150 lb/day | | 150 lb/day | | 550 lb/day | |
| Mariposa County APCD | 100 tpy | | 100 tpy | | 100 tpy | | 100 tpy | | 100 tpy | | 100 tpy | |
| Modoc County APCD | No thresholds | | | | | | | | | | | |
| North Coast Unified AQMD (Del Norte, Humboldt, and Trinity County) | No thresholds | | | | | | | | | | | |
| Northern Sierra AQMDb (Nevada, Sierra, and Plumas County) | <24 lb/day (Level A) 24-136 lb/day (Level B) >136 lb/day (Level C) | | <24 lb/day (Level A) 24-136 lb/day (Level B) >136 lb/day (Level C) | | <79 lb/day (Level A) 79-136 lb/day (Level B) >136 lb/day (Level C) | | No thresholds | | | | | |
| Placer County APCD | 82 lb/day | 55 lb/day | 82 lb/day | 55 lb/day | 82 lb/day | 82 lb/day | No thresholds | | | | | |
| Sacramento Metropolitan AQMD | No threshold | 65 lb/day | 85 lb/day | 65 lb/day | 80 lb/day or 14.6 tpy (following application of all feasible BMPs) | 80 lb/day or 14.6 tpy (following application of all feasible BMPs) | 82 lb/day or 15 tpy (following application of all feasible BMPs) | 82 lb/day or 15 tpy (following application of all feasible BMPs) | Concentrations below CAAQS for SOx | | Concentrations below CAAQS for CO | |
| San Joaquin Valley APCD (San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Western Kern County) | 10 tpy | 10 tpy | 10 tpy | 10 tpy | 15 tpy | 15 tpy | 15 tpy | 15 tpy | 27 tpy | 27 tpy | 100 tpy | 100 tpy |
| Shasta County AQMDb | 25 lb/day (Level A) or 137 lb/day (Level B) | | 25 lb/day (Level A) or 137 lb/day (Level B) | | 80 lb/day (Level A) or 137 lb/day (Level B) | | No thresholds | | | | | |
| Siskiyou County APCD | No thresholds | | | | | | | | | | | |
| Tehama County APCDb | ≤25 lb/day (Level A/MND or ND) >25 lb/day (Level B/MND or EIR) >137 lb/day (Level C/EIR) | | ≤25 lb/day (Level A/MND or ND) | | ≤80 lb/day (Level A/MND or ND) >80 lb/day (Level B/MND | | No thresholds | | | | | |

**Table 3.2-7. Criteria Air Pollutant Thresholds of Significance by California Air District**

| Air District | VOC (ROG) | | NOX | | $PM_{10}$ | | $PM_{2.5}$ | | SOX | | CO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation |
| | | | >25 lb/day (Level B/MND or EIR)<br>>137 lb/day (Level C/EIR) | | or EIR)<br>>137 lb/day (Level C/EIR) | | | | | | | |
| Tuolumne County APCD | 1,000 lb/day or 100 tpy | | 1,000 lb/day or 100 tpy | | 1,000 lb/day or 100 tpy | | No thresholds | | | | 1,000 lb/day or 100 tpy | |

**Source:** Bay Area AQMD 2017, Butte County AQMD 2024, Calaveras County 2018, El Dorado APCD 2002, Feather River AQMD 2010, Mendocino County AQMD 2013, Mariposa County2006], Northern Sierra AQMD 2009, Placer County APCD 2016, San Joaquin Valley APCD 2015c, Sacramento Metropolitan AQMD 2015, Tehama County APCD 2015, Tuolumne County APCD [No Date].

**Notes**: APCD = Air Pollution Control District; AQMD; Air Quality Management District; lb/day = pound per day; tpy = tons per year; ppm = parts per million.

[a] Lassen County APCD does not have established CEQA thresholds. However, this analysis applies the Lassen County APCD Rule 6:4 Best Available Control Technology (BACT) Requirements.

[b] For Northern Sierra AQMD, Shasta County AQMD, and Tehama County APCD, the highest thresholds are applied herein, as this CEQA document is an EIR.

## 3.2.4 Impact Analysis

### 3.2.4.1 Methodology

The project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analysis herein evaluates each of these primary phases as related to air quality with the methodology and assumptions summarized below. Details are provided in Appendices B1 through B4. As discussed in Chapter 1, this EIR analyzes the wood pellet production and transport to market phases of the project at the project-level, whereas the feedstock acquisition phase is evaluated at the program-level.

#### 3.2.4.1.1 Feedstock Acquisition

The project would implement project design features (PDFs) as best practices that would also reduce criteria air pollutant emissions and other potential environmental impacts during feedstock acquisition, thereby achieving air quality co-benefits. As set forth in Chapter 2, PDFs will be incorporated as enforceable contract terms in the public-private partnership agreement between GSFA and GSNR through which GSNR is authorized to perform project activities. The project would implement PDF-AQ-1, PDF-AQ-2, and PDF-AQ-3, as follows:

PDF-AQ-1 Air District Regulatory Compliance – Feedstock Acquisition. All treatment activities will comply with the applicable air quality requirements of air districts within whose jurisdiction the project is located.

PDF-AQ-1 is not quantified in the analysis.

PDF-AQ-2 Fugitive Dust Control – Feedstock Acquisition. To minimize dust during treatment activities, the following measures will be implemented:

- Limit the speed of vehicles and equipment traveling on unpaved areas to 15 miles per hour to reduce fugitive dust emissions.
- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved roads) will be maintained using water or another CARB-approved non-toxic dust control agent as necessary to avoid particulate emissions that may “cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property,” per Health and Safety Code Section 41700.
- Remove visible dust, silt, or mud tracked-out on to public paved roadways where sufficient water supplies and access to water is available.
- Suspend ground-disturbing treatment activities, including land clearing and bulldozer lines, when there is visible dust transport (particulate pollution) outside the treatment boundary, if the particulate emissions may “cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property,” per Health and Safety Code Section 41700.

PDF-AQ-2 is quantified in the construction analysis within CalEEMod where "limit vehicle speeds on unpaved roads" was selected. Due to the variability of conditions and the potential infeasibility to water on public roads and certain private roads, the modeling did not account for watering, nor did it take credit for the corresponding reduction in fugitive dust emissions.

PDF-AQ-3 Naturally Occurring Asbestos Best Practices – Feedstock Acquisition. Ground-disturbing treatment activities will be avoided in areas identified as likely to contain naturally occurring asbestos (NOA) per maps and guidance published by the California Geological Survey, unless an Asbestos Dust Control Plan (17 CCR Section 93105) is prepared and approved by the air district(s) with jurisdiction over the treatment area. Any NOA-related guidance provided by the applicable air district will be followed.

PDF-AQ-3 is not quantified in the analysis.

## Sustainable Forest Management Projects (Program-Level)

Operational activities associated with the acquisition of feedstock primarily involve use of offroad equipment to remove feedstock and transport of feedstock from the forest to the pellet facilities via truck. As such, Sustainable Forest Management Projects were modeled as construction activities[5] using California Emissions Estimator Model (CalEEMod) Version 2022.1.1.25. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant and CalEEMod default values when project specifics have not yet been determined. Because activity would occur within multiple air districts, emission factors representing the Statewide vehicle mix and emissions for 2025[6] were used to estimate emissions associated with vehicular sources.

Some feedstock acquisition activities would occur as a direct result of the project; other activities are currently occurring and would continue in the absence of the project. The feedstock activities, modeled as concurrent construction phases in CalEEMod, include Harvest Residuals, GSNR Biomass Only Thinning Projects, and Mill Residuals.

Daily activities would generally use the same equipment and vehicles; as such, an average construction day scenario was identified. An average day would have multiple crews operating in different air districts on a given day. However, for purposes of comparing emissions to the most stringent daily or annual threshold, it was conservatively assumed that all crews would be operating in the same air district 100% of the time, which is unlikely in practice. (More precise specification of the percentage of crews operating in any given air district at any given time is impracticable at the program-level, as individual Sustainable Forest Management Project locations and timing have not yet been determined.)

[5] The construction module in CalEEMod calculates short-term construction emissions associated with the following sources: exhaust emissions from off-road equipment and on-road mobile vehicles, fugitive dust emissions, and evaporative VOC emissions. The construction module is more representative of sustainable forest management projects.

[6] The analysis assumes an operational year of 2025, which represents the earliest year feedstock operations could initiate. Assuming the earliest start date for operation represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

## Lassen Feedstock Area

Table 3.2-8 presents the construction scenario assumptions in CalEEMod used for estimating emissions associated with the acquisition of feedstock in the Lassen feedstock area. The total average daily equipment load, worker trips, vendor (i.e. water) truck trips, and haul truck trips have been developed based on available information provided by the project applicant.

Implementation of Sustainable Forest Management Projects would result in 547 average daily one-way trips as a result of logging/haul trucks in the Lassen Feedstock area (See Chapter 3.14, Transportation). For emissions modeling, the trips were rounded up to an even 548 average daily one-way trips. According to the *Road Surface Haul Analysis* provided by Westside Geographic Analysis, the haul truck trip distances were assumed to be 109 miles roundtrip, or 54.5 miles one-way. On average, 11.3 of those miles would be on unpaved roads and 97.7 miles would be on paved roads (Road Surface Haul Analysis 2023*;* Appendix B2). Therefore, in CalEEMod, it was assumed that haul trucks traveled an average of 48.85 miles on paved roads and 5.65 miles on unpaved roads per one-way trip.

As described in PDF-AQ-2, watering of unpaved roads would be done as necessary and feasible. However, due to the variability of conditions and the potential infeasibility to water on public roads and certain private roads, the modeling did not account for watering on unpaved roads, nor did it take credit for the corresponding reduction in fugitive dust emissions. Regardless, in a good faith effort, the emissions from the use of vendor (i.e. water) trucks were conservatively included in the calculations in the chance that they are used. Unpaved roads in the Lassen feedstock area are anticipated to require watering one to two times per day in order to effectively reduce the dust produced by logging/haul trucks. A common application rate cited for road watering is approximately 2,000 gallons per mile of road (Midwest Industrial Supply 2016). A water truck designed for on-road use typically accommodates up to 6,000 gallons of water per truck (BigRentz 2023). Assuming this water truck capacity and watering rate, the number of full-time operation crews, the average miles on unpaved roads, the project would require approximately 125 total vendor trucks per day, equating to 250 average daily one-way trips.[7] Vendor trucks were assumed to travel the haul length of 54.5 miles per one-way trip.

The average daily worker trips were calculated based on the number of full-time operation crews needed in the Lassen feedstock area. There would be 33 full-time operation crews, and it was conservatively assumed that there would be 6 workers in each crew, resulting in approximately 200 average daily workers, or 400 average daily worker one-way trips. The worker trip distance was assumed to be 35.42 miles, which is the estimated one-way trip length per employee from the OnTheMap application in the Lassen County VMT per Employee Summary as described in Chapter 3.14, Transportation.

[7] As shown in the Road Surface Haul Analysis (Appendix B2) the average miles on unpaved roads would be 11.3 miles roundtrip. Assuming 11.3 miles of unpaved road per operation, 33 full-time operations crews, and a watering rate of 2,000 gallons per mile, water consumption for road watering is estimated to be approximately 745,800 gallons per day. Assuming a water truck capacity of 6,000 gallons, the project would require approximately 125 vendor trucks per day, or 250 average daily one-way vendor truck trips.

**Table 3.2-8. Lassen Feedstock Acquisition Assumptions**

| Construction Phase | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|
| | Average Daily Worker Trips | Average Daily Vendor Truck Trips | Average Daily Haul Truck Trips | Equipment Type | Quantity | Daily Usage Hours |
| Harvest Residuals | 188 | 120 | 264 | Loaders (Heel Booms)[1] | 16 | 10 |
| | | | | Chippers[2] | 5 | 8 |
| GSNR Biomass Only Thinning Projects | 212 | 126 | 274 | Rubber Tired Skidders[3] | 36 | 10 |
| | | | | Loaders (Heel Booms)[1] | 18 | 10 |
| | | | | Feller Bunchers[4] | 36 | 10 |
| | | | | Chippers[2] | 18 | 8 |
| Mill Residuals[5] | 0 | 4 | 10 | N/A | N/A | N/A |

**Notes:** See Appendix B1 for additional details; Vendor trucks represent water trucks; N/A = not applicable.

1 Loaders (Heel Booms) modeled as Tractors/Loaders/Backhoes in CalEEMod at 207 hp.

2 Chippers modeled as Other Construction Equipment in CalEEMod at 998 hp.

3 Rubber Tired Skidders modeled as Rubber Tired Dozers in CalEEMod at 219 hp.

4 Feller Bunchers modeled as Other Construction Equipment in CalEEMod at 286 hp.

5 "Mill Residuals" are residual biomass materials, including residual chips, sawdust, planer shavings, bark and other byproducts, of commercial lumbermills operated by third-parties unaffiliated with GSNR. Therefore, no GSNR workers or equipment are involved in this phase. The feedstock is transported by truck from the mill to the wood pellet processing facility.

### Tuolumne Feedstock Area

Table 3.2-9 presents the construction scenario assumptions in CalEEMod used for estimating emissions associated with the acquisition of feedstock in the Tuolumne feedstock area. The equipment load, vendor truck trips, and haul truck trips have been developed based on available information provided by the project applicant.

Implementation of Sustainable Forest Management Projects would result in 236 average daily trips as a result of logging/haul trucks in the Tuolumne Feedstock area (See Chapter 3.14, Transportation). According to the *Road Surface Haul Analysis* provided by Westside Geographic Analysis, the haul truck trip distances were assumed to be 111.4 miles roundtrip, or 55.7 miles one-way. On average, 6.6 of those miles would be on unpaved roads and 104.8 miles would be on paved roads (Road Surface Haul Analysis 2024, Appendix B2). Therefore, in CalEEMod, it was assumed that haul trucks traveled an average of 52.4 miles on paved roads and 3.3 miles on unpaved roads per one-way trip.

As described above and in PDF-AQ-2, watering of unpaved roads would be done as feasible. The same watering methodology discussed above for the Lassen feedstock area was applied herein as well. Assuming the same water truck capacity and watering rate, the number of full-time operation crews, the average miles on unpaved roads, the project would require approximately 30 total vendor trucks per day, equating to 60 average daily one-way trips.[8] Vendor trucks were assumed to travel 55.7 miles per one-way trip.

8 As shown in the Road Surface Haul Analysis (Appendix B2) the average miles on unpaved roads would be 6.6 miles roundtrip. Assuming 6.6 miles of unpaved road per operation, 13 full-time operations crews, and a watering rate of 2,000 gallons per mile, water consumption for road watering is estimated to be approximately 171,600 gallons per day. Assuming a water truck capacity of 6,000 gallons, the project would require approximately 30 vendor trucks per day, or 60 average daily one-way vendor truck trips.

The average daily worker trips were calculated based on the number of full-time operation crews needed in the Tuolumne feedstock area. There would be 13 full-time operation crews, and it was conservatively assumed that there would be 6 workers in each crew, resulting in approximately 78 average daily workers, or 166 average daily worker one-way trips. The worker trip distance was assumed to be 50.2 miles, which is the estimated one-way trip length per employee from the Tuolumne County VMT Summary as described in Chapter 3.14, Transportation.

**Table 3.2-9. Tuolumne Feedstock Equipment Assumptions**

| Construction Phase | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|
| | Average Daily Worker Trips | Average Daily Vendor Truck Trips | Average Daily Haul Truck Trips | Equipment Type | Quantity | Daily Usage Hours |
| Harvest Residuals | 116 | 40 | 158 | Loaders (Heel Booms)[1] | 10 | 10 |
| | | | | Chippers[2] | 3 | 10 |
| GSNR Biomass Only Thinning Projects | 50 | 18 | 72 | Rubber Tired Skidders[3] | 9 | 8 |
| | | | | Loaders (Heel Booms)[1] | 5 | 10 |
| | | | | Feller Bunchers[4] | 9 | 10 |
| | | | | Chippers[2] | 5 | 10 |
| Mill Residuals[5] | 0 | 2 | 6 | N/A | N/A | N/A |

**Notes:** See Appendix B1 for additional details.

1 Loaders (Heel Booms) modeled as Tractors/Loaders/Backhoes in CalEEMod at 207 hp.

2 Chippers modeled as Other Construction Equipment in CalEEMod at 998 hp.

3 Rubber Tired Skidders modeled as Rubber Tired Dozers in CalEEMod at 219 hp.

4 Feller Bunchers modeled as Other Construction Equipment in CalEEMod at 286 hp.

5 "Mill Residuals" are residual biomass materials, including residual chips, sawdust, planer shavings, bark and other byproducts, of commercial lumbermills operated by third-parties unaffiliated with GSNR. Therefore, no GSNR workers or equipment are involved in this phase. The feedstock is transported by truck from the mill to the wood pellet processing facility.

### 3.2.4.1.2 Wood Pellet Production (Project-Level)

The project would implement site design features (SDFs) as best practices that would also reduce criteria air pollutant emissions and other potential environmental impacts at the Lassen Facility, Tuolumne Facility, and Port of Stockton, thereby achieving air quality co-benefits. As set forth in Chapter 2, SDFs will be incorporated as enforceable contract terms in the public-private partnership agreement between GSFA and GSNR through which GSNR is authorized to perform project activities. The project would implement SDF-AQ-1, SDF-AQ-2, and SDF-AQ-3, as follows:

SDF-AQ-1 Air District Regulatory Compliance – Lassen Facility, Tuolumne Facility, and Port of Stockton. All construction and operation activities will comply with the applicable air quality requirements of air districts within whose jurisdiction the project is located.

SDF-AQ-1 is not quantified in the analysis.

SDF-AQ-2 Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton. Prior to the issuance of grading permits, the GSNR or its designee shall develop and implement separate dust control plans to reduce project-generated construction dust at the Lassen

Facility, Tuolumne Facility, and Port of Stockton and comply with applicable Air District rules and regulations. The plan shall include the following:

- The name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan;
- A description and location of all construction activities;
- A comprehensive list of all fugitive dust emissions sources related to facility construction;
- Identification of a Dust Control Supervisor for the project that meets the following requirements:
  - Is on-site or is available to be on-site after initial contact;
  - Has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all applicable Air District rules and regulations

At a minimum, the dust control plan shall include the following control strategies:

A. Water or another Air District-approved non-toxic dust control agent shall be used on the exposed areas at least three times daily.
B. Water or another Air District-approved non-toxic dust control agent shall be used on the unpaved surfaces at least two times daily.
C. Water or another Air District-approved non-toxic dust control agent shall be used on the demolished areas at least two times daily.
D. A 15-mph speed limit on unpaved surfaces shall be enforced.
E. All main roadways shall be constructed and paved as early as possible in the construction process.
F. Building pads shall be finalized as soon as possible following site preparation and grading activities.
G. Grading areas shall be stabilized as quickly as possible.
H. Chemical stabilizer shall be applied, a gravel pad shall be installed, or the last 100 feet of internal travel path within the construction site shall be paved prior to public road entry, as well as for all haul roads.
I. Wheel washers shall be installed adjacent to the apron for tire inspection and washing prior to vehicle entry on public roads.
J. Visible track-out into traveled public streets shall be removed with the use of sweepers, water trucks, or a similar method.
K. Sufficient perimeter erosion control shall be provided to prevent washout of silty material onto public roads.
L. Unpaved construction site egress points shall be graveled to prevent track-out.
M. Construction access points shall be wet-washed at the end of the workday if any vehicle travel on unpaved surfaces has occurred.
N. Transported material in haul trucks shall be watered or treated.

O. Open storage piles (i.e., any accumulation of bulk material) shall be watered on a daily basis when there is evidence of wind driven fugitive dust (i.e. winds exceeding 25 mph) or shall be covered with temporary coverings.

P. All haul trucks shall use tarps or other suitable enclosures when transporting bulk materials to/from/throughout the project site. Material shall be stabilized while loading and maintain at least six inches of freeboard on haul vehicles. Transported material in haul trucks shall be watered or treated. Haul trucks shall be washed prior to leaving the site to remove soil deposits and minimize track-out.

Q. Haul truck staging areas shall be provided for loading and unloading of soil and materials and shall be located away from sensitive receptors at the farthest feasible distance.

R. Construction traffic control plans shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections to the extent feasible. Construction traffic control plans shall be finalized and approved prior to issuance of grading permits.

S. The Dust Control Supervisor for the project shall prepare monthly compliance reports to be submitted for review by Golden State Finance Authority that demonstrate compliance with the Fugitive Dust Control Plan and associated measures.

SDF-AQ-2 is quantified in the construction analysis within CalEEMod where "water three times per day," "water demolished area," "water unpaved construction roads," and "limit vehicle speeds on unpaved roads" were selected.

SDF-AQ-3 Operational Odor Control – Lassen Facility and Tuolumne Facility. To address potential odors from the project at the Lassen Facility and Tuolumne Facility, the project shall implement an Odor Abatement Plan (OAP) as both facility sites. The OAP shall include the following:

A. Name and telephone number of contact person(s) at the facility responsible for logging in and responding to odor complaints

B. Policy and procedure describing the actions to be taken when an odor complaint is received, including the training provided to the staff on how to respond

C. Description of potential odor sources at the facility

D. Description of potential methods for reducing identified potential odor sources

E. Contingency measures to curtail emissions in the event of a public nuisance complaint.

SDF-AQ-3 is not quantified in the analysis.

## Lassen Facility

### Construction Mass Emissions

For purposes of estimating project emissions, and based on information provided by the project applicant, it is assumed that construction of the Lassen Facility would commence in October 2024 and would last approximately 15 months, ending in December 2025.[9] Table 3.2-10 presents the construction scenario assumptions used for estimating construction emissions of the Lassen Facility in CalEEMod. The construction schedule and equipment load has been developed based on available information provided by the project applicant, typical construction practices, and CalEEMod default assumptions.

Construction of the Lassen Facility would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application. No demolition is required for the project as there are no structures on the Lassen Facility. An estimated 5,220 cubic yards of soils would be imported during the grading phase, resulting in 6 one-way haul truck trips per day. Vendor and haul trucks during the site preparation, grading, and rail spurs construction phases were also modeled as on-site trucks in CalEEMod and were assumed to travel on-site for approximately 0.25 miles. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in $PM_{10}$ and $PM_{2.5}$ emissions. Construction of project components would be subject to Lassen County APCD Rule 4.18, Fugitive Dust Emissions. Compliance with Rule 4.18 would limit fugitive dust ($PM_{10}$ and $PM_{2.5}$) that may be generated during grading and construction activities. SDF-AQ-2 would implement a dust control plan that would further reduce fugitive dust.

The worker trip distance was assumed to be 35.415 miles, which is the estimated trip one-way length per employee from the OnTheMap application in Table 3.14-5, "Lassen County VMT Thresholds and Project Site Analysis," as described in Chapter 3.14, Transportation.[10] The vendor truck trip and haul truck trip distances were assumed to be the distance from the Lassen Facility to Susanville, the nearest city, which is approximately 75 miles.

**Table 3.2-10. Lassen Facility Construction Scenario Assumptions**

| Construction Phase | Start Date | Finish Date | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average Daily Workers | Average Daily Vendor Trucks | Average Daily Haul Trucks | Type | Quantity | Usage Hours |
| Site Preparation | 10/1/2024 | 11/1/2024 | 18 | 4 | 0 | Rubber Tired Dozers | 3 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 4 | 8 |
| Grading (Including | 10/15/2024 | 5/15/2025 | 16 | 4 | 6 | Excavators | 1 | 8 |
| | | | | | | Graders | 1 | 8 |

[9] The analysis assumes a construction start date of October 2024, which represents the earliest date construction was anticipated to potentially initiate at the time the analysis was performed. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

[10] The Table indicates that the daily (i.e., roundtrip) VMT for employees working in the Lassen Project Site Census Block is 70.83, half of which (i.e., one-way) is 35.415.

## Table 3.2-10. Lassen Facility Construction Scenario Assumptions

| Construction Phase | Start Date | Finish Date | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average Daily Workers | Average Daily Vendor Trucks | Average Daily Haul Trucks | Type | Quantity | Usage Hours |
| Utilities) | | | | | | Rubber Tired Dozers | 1 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 3 | 8 |
| Utility Line Stringing | 5/16/2025 | 9/16/2025 | 24 | 4 | 0 | Aerial Lifts | 2 | 8 |
| | | | | | | Cranes | 1 | 7 |
| | | | | | | Forklifts | 2 | 8 |
| | | | | | | Generator Sets | 2 | 8 |
| | | | | | | Tensioners[1] | 2 | 8 |
| Building/ Vertical Construction | 1/16/2025 | 12/16/2025 | 200 | 52 | 0 | Aerial Lifts | 10 | 8 |
| | | | | | | Cranes | 6 | 7 |
| | | | | | | Forklifts | 10 | 8 |
| | | | | | | Generator Sets | 10 | 8 |
| | | | | | | Light Towers[2] | 10 | 8 |
| | | | | | | Rough Terrain Forklifts | 5 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 3 | 7 |
| | | | | | | Utility Vehicles[3] | 20 | 8 |
| | | | | | | Welders | 25 | 8 |
| Rail Spurs Construction | 2/15/2025 | 8/15/2025 | 10 | 4 | 0 | Excavators | 1 | 8 |
| | | | | | | Rubber Tired Dozers | 1 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 1 | 8 |
| | | | | | | Rail Tampers[4] | 1 | 8 |
| Paving | 1/16/2025 | 3/15/2025 | 16 | 4 | 0 | Pavers | 2 | 8 |
| | | | | | | Paving Equipment | 2 | 8 |

## Table 3.2-10. Lassen Facility Construction Scenario Assumptions

| Construction Phase | Start Date | Finish Date | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average Daily Workers | Average Daily Vendor Trucks | Average Daily Haul Trucks | Type | Quantity | Usage Hours |
| | | | | | | Rollers | 2 | 8 |
| Architectural Coating | 9/16/2025 | 11/30/2025 | 52 | 4 | 0 | Air Compressors | 1 | 6 |

**Notes:** See Appendix B1 for additional details.
1 Tensioners modeled as Other Construction Equipment in CalEEMod at 270 hp.
2 Light Towers modeled as Other General Industrial Equipment in CalEEMod at 35 hp.
3 Utility Vehicles modeled as Other Construction Equipment in CalEEMod at 20 hp with gasoline fuel.
4 Rail Tampers modeled as Other Construction Equipment in CalEEMod at 280 hp.

Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), haul trucks, and worker vehicles would result in emissions of VOCs, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions.

### Construction Ambient Air Quality Analysis

An ambient air quality impacts assessment was performed to assess the project's potential impact on the County meeting the CAAQS and NAAQS. As the Lassen County APCD does not have guidance for performing an ambient air quality analysis, the San Joaquin Valley APCD APR-1925 was followed as discussed below (San Joaquin Valley APCD 2019). The San Joaquin Valley APCD GAMAQI recommends preparing an AAQA if onsite emissions exceed 100 pounds per day.

For the initial assessment (Level 1) of the ambient air quality impact analysis, the maximum background concentration for the Lassen Facility for each pollutant and averaging period combination was added to the corresponding maximum GLC from project-related construction (Step 1). The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1 with one major difference. For this second step, the maximum GLC of each pollutant and averaging period combination were compared to the screening thresholds found in Lassen County APCD Rule 6:9 – Air Quality Impact Analysis. The screening thresholds are used to evaluate whether the project's emissions would contribute to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the screening threshold, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required.

For the Level 1 approach, in accordance with San Joaquin Valley APCD APR-1925, all required criteria pollutants are modeled together, with a normalized emission rate (1 gram/second) for each source. The dispersion modeling was performed using the American Meteorological Society/EPA Regulatory Model (AERMOD). AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary-layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and

simple and complex terrain (EPA 2023b). Principal parameters of this Level 1 modeling are presented in Table 3.2-11. Complete model results for the AAQA are included as Appendix B3.

## Table 3.2-11. AERMOD Principal Parameters – Lassen Construction Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| Meteorological Data | The latest 5-year meteorological data (2016–2021) for the Alturas Municipal Airport (Station ID 725958) from CARB were downloaded and then input to AERMOD. | | | |
| Urban versus Rural Option | Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method specified in 40 CFR Part 51 Appendix W, the rural dispersion option was selected due to the predominant land use surrounding the project. | | | |
| Terrain Characteristics | The terrain in the vicinity of the modeled project site is generally flat. The elevation of the modeled site is about 4,120 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. | | | |
| Elevation Data | Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution. | | | |
| Emission Sources | Only onsite construction emissions were modeled for this assessment to determine the highest offsite concentration. For emission sources that extend offsite (haul trucks, train, etc.), the length of the source was limited to within the project boundary. Emissions were modeled using line-volume within AERMOD. | | | |
| Source Release Characterizations | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE1 | Offroad Equipment and Haul Trucks[a] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| Receptors | A telescoping grid of receptors was placed around the project site boundary in the following spacing: 25-meter spacing on the facility boundary; 25-meter spacing from the facility boundary to 100 meters; 50-meter spacing from 100 meters to 250 meters; 100-meter spacing from 250 meters to 500 meters; 250-meter spacing from 500 meters to 1,000 meters; and 500-meter spacing from 1,000 meters to 2,000 meters. | | | |

**Sources:** [a] EPA 2023b.
**Notes:** g/s = grams per second; ID = Identification; F = degrees Fahrenheit; m = meters.
See Appendix B3 for additional information.

### Operational Mass Emissions

Project operational activities at the Lassen Facility would potentially generate VOC, $NO_x$, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$ emissions from area sources, energy sources, mobile sources, off-road equipment, and stationary sources (permitted equipment), which are discussed below. Emissions from the operational phase of the project were estimated using a combination of CalEEMod Version 2022.1.1.25 and a spreadsheet model based on industry standard emission factors and project-specific information. Operational year 2025 was conservatively assumed; however, operation would not overlap with construction.

### Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use and the reapplication of architectural coatings. Emissions from hearths and landscape maintenance equipment were not assumed to be applicable to this project.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2022). Consumer product VOC emissions are estimated in CalEEMod based on the floor area of nonresidential and residential buildings and on the default factor of pounds of VOC per building square foot per day. For the asphalt surface land uses, CalEEMod estimates VOC emissions associated with use of parking surface degreasers based on the square footage of parking surface area and pounds of VOC per square foot per day.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings, such as paints and primers, used during building maintenance. CalEEMod calculates the ROG (VOC) evaporative emissions from application of nonresidential and residential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emission factor is based on the VOC content of the surface coatings. The CalEEMod default values of 250 g/L were assumed for non-residential interior and exterior coatings and parking paint. The model default reapplication rate of 10% of area per year is assumed. Consistent with CalEEMod defaults, it is assumed that the nonresidential surface area for painting equals 2.0 times the floor square footage and residential surface area for painting equals 2.7 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating (CAPCOA 2022).

Default CalEEMod values were applied for consumer products and reapplication of architectural coating based on the land use inputs for the project.

### Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for greenhouse gas emissions in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

Electricity consumption was provided by the project applicant and estimated to be 142,677,840 kWh per year. There would be no natural gas consumption at the Lassen Facility. However, propane would be consumed at the Lassen Facility to power some of the stationary sources. The propane consumption is provided in Section 3.5, Energy, of this EIR.

### Mobile Sources

Mobile sources for the Lassen Facility that were modeled in CalEEMod would be employees, vendor trucks, and ash removal trucks traveling to and from the Lassen Facility. Logging/haul trucks would also be traveling to and from the Lassen Facility; however, the methodology for calculating emissions associated with feedstock logging/haul trucks was described in above in Section 3.2.4.1.1, Feedstock Acquisition. Trains would also be traveling to and

from the Lassen Facility; however, the methodology for calculating emissions association with rail transport is described in Section 3.2.4.1.3 below.

Operations at the facility would occur 7 days per week. As described in Section 3.14, Transportation, the facility would require 60 employees, resulting in 120 daily one-way trips, and 1 ash removal truck per day, resulting in 2 daily one-way trips. It was conservatively assumed that there would be 2 vendor trucks per day to deliver materials and perform intermittent maintenance, resulting in 4 daily one-way trips. The worker trip distance was assumed to be 35.415 miles, which is the estimated one-way trip length per employee from the OnTheMap application in the Lassen County VMT per Employee Summary as described in Section 3.14, Transportation. The vendor truck trip and ash removal truck trip distances were assumed to be the distance from the Lassen Facility to Susanville, the nearest city, which is approximately 75 miles.

Project-related traffic was assumed to include a mixture of vehicles in accordance with the associated use, as modeled within CalEEMod, which is based on the CARB EMFAC2021 model. The CalEEMod default fleet mix is a weighted fleet mix of all vehicles in the project region and is appropriate for most land use projects. However, as the project is manufacturing facility, vehicle trips are anticipated to be heavy-duty trucks and employee vehicles. The vehicle fleet mix was adjusted in CalEEMod based on the daily trips of the vehicle categories described above. Emission factors representing the vehicle mix and emissions for 2025 were used to estimate emissions associated with vehicular sources. To reflect the anticipated vehicles associated with the project, the CalEEMod default fleet mix was adjusted in accordance with the projects traffic analysis to reflect 10% non-logging haul and vendor trucks and 90% passenger vehicles.

#### Off-Road Equipment

It was assumed that 1 rough terrain forklift would operate in the log storage area, 1 tractor/loader/backhoe would operate in the fuel storage area, and 1 rubber tired loader would operate in the dryer furnace area. CalEEMod was used to estimate criteria air pollutant emissions of the operational off-road equipment assuming 24 hours of operation per day for 48 weeks per year. The operational off-road equipment information was provided by the applicant.

### Permitted Sources Facility Emissions

#### Raw Material Handling

The project will generate PM emissions from receiving and storage of raw wood materials consisting of roundwood and green residuals. Emissions of PM (including PM, $PM_{10}$, and $PM_{2.5}$) were estimated using the gross throughput of roundwood and green residuals (651,400 short tons per year [STPY] each). Roundwood receiving includes processing through truck unloading, log pile, drum debarker, and wood chipper. Green residuals are received at the facility in the form of wood chips, and receiving consists of truck unloading. Upon completion of receiving, all the resulting raw material, now in the form of chips, is processed through woodyard chip screening (1,302,799 STPY); woodyard fuel screening (117,872 STPY, consisting of the material screened out in the prior step); wood chip piles (1,184,927 STPY, consisting of the remaining material); and green hammermill screening (1,184,927 STPY). Emission factors for each stage in this process were derived from the US EPA AP-42 Section 13.2.4, *Aggregate Handling and Storage Piles* (EPA 2006).

### Green Hammermill

The project will use a green hammermill to reduce the size of the green residuals for suitable size for drying. This process generates VOC and TAC emissions. However, the emissions from the process are recirculated into the process stream and not exhausted. Therefore, no emissions are emitted from the green hammermill. The PM emissions from the green hammermill screening are discussed above in the raw material handling section.

### Dryer

A dryer is used by the project to reduce the moisture content of the green material. The emissions from the dryer include criteria air pollutant emissions from combustion of propane as well as VOC and TAC emissions from the drying of the pellets. The exhaust from the dryer is routed to a wet electrostatic precipitator (WESP) to reduce emissions of PM and a regenerative thermal oxidizer (RTO) to reduce emissions of CO, VOC, and TACs. Emission factors for the dryer were based on Georgia Environmental Protection Division (GAEPD) for rotary dryer, direct wood-fueled, processing green softwood at wood pellet manufacturing facility and US EPA AP-42 Section 10.6.2 *Particle Board Manufacturing*, Table 10.6.2-3 at particleboard manufacturing facility. Per the manufacturer's specifications, the WESP has a PM efficiency of 99% and the RTO has a CO and TAC efficiency of 50% and 95%, respectively. The annual throughput of the dryer (946,312 oven dried tons) is based on the maximum dry hammermill throughput. Oven dried tons is considered to equate to 10% moisture content.[11]

### Furnace Abort Operation

There are times when the RTO and WESP are down for maintenance or other reason and emissions from the dryer are not controlled. It was assumed that up to 8 hours per month the RTO and WESP would not be operating on the dryer. The emissions were based on the heat input of 160.6 million British thermal units per hour (MMBtu/hr) and emission factors from US EPA AP-42 Section 1.6, *Wood Residue Combustion*, Tables 1.6-1, 1.6-2, 1.6-3, and 1.6-4 (EPA 2022).

### RTO

The RTO is used to reduce emissions of CO and TACs from the dryer. The RTO operates on propane and the combustion emits criteria air pollutants and TACs. The RTO is rated at 11.4 MMBtu/hr and is assumed to operate 8,040 hours per year. Emissions were estimated based on emission factors from the US EPA AP-42 Section 1.5, *Liquefied Petroleum Gas Combustion* (EPA 2008b) and Section 1.4, *Natural Gas Combustion* (EPA 1998a).

### Dry Material Storage

The project will emit PM, VOC, and TAC emissions during the receiving and storage of dried material after they leave the dryer. PM emissions were estimated based on the dry chip storage throughput (946,312 STPY) and emission factors from US EPA AP-42 Section 13.2.4, *Aggregate Handling and Storage Piles* (EPA 2006). The material was assumed to have a moisture content of 10%. VOC and TAC emissions were estimated based on emission factors from GAEPD for storage/handling at a wood pellet manufacturing facility.

[11] In this and subsequent stages in the process, the progressively decreasing tonnage is the result of drying and reduced moisture content occurring as the raw materials are processed into pellets.

### Dry Hammermill

The dried material is then routed to a dry hammermill to reduce the size of the material even further before processing into pellets. The dry hammermill generates PM, VOC, and TAC emissions during its process. The PM emissions are based on the annual throughput of 946,312 STPY and emission factors from the cyclone vendor. The VOC and TAC emissions were based on the throughput and emission factors from the GAEPD for hammermill at a wood pellet manufacturing facility. The dry hammermill exhaust is also routed to a regenerative catalytic oxidizer (RCO) to reduce emissions of VOC and TACs by 95%.

### Pelleting System

Material that is reduced by the dry hammermill is routed to the pelleting system. The formation of pellets generates emissions of PM, VOC, and TACs. The PM emissions are based on the annual throughput of 877,753 STPY and emission factors from the baghouse vendor. The VOC and TAC emissions were based on the throughput and emission factors from the GAEPD for pelletizer/pellet cooler at a wood pellet manufacturing facility. The pelleting system exhaust is also routed to the RCO to reduce emissions of VOC and TACs.

### Pellet Storage

The storage and loadout of pellets will generator PM, VOC, and TAC emissions. PM emissions were estimated using the pellet storage annual throughput of 771,618 STPY and emission factors from the dust collector vendor. The VOC and TAC emissions were based on the throughput and emission factors from the GAEPD for storage/handling at a wood pellet manufacturing facility. The pellet storage exhaust is also routed to the RCO to reduce emissions of VOC and TACs.

### RCO

The RCO is used to reduce emissions of VOC and TACs from the dry hammermill, pelleting, and pellet storage from the project. The RCO operates on propane and the combustion emits criteria air pollutants and TACs. The RCO is rated at 8.3 MMBtu/hr and is assumed to operate 8,040 hours per year. Emissions were estimated based on emission factors from the US EPA AP-42 Section 1.5, *Liquefied Petroleum Gas Combustion* (EPA 2008b) and Section 1.4, *Natural Gas Combustion* (EPA 1998a).

### Fire Pump

The project includes a diesel fire pump for use in case there is a fire. The fire pump is rated at 150 horsepower and is assumed to operate up to 200 hours per year for maintenance and testing. Emissions of criteria air pollutants and TACs were estimated using emission factors from the US EPA AP-42 Section 3.3, *Gasoline and Diesel Industrial Engines*, Table 3.3-1 and 3.3-2 (EPA 1996a).

### Operational Ambient Air Quality Analysis

An ambient air quality impacts assessment was performed to assess the project's potential impact on the County meeting the CAAQS and NAAQS. As the Lassen County APCD does not have guidance for performing an ambient air quality analysis, the San Joaquin Valley APCD APR-1925 was followed as discussed below (San Joaquin Valley APCD 2019). The San Joaquin Valley APCD GAMAQI recommends preparing an AAQA if onsite emissions exceed 100 pounds per day.

The dispersion modeling was performed using the AERMOD. Principal parameters of this Level 1 modeling are presented in Table 3.2-12. Complete model results for the AAQA are included as Appendix B3.

## Table 3.2-12. AERMOD Principal Parameters – Lassen Operational Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| Meteorological Data | The latest 5-year meteorological data (2016–2021) for the Alturas Municipal Airport (Station ID 725958) from CARB were downloaded and then input to AERMOD. | | | |
| Urban versus Rural Option | Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method specified in 40 CFR Part 51 Appendix W, the rural dispersion option was selected due to the predominant land use surrounding the project. | | | |
| Terrain Characteristics | The terrain in the vicinity of the modeled project site is generally flat. The elevation of the modeled site is about 4,120 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. | | | |
| Elevation Data | Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution. | | | |
| Emission Sources | Only onsite operational emissions were modeled for this assessment to determine the highest offsite concentration. For emission sources that extend offsite (rail and haul trucks), the length of the source was limited to within the project boundary. Emissions were modeled using line-volume, point, and area sources within AERMOD. | | | |
| Source Release Characterizations | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE1 | Rail Travel[a] | Line Volume | Plume Height: 9.7 m<br>Plume Width: 4.05 m<br>Release Height: 4.85 m<br>Emission Rate: 1 g/s |
| | SLINE2 | Haul Truck Emissions[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE4 | Wheeled Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE5 | Offroad Equipment Fuel Storage[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE6 | Offroad Equipment Dryer Furnace[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | PAREA1 | Log Pile[c] | Area Poly | Release Height: 1 m<br>Emission Rate: 1 g/s |

## Table 3.2-12. AERMOD Principal Parameters – Lassen Operational Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | | | | Area: 133,491.7 $m^2$ |
| | PAREA2 | Woodyard Chip Piles[c] | Area Poly | Release Height: 25.908 m<br>Initial Vertical Dimension: 51.82 m<br>Emission Rate: 1 g/s<br>Area: 10,353.5 $m^2$ |
| | VOL1 | Drum Debarker[c] | Volume | Release Height: 7.62 m<br>Length of Side: 64.73 m<br>Initial Lateral Dimension: 15.05 m<br>Initial Vertical Dimension: 1.77 m<br>Emission Rate: 1 g/s |
| | VOL2 | Roundwood Truck Unloading[c] | Volume | Release Height: 3.4 m<br>Length of Side: 66.3 m<br>Initial Lateral Dimension: 15.42 m<br>Initial Vertical Dimension: 1.58 m<br>Emission Rate: 1 g/s |
| | VOL3 | Log Chipper[c] | Volume | Release Height: 4.572 m<br>Length of Side: 34.94 m<br>Initial Lateral Dimension: 8.13 m<br>Initial Vertical Dimension: 9.14 m<br>Emission Rate: 1 g/s |
| | VOL4 | Residuals Truck Unloading Dust[c] | Volume | Release Height: 3.048 m<br>Length of Side: 60.08 m<br>Initial Lateral Dimension: 13.97 m<br>Initial Vertical Dimension: 1.42 m<br>Emission Rate: 1 g/s |
| | VOL5 | Woodyard Chip Screening[c] | Volume | Release Height: 10.668 m<br>Length of Side: 30.57 m<br>Initial Lateral Dimension: 7.11 m<br>Initial Vertical Dimension: 4.96 m<br>Emission Rate: 1 g/s |
| | VOL6 | Woodyard Fuel Screening[c] | Volume | Release Height: 10.668 m<br>Length of Side: 41.11 m<br>Initial Lateral Dimension: 9.56 m<br>Initial Vertical Dimension: 4.96 m<br>Emission Rate: 1 g/s |
| | VOL7 | Green Hammermill Screening[c] | Volume | Release Height: 21.336 m<br>Length of Side: 28.46 m<br>Initial Lateral Dimension: 6.62 m<br>Initial Vertical Dimension: 9.92 m<br>Emission Rate: 1 g/s |
| | VOL8 | Dry Chips Storage[c] | Volume | Release Height: 21.336 m<br>Length of Side: 24.24 m<br>Initial Lateral Dimension: 5.64 m<br>Initial Vertical Dimension: 9.92 m<br>Emission Rate: 1 g/s |

## Table 3.2-12. AERMOD Principal Parameters – Lassen Operational Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | STCK1 | Rail Idling[a] | Point | Release Height: 4.9 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 195.53 F<br>Stack Inside Diameter: 0.6 m<br>Gas Exit Velocity: 3.1 m/s |
| | STCK2 | Dryer[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 330.0 F<br>Stack Inside Diameter: 1.929 m<br>Gas Exit Velocity: 37.559 m/s |
| | STCK3 | RCO Burners[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 250.0 F<br>Stack Inside Diameter: 2.996 m<br>Gas Exit Velocity: 0.004 m/s |
| | STCK4 | RTO Burners[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 330.0 F<br>Stack Inside Diameter: 1.929 m<br>Gas Exit Velocity: 0.012 m/s |
| | STCK5 | Furnace Abort[c] | Point | Release Height: 26.213 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 1,335.0 F<br>Stack Inside Diameter: 1.289 m<br>Gas Exit Velocity: 80.685 m/s |
| | STCK6 | Dry Hammermill[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 2.997 m<br>Gas Exit Velocity: 6.69 m/s |
| | STCK7 | Pellet Mill and Cooler[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 250.0 F<br>Stack Inside Diameter: 2.997 m<br>Gas Exit Velocity: 6.689 m/s |
| | STCK8 | Pellet Storage[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 2.997 m<br>Gas Exit Velocity: 3.345 m/s |
| | STCK9 | Fire Pump[c] | Point | Release Height: 3.658 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 300.0 F<br>Stack Inside Diameter: 0.101 m<br>Gas Exit Velocity: 45.438 m/s |

## Table 3.2-12. AERMOD Principal Parameters – Lassen Operational Air Quality Impact Assessment

| Parameter | Details |
|---|---|
| Receptors | A telescoping grid of receptors was placed around the project site boundary in the following spacing: 25-meter spacing on the facility boundary; 25-meter spacing from the facility boundary to 100 meters; 50-meter spacing from 100 meters to 250 meters; 100-meter spacing from 250 meters to 500 meters; 250-meter spacing from 500 meters to 1,000 meters; and 500-meter spacing from 1,000 meters to 2,000 meters. |

**Sources:** [a] Port of Stockton 2021; [b] EPA 2023b; [c] Nexus 2024.
**Notes:** g/s = grams per second; ID = Identification; F = degrees Fahrenheit; m = meters.
See Appendix B3 for additional information.

### Health Risk Assessment

The greatest potential for TAC emissions during project construction would be DPM emissions from heavy equipment operations and heavy-duty trucks. During operation, the project would emit DPM from offroad, onroad, and rail sources in addition to TACs from various processes at the plant. As a precautionary measure, an HRA was performed to assess the impact of construction and operation on sensitive receptors proximate to the Lassen Facility and along key travel corridors. Complete model results for the HRA are included as Appendix B4. For risk assessment purposes, $PM_{10}$ in diesel exhaust is considered a proxy for DPM.[12] Emissions of TACs during construction were estimated using CalEEMod. During operation, emissions of TACs were estimated using CalEEMod and a spreadsheet model with emission factors from US EPA AP-42 and GAEPD.

The HRA applies the methodologies prescribed in the Office of Environmental Health Hazard Assessment (OEHHA) document, Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). Cancer risk parameters, such as age-sensitivity factors, daily breathing rates, exposure period, fraction of time at home, and cancer potency factors were based on the values and data recommended by OEHHA are implemented in CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2), which was used to estimate risk from construction activities.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. Lassen County APCD has not established a carcinogenic (cancer) risk or health hazard threshold for CEQA purposes; however, a cancer risk threshold of 10 in one million and a Chronic Hazard Index significance of 1.0 was applied for the Lassen Facility impact analysis consistent with the Lassen County APCD's implementation of AB 2588 Air Toxics Hots Spots Information and Assessment Act program (Lassen County APCD 2020). For context, the National Cancer Institute estimates that approximately 40.5% of people will be diagnosed with cancer during their lifetimes (National Cancer Institute 2024). A cancer risk of 10 in a million indicates that a person has an additional risk of 10 chances in a million (0.001%) of developing cancer during their lifetime as a result of the air pollution scenario being evaluated, which is minimal and defined as the "No Significant Risk Level" for carcinogens in Proposition 65. Additionally, some TACs increase noncancer health risk due to long-term (chronic) exposures. The Chronic Hazard Index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system.

[12] Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. The California EPA is a proponent of using the surrogate approach to quantifying cancer risks associated with diesel exhaust over a component-based approach, which involves estimating risks for each of the individual components of a mixture. The California EPA has concluded that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multi-pathway cancer risk from the speciated components" (OEHHA 2003).

A dispersion modeling analysis was conducted of TACs emitted from the project to assess the health risk impacts of the construction and operation on proximate existing off-site sensitive receptors.

The dispersion modeling was performed using AERMOD, which is the model Lassen County APCD requires for atmospheric dispersion of emissions. The dispersion modeling included the use of standard regulatory default options. AERMOD parameters were selected consistent with the EPA guidance and identified as representative of the project site and project activities. Principal parameters of this modeling are presented in Table 3.2-13.

## Table 3.2-13. AERMOD Principal Parameters – Lassen Health Risk Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| Meteorological Data | The latest 5-year meteorological data (2016–2021) for the Alturas Municipal Airport (Station ID 725958) from CARB were downloaded and then input to AERMOD. | | | |
| Urban versus Rural Option | Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method specified in 40 CFR Part 51 Appendix W, the rural dispersion option was selected due to the predominant land use surrounding the project. | | | |
| Terrain Characteristics | The terrain in the vicinity of the modeled project site is generally flat. The elevation of the modeled site is about 4,120 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. | | | |
| Elevation Data | Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution. | | | |
| Emission Sources | Emissions from onsite and offsite sources (rail and haul trucks) were modeled within a 8 kilometer grid around the project site. | | | |
| Source Release Characterizations - Construction | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE1 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.753 g/s[1] |
| | SLINE2 | Haul Trucks SW[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.527 g/s[2] |
| | SLINE3 | Haul Trucks NE[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.473 g/s[2] |
| | SLINE4 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.247 g/s[1] |

## Table 3.2-13. AERMOD Principal Parameters – Lassen Health Risk Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| Source Release Characterizations - Operation | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE1 | Rail Travel[a] | Line Volume | Plume Height: 9.7 m<br>Plume Width: 4.05 m<br>Release Height: 4.85 m<br>Emission Rate: 1 g/s |
| | SLINE2 | Haul Trucks SW[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.527 g/s[3] |
| | SLINE3 | Haul Trucks NE[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.473 g/s[3] |
| | SLINE5 | Wheeled Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE6 | Offroad Equipment Dryer Furnace[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE7 | Offroad Equipment Fuel Storage[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | VOL8 | Dry Chips Storage[c] | Volume | Release Height: 21.336 m<br>Length of Side: 24.24 m<br>Initial Lateral Dimension: 5.64 m<br>Initial Vertical Dimension: 9.92 m<br>Emission Rate: 1 g/s |
| | STCK1 | Rail Idling[a] | Point | Release Height: 4.9 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 195.53 F<br>Stack Inside Diameter: 0.6 m<br>Gas Exit Velocity: 3.1 m/s |
| | STCK2 | Dryer[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 330.0 F<br>Stack Inside Diameter: 1.929 m<br>Gas Exit Velocity: 37.559 m/s |
| | STCK3 | RCO Burners[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 250.0 F<br>Stack Inside Diameter: 2.996 m |

## Table 3.2-13. AERMOD Principal Parameters – Lassen Health Risk Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | | | | Gas Exit Velocity: 0.004 m/s |
| | STCK4 | RTO Burners[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 330.0 F<br>Stack Inside Diameter: 1.929 m<br>Gas Exit Velocity: 0.012 m/s |
| | STCK5 | Furnace Abort[c] | Point | Release Height: 26.213 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 1,335.0 F<br>Stack Inside Diameter: 1.289 m<br>Gas Exit Velocity: 80.685 m/s |
| | STCK6 | Dry Hammermill[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 2.997 m<br>Gas Exit Velocity: 6.69 m/s |
| | STCK7 | Pellet Mill and Cooler[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 250.0 F<br>Stack Inside Diameter: 2.997 m<br>Gas Exit Velocity: 6.689 m/s |
| | STCK8 | Pellet Storage[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 2.997 m<br>Gas Exit Velocity: 3.345 m/s |
| | STCK9 | Fire Pump[c] | Point | Release Height: 3.658 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 300.0 F<br>Stack Inside Diameter: 0.101 m<br>Gas Exit Velocity: 45.438 m/s |
| Receptors | Discrete cartesian receptors were placed on sensitive receptors in close proximity to the project site and haul truck/rail routes. | | | |

**Sources:** [a] Port of Stockton 2021; [b] EPA 2023b; [c] Nexus 2024.
**Notes:** g/s = grams per second; ID = Identification; F = degrees Fahrenheit; m = meters.
1 An emission rate of 1 g/s was divided equally between the number of volume sources within the sources modeled.
2 An emission rate of 1 g/s was divided equally between the number of volume sources within the sources modeled.
3 An emission rate of 1 g/s was divided equally between the number of volume sources within the sources modeled.
See Appendix B4 for additional information.

AERMOD was run with all sources emitting unit emissions (1 gram per second) to obtain the necessary input values for CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2). The line of volume sources was partitioned evenly based on the 1 gram per second emission rate. The ground-level concentration plot files were then used to estimate the long-term cancer health risk to an individual, and the noncancerous chronic health indices.

Dispersion model plotfiles from AERMOD were then imported into CARB's HARP2 to determine health risk, which requires peak 1-hour emission rates and annual emission rates for all pollutants for each modeling source. The

exposure duration for the construction emissions was 1.25 years starting in the 3rd trimester of pregnancy. The operational exposure duration was assumed to be 30 years starting in the 3rd trimester of pregnancy. The results from the construction and operational assessment were summed to provide the combined risk results from the project. The risk results were then compared to Lassen County APCD thresholds to assess project impact significance.

## Tuolumne Facility

SDFs are incorporated as enforceable best practices to reduce criteria air pollutant emissions and other environmental impacts, which include SDF-AQ-1, SDF-AQ-2, and SDF-AQ-3 as introduced under the Lassen Facility. SDF-AQ-1 requires all project activities to comply with the applicable air district requirements. SDF-AQ-2 requires the project to implement a construction fugitive dust control plan to reduce project-generated dust. SDF-AQ-3 requires the project to implement an odor abatement plan.

### Construction Mass Emissions

For purposes of estimating project emissions, and based on information provided by the project applicant, it is assumed that construction of the Tuolumne Facility would commence in October 2024 and would last approximately 15 months, ending in December 2025.[13] Table 3.2-14 presents the construction scenario assumptions used for estimating construction emissions of the Tuolumne Facility in CalEEMod. The construction schedule and equipment load has been developed based on available information provided by the project applicant, typical construction practices, and CalEEMod default assumptions.

Construction of the Tuolumne facility would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application. An approximately 6,000 square foot building is on the existing site and would be demolished. An estimated 114,675 cubic yards of soils would be exported during the grading phase, resulting in 166 one-way haul truck trips per day. Vendor and haul trucks during the Demolition, Site Preparation, and Grading phases were also modeled as on-site trucks in CalEEMod and were assumed to travel on-site for approximately 0.25 miles. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in $PM_{10}$ and $PM_{2.5}$ emissions. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day, depending on weather conditions. SDF-AQ-2 would implement a dust control plan that would further reduce fugitive dust emissions.

The worker trip distance was assumed to be 50.2 miles, which is the estimated one-way trip length per employee from Table 3.14-6, “Summary of Project Area VMT,” as described in Chapter 3.14, Transportation. [14] The vendor trip and haul truck trip distances were assumed to be the distance from the Tuolumne Facility to Modesto, the nearest city, which is approximately 35 miles.

[13] The analysis assumes a construction start date of October 2024, which represents the earliest date construction was anticipated to potentially initiate at the time the analysis was performed. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

[14] The Table indicates that the daily (i.e., roundtrip) VMT for employees working in the Lake Don Pedro Subarea of Tuolumne County, where the project is located, is 100.4, half of which (i.e., one-way) is 50.2.

## Table 3.2-14. Tuolumne Facility Construction Scenario Assumptions

| Construction Phase | Start Date | Finish Date | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average Daily Workers | Average Daily Vendor Trucks | Average Daily Haul Trucks | Type | Quantity | Usage Hours |
| Demolition | 10/1/2024 | 12/1/2024 | 18 | 4 | 2 | Concrete/ Industrial Saws | 1 | 8 |
| | | | | | | Crawler Tractors | 1 | 8 |
| | | | | | | Excavators | 3 | 8 |
| | | | | | | Rubber Tired Loaders | 2 | 8 |
| Site Preparation | 11/15/2024 | 12/1/2024 | 18 | 4 | 0 | Rubber Tired Dozers | 3 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 4 | 8 |
| Grading (Including Utilities) | 12/1/2024 | 4/1/2025 | 16 | 4 | 166 | Excavators | 1 | 8 |
| | | | | | | Graders | 1 | 8 |
| | | | | | | Rubber Tired Dozers | 1 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 3 | 8 |
| Utility Line Stringing | 4/2/2025 | 8/2/2025 | 24 | 4 | 0 | Aerial Lifts | 2 | 8 |
| | | | | | | Cranes | 1 | 7 |
| | | | | | | Forklifts | 2 | 8 |
| | | | | | | Generator Sets | 2 | 8 |
| | | | | | | Tensioners[1] | 2 | 8 |
| Building/ Vertical Construction | 2/1/2025 | 12/1/2025 | 108 | 42 | 0 | Cranes | 5 | 7 |
| | | | | | | Forklifts | 8 | 8 |
| | | | | | | Generator Sets | 6 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 3 | 7 |
| | | | | | | Welders | 20 | 8 |
| Rail Spurs Construction | 1/1/2025 | 5/1/2025 | 10 | 4 | 0 | Excavators | 1 | 8 |
| | | | | | | Rubber Tired Dozers | 1 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 1 | 8 |

## Table 3.2-14. Tuolumne Facility Construction Scenario Assumptions

| Construction Phase | Start Date | Finish Date | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average Daily Workers | Average Daily Vendor Trucks | Average Daily Haul Trucks | Type | Quantity | Usage Hours |
| | | | | | | Rail Tampers[2] | 1 | 8 |
| Paving | 2/1/2025 | 4/1/2025 | 16 | 4 | 0 | Pavers | 2 | 8 |
| | | | | | | Paving Equipment | 2 | 8 |
| | | | | | | Rollers | 2 | 8 |
| Architectural Coating | 11/1/2025 | 11/30/2025 | 44 | 4 | 0 | Air Compressors | 1 | 6 |

**Notes:** See Appendix B1 for additional details.
[1] Tensioners modeled as Other Construction Equipment in CalEEMod at 270 hp.
[2] Rail Tampers modeled as Other Construction Equipment in CalEEMod at 280 hp.

Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), haul trucks, and worker vehicles would result in emissions of VOCs, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions.

### Construction Ambient Air Quality Analysis

An ambient air quality analysis was performed to assess the project's potential impact on the County meeting the CAAQS and NAAQS. As the Tuolumne County APCD does not have guidance for performing an ambient air quality analysis, the San Joaquin Valley APCD APR-1925 was followed as discussed below (San Joaquin Valley APCD 2019). The San Joaquin Valley APCD GAMAQI recommends preparing an AAQA if onsite emissions exceed 100 pounds per day. AERMOD. Principal parameters of this Level 1 modeling are presented in Table 3.2-15. Complete model results for the AAQA are included as Appendix B3.

## Table 3.2-15. AERMOD Principal Parameters – Tuolumne Construction Air Quality Impact Assessment

| Parameter | Details |
|---|---|
| Meteorological Data | The latest 5-year meteorological data (2018–2022) for the Modesto Station (Station ID 23258) from the San Joaquin Valley APCD were downloaded and then input to AERMOD. |
| Urban versus Rural Option | Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method specified in 40 CFR Part 51 Appendix W, the rural dispersion option was selected due to the predominant land use surrounding the project. |
| Terrain Characteristics | The terrain in the vicinity of the modeled project site is generally hilly. The elevation of the modeled site is about 1,107 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. |
| Elevation Data | Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD |

## Table 3.2-15. AERMOD Principal Parameters – Tuolumne Construction Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution. | | | |
| Emission Sources | Only onsite operational emissions were modeled for this assessment to determine the highest offsite concentration. For emission sources that extend offsite (haul trucks), the length of the source was limited to within the project boundary. Emissions were modeled using line-volume sources within AERMOD. | | | |
| Source Release Characterizations | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE3 | Offroad Equipment and Haul Trucks[a] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| Receptors | A telescoping grid of receptors was placed around the project site boundary in the following spacing: 25-meter spacing on the facility boundary; 25-meter spacing from the facility boundary to 100 meters; 50-meter spacing from 100 meters to 250 meters; 100-meter spacing from 250 meters to 500 meters; 250-meter spacing from 500 meters to 1,000 meters; and 500-meter spacing from 1,000 meters to 2,000 meters. | | | |

**Sources:** [a] EPA 2023b.
**Notes:** g/s = grams per second; ID = Identification; F = degrees Fahrenheit; m = meters.
See Appendix B3 for additional information.

### Operational Mass Emissions

Project operational activities at the Tuolumne Facility would potentially generate VOC, $NO_x$, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$ emissions from area sources, energy sources, mobile sources, off-road equipment, and permitted sources, which are discussed below. Emissions from the operational phase of the project were estimated using a combination of CalEEMod Version 2022.1.1.25 and a spreadsheet model based on industry standard emission factors and project-specific information. Operational year 2025 was conservatively assumed; however, operation would not overlap with construction.

#### Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use and the reapplication of architectural coatings. Emissions from hearths and landscape maintenance equipment were not assumed to be applicable to this project.

The description of the consumer products and reapplication of architectural coating provided for the Lassen Facility operational area sources are the same for the Tuolumne Facility. Default CalEEMod values were applied for consumer products and the reapplication of architectural coating based on the land use inputs for the project.

#### Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only

quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

Electricity consumption was provided by the project applicant and estimated to be 94,807,680 kWh per year. There would be no natural gas consumption at the Tuolumne Facility. However, propane would be consumed at the Tuolumne Facility to power some of the stationary sources. The propane consumption is provided in Chapter 3.5, Energy, of this EIR.

### Mobile Sources

Mobile sources for the Tuolumne Facility would be employees, vendor trucks, and ash removal trucks traveling to and from the facility. Logging/haul trucks would also be traveling to and from the Tuolumne Facility; however, the methodology for calculating emissions associated with feedstock was described in above in Section 3.2.4.1.1, Feedstock Acquisition. Trains would also be traveling to and from the Tuolumne Facility; however, the methodology for calculating emissions association with rail transport is described in Section 3.2.4.1.3 below.

Operations at the facility would occur 7 days per week. As described in Chapter 3.14, Transportation, the facility would require 51 workers, resulting in 102 daily one-way trips, and 1 ash removal truck per day, resulting in 2 daily one-way trips. It was conservatively assumed that there would be 2 vendor trucks per day to deliver materials and perform intermittent maintenance, resulting in 4 daily one-way trips. The worker trip distance was assumed to be 50.2 miles, which is the estimated one-way trip length per employee from the Tuolumne County VMT Summary as described in Chapter 3.14, Transportation. The vendor truck trip and ash truck trip distances were assumed to be the distance from the Tuolumne Facility to Modesto, the nearest city, which is approximately 35 miles. The fleet mix was adjusted in CalEEMod based on the daily trips of the vehicle categories described above.

Project-related traffic was assumed to include a mixture of vehicles in accordance with the associated use, as modeled within CalEEMod, which is based on the CARB EMFAC2021 model. The CalEEMod default fleet mix is a weighted fleet mix of all vehicles in the project region and is appropriate for most land use projects. However, as the project is manufacturing facility, vehicle trips are anticipated to be heavy-duty trucks and employee vehicles. The vehicle fleet mix was adjusted in CalEEMod based on the daily trips of the vehicle categories described above. Emission factors representing the vehicle mix and emissions for 2025 were used to estimate emissions associated with vehicular sources. To reflect the anticipated vehicles associated with the project, the CalEEMod default fleet mix was adjusted in accordance with the projects traffic analysis to reflect 4% non-logging haul and vendor trucks and 96% passenger vehicles.

### Off-Road Equipment

It was assumed that 1 rough terrain forklift would operate in the log storage area, 1 tractor/loader/backhoe would operate in the fuel storage area, and 1 rubber tired loader would operate in the dryer furnace area. CalEEMod was used to estimate criteria air pollutant emissions of this operational off-road equipment assuming 24 hours of operation per day for 48 weeks per year. Furthermore, 1 railcar mover (i.e., trackmobile) would move the train cars. In CalEEMod, the railcar mover was modeled as “Other Construction Equipment” at 200 horsepower and assuming 4 hours of operation per day for 48 weeks per year. The operational off-road equipment information was provided by the applicant.

## Permitted Sources Facility Emissions

### Raw Material Handling

The project will generate PM emissions from receiving and storage of raw wood materials consisting of roundwood and green residuals. Emissions of PM (including PM, $PM_{10}$, and $PM_{2.5}$) were estimated using the gross throughput of roundwood (322,704 STPY) and green residuals (264,108 STPY). Roundwood receiving includes processing through truck unloading, log pile, drum debarker, and wood chipper. Green residuals are received at the facility in the form of wood chips, and receiving consists of truck unloading. Upon completion of receiving, all the resulting raw material, now in the form of chips, is processed through woodyard chip screening (586,811 STPY); woodyard fuel screening (67,938 STPY, consisting of the material screened out in the prior step); wood chip piles (518,874 STPY, consisting of the remaining material); and green hammermill screening (518,874 STPY). Emission factors for each stage in this process were derived from the US EPA AP-42 Section 13.2.4, *Aggregate Handling and Storage Piles* (EPA 2006).

### Green Hammermill

The project will use a green hammermill to reduce the size of the green residuals for suitable size for drying. This process generates VOC and TAC emissions. However, the emission from the process are recirculated into the process stream and not exhausted. Therefore, no emissions are emitted from the green hammermill. The PM emissions from the green hammermill screening are discussed above in the raw material handling section.

### Dryer

A dryer is used by the project to reduce the moisture content of the green material. The emissions from the dryer include criteria air pollutant emissions from combustion of propane as well as VOC and TAC emissions from the drying of the pellets. The exhaust from the dryer is routed to a wet electrostatic precipitator (WESP) to reduce emissions of PM and a regenerative thermal oxidizer (RTO) to reduce emissions of CO, VOC, and TACs. Emission factors for the dryer were based on Georgia Environmental Protection Division (GAEPD) for rotary dryer, direct wood-fueled, processing green softwood at wood pellet manufacturing facility and US EPA AP-42 Section 10.6.2 *Particle Board Manufacturing*, Table 10.6.2-3 at particleboard manufacturing facility. Per the manufacturer's specifications, the WESP has a PM efficiency of 99% and the RTO has a CO and TAC efficiency of 50% and 95%, respectively. The annual throughput of the dryer (405,562 oven dried tons) is based on the maximum dry hammermill throughput. Oven dried tons is considered to equate to 10% moisture content.[15]

### Furnace Abort Operation

There are times when the RTO and WESP are down for maintenance or other reason and emissions from the dryer are not controlled. It was assumed that up to 8 hours per month the RTO and WESP would not be operating on the dryer. The emissions were based on the heat input of 83.0 MMBtu/hr and emission factors from US EPA AP-42 Section 1.6, *Wood Residue Combustion*, Tables 1.6-1, 1.6-2, 1.6-3, and 1.6-4 (EPA 2022).

[15] In this and subsequent stages in the process, the progressively decreasing tonnage is the result of drying and reduced moisture content occurring as the raw materials are processed into pellets.

### RTO

The RTO is used to reduce emissions of CO and TACs from the dryer. The RTO operates on propane and the combustion emits criteria air pollutants and TACs. The RTO is rated at 5.7 MMBtu/hr and is assumed to operate 8,040 hours per year. Emissions were estimated based on emission factors from the US EPA AP-42 Section 1.5, *Liquefied Petroleum Gas Combustion* (EPA 2008b) and Section 1.4, *Natural Gas Combustion* (EPA 1998a).

### Dry Material Storage

The project will emit PM, VOC, and TAC emissions during the receiving and storage of dried material after they leave the dryer. PM emissions were estimated based on the dry chip storage throughput (405,562 STPY) and emission factors from US EPA AP-42 Section 13.2.4, *Aggregate Handling and Storage Piles* (EPA 2006). The material was assumed to have a moisture content of 10%. VOC and TAC emissions were estimated based on emission factors from GAEPD for storage/handling at a wood pellet manufacturing facility.

### Dry Hammermill

The dried material is then routed to a dry hammermill to reduce the size of the material even further before processing into pellets. The dry hammermill generates PM, VOC, and TAC emissions during its process. The PM emissions are based on the annual throughput of 405,562 STPY and emission factors from the cyclone vendor. The VOC and TAC emissions were based on the throughput and emission factors from the GAEPD for hammermill at a wood pellet manufacturing facility. The dry hammermill exhaust is also routed to a regenerative catalytic oxidizer (RCO) to reduce emissions of VOC and TACs by 95%.

### Pelleting System

Material that is reduced by the dry hammermill is routed to the pelleting system. The formation of pellets generates emissions of PM, VOC, and TACs. The PM emissions are based on the annual throughput of 370,800 STPY and emission factors from the baghouse vendor. The VOC and TAC emissions were based on the throughput and emission factors from the GAEPD for pelletizer/pellet cooler at a wood pellet manufacturing facility. The pelleting system exhaust is also routed to the RCO to reduce emissions of VOC and TACs.

### Pellet Storage

The storage and loadout of pellets will generator PM, VOC, and TAC emissions. PM emissions were estimated using the pellet storage annual throughput of 330,693 STPY and emission factors from the dust collector vendor. The VOC and TAC emissions were based on the throughput and emission factors from the GAEPD for storage/handling at a wood pellet manufacturing facility. The pellet storage exhaust is also routed to the RCO to reduce emissions of VOC and TACs.

### RCO

The RCO is used to reduce emissions of VOC and TACs from the dry hammermill, pelleting, and pellet storage from the project. The RCO operates on propane and the combustion emits criteria air pollutants and TACs. The RCO is rated at 8.3 MMBtu/hr and is assumed to operate 8,040 hours per year. Emissions were estimated based on emission factors from the US EPA AP-42 Section 1.5, *Liquefied Petroleum Gas Combustion* (EPA 2008b) and Section 1.4, *Natural Gas Combustion* (EPA 1998a).

### Fire Pump

The project includes a diesel fire pump for use in case there is a fire. The fire pump is rated at 150 horsepower and is assumed to operate up to 200 hours per year for maintenance and testing. Emissions of criteria air pollutants and TACs were estimated using emission factors from the US EPA AP-42 Section 3.3, *Gasoline and Diesel Industrial Engines*, Table 3.3-1 and 3.3-2 (EPA 1996a).

### Operational Ambient Air Quality Analysis

An ambient air quality impacts assessment was performed to assess the project's potential impact on the County meeting the CAAQS and NAAQS during operation. As the Tuolumne County APCD does not have guidance for performing an ambient air quality analysis, the San Joaquin Valley APCD APR-1925 was followed as discussed below (San Joaquin Valley APCD 2019). The San Joaquin Valley APCD GAMAQI recommends preparing an AAQA if onsite emissions exceed 100 pounds per day. Principal parameters of this Level 1 modeling are presented in Table 3.2-16. Complete model results for the AAQA are included as Appendix B3.

## Table 3.2-16. AERMOD Principal Parameters – Tuolumne Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| Meteorological Data | The latest 5-year meteorological data (2018–2022) for the Modesto Station (Station ID 23258) from the San Joaquin Valley APCD were downloaded and then input to AERMOD. | | | |
| Urban versus Rural Option | Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method specified in 40 CFR Part 51 Appendix W, the rural dispersion option was selected due to the predominant land use surrounding the project. | | | |
| Terrain Characteristics | The terrain in the vicinity of the modeled project site is generally hilly. The elevation of the modeled site is about 1,107 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. | | | |
| Elevation Data | Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution. | | | |
| Emission Sources | Only onsite operational emissions were modeled for this assessment to determine the highest offsite concentration. For emission sources that extend offsite (rail and haul trucks), the length of the source was limited to within the project boundary. Emissions were modeled using line-volume, point, and area sources within AERMOD. | | | |
| Source Release Characterizations | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE3 | Rail Travel[a] | Line Volume | Plume Height: 9.7 m<br>Plume Width: 4.05 m<br>Release Height: 4.85 m<br>Emission Rate: 1 g/s |
| | SLINE4 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |

## Table 3.2-16. AERMOD Principal Parameters – Tuolumne Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | SLINE5 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE6 | Dryer Furnace Ash Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE7 | Haul Trucks[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | PAREA1 | Log Pile[c] | Area Poly | Release Height: 1 m<br>Emission Rate: 1 g/s<br>Area: 22,462.7 $m^2$ |
| | PAREA2 | Woodyard Chip Piles[c] | Area Poly | Release Height: 34.138 m<br>Initial Vertical Dimension: 68.28 m<br>Emission Rate: 1 g/s<br>Area: 6,466.5 $m^2$ |
| | VOL1 | Roundwood and Residuals Truck Unloading[c] | Volume | Release Height: 3.4 m<br>Length of Side: 30.82 m<br>Initial Lateral Dimension: 7.17 m<br>Initial Vertical Dimension: 1.58 m<br>Emission Rate: 1 g/s |
| | VOL2 | Drum Debarker[c] | Volume | Release Height: 7.62 m<br>Length of Side: 27.74 m<br>Initial Lateral Dimension: 6.45 m<br>Initial Vertical Dimension: 3.54 m<br>Emission Rate: 1 g/s |
| | VOL3 | Chipper[c] | Volume | Release Height: 4.572 m<br>Length of Side: 19.72 m<br>Initial Lateral Dimension: 4.59 m<br>Initial Vertical Dimension: 2.13 m<br>Emission Rate: 1 g/s |
| | VOL4 | Woodyard Chip Screening[c] | Volume | Release Height: 10.668 m<br>Length of Side: 12.94 m<br>Initial Lateral Dimension: 3.01 m<br>Initial Vertical Dimension: 4.96 m<br>Emission Rate: 1 g/s |
| | VOL5 | Green Hammermill Screening[c] | Volume | Release Height: 13.716 m<br>Length of Side: 19.72 m<br>Initial Lateral Dimension: 4.59 m<br>Initial Vertical Dimension: 6.38 m<br>Emission Rate: 1 g/s |
| | VOL6 | Dry Chips Storage[c] | Volume | Release Height: 18.288 m |

## Table 3.2-16. AERMOD Principal Parameters – Tuolumne Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | | | | Length of Side: 19.72 m<br>Initial Lateral Dimension: 4.59 m<br>Initial Vertical Dimension: 8.51 m<br>Emission Rate: 1 g/s |
| | STCK1 | Dryer[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 330.0 F<br>Stack Inside Diameter: 1.93 m<br>Gas Exit Velocity: 18.762 m/s |
| | STCK2 | RTO Burners[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 330.0 F<br>Stack Inside Diameter: 1.93 m<br>Gas Exit Velocity: 0.006 m/s |
| | STCK3 | Furnace Abort[c] | Point | Release Height: 26.213 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 1,335.0 F<br>Stack Inside Diameter: 1.295 m<br>Gas Exit Velocity: 79.927 m/s |
| | STCK4 | Dry Hammermill[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 2.996 m<br>Gas Exit Velocity: 3.347 m/s |
| | STCK5 | Pellet Mill[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 250.0 F<br>Stack Inside Diameter: 2.996 m<br>Gas Exit Velocity: 3.347 m/s |
| | STCK6 | RCO Burners[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 250.0 F<br>Stack Inside Diameter: 2.996 m<br>Gas Exit Velocity: 0.004 m/s |
| | STCK7 | Fire Pump[c] | Point | Release Height: 3.658 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 300.0 F<br>Stack Inside Diameter: 0.101 m<br>Gas Exit Velocity: 45.438 m/s |
| | STCK8 | Rail Idling[a] | Point | Release Height: 4.9 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 195.53 F<br>Stack Inside Diameter: 0.6 m<br>Gas Exit Velocity: 3.1 m/s |

## Table 3.2-16. AERMOD Principal Parameters – Tuolumne Air Quality Impact Assessment

| Parameter | Details |
|---|---|
| Receptors | A telescoping grid of receptors was placed around the project site boundary in the following spacing: 25-meter spacing on the facility boundary; 25-meter spacing from the facility boundary to 100 meters; 50-meter spacing from 100 meters to 250 meters; 100-meter spacing from 250 meters to 500 meters; 250-meter spacing from 500 meters to 1,000 meters; and 500-meter spacing from 1,000 meters to 2,000 meters. |

**Sources:** [a] Port of Stockton 2021; [b] EPA 2023b; [c] Nexus 2024.
**Notes:** g/s = grams per second; ID = Identification; F = degrees Fahrenheit; m = meters.
See Appendix B3 for additional information.

### Health Risk Assessment

The greatest potential for TAC emissions during project construction would be DPM emissions from heavy equipment operations and heavy-duty trucks. During operation, the project would emit DPM from offroad, onroad, and rail sources in addition to TACs from various processes at the plant. As a precautionary measure, an HRA was performed to assess the impact of construction and operation on sensitive receptors proximate to the Tuolumne Facility and along key travel corridors. Complete model results for the HRA are included as Appendix B4. For risk assessment purposes, $PM_{10}$ in diesel exhaust is considered a proxy for DPM.[16] Emissions of TACs during construction were estimated using CalEEMod. During operation, emissions of TACs were estimated using CalEEMod and a spreadsheet model with emission factors from US EPA AP-42 and GAEPD.

The HRA applies the methodologies prescribed in the Office of Environmental Health Hazard Assessment (OEHHA) document, Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). Cancer risk parameters, such as age-sensitivity factors, daily breathing rates, exposure period, fraction of time at home, and cancer potency factors were based on the values and data recommended by OEHHA are implemented in CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2), which was used to estimate risk from construction activities.

Tuolumne County APCD does not have an established carcinogenic (cancer) risk threshold or health hazard threshold. Therefore, a cancer risk threshold of 10 in one million and a Chronic Hazard Index significance threshold of 1.0 was applied for the Tuolumne Facility impact analysis consistent with the health risk thresholds applied in the Tuolumne County General Plan Update EIR (Tuolumne County 2018).

A dispersion modeling analysis was conducted of TACs emitted from the project to assess the health risk impacts of the construction and operation on proximate existing off-site sensitive receptors.

The dispersion modeling was performed using AERMOD, which is the model Tuolumne County APCD requires for atmospheric dispersion of emissions. AERMOD parameters were selected consistent with the EPA guidance and identified as representative of the project site and project activities Principal parameters of this modeling are presented in Table 3.2-17.

[16] Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. The California EPA is a proponent of using the surrogate approach to quantifying cancer risks associated with diesel exhaust over a component-based approach, which involves estimating risks for each of the individual components of a mixture. The California EPA has concluded that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multi-pathway cancer risk from the speciated components" (OEHHA 2003).

## Table 3.2-17. AERMOD Principal Parameters – Tuolumne Health Risk Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| Meteorological Data | The latest 5-year meteorological data (2018–2022) for the Modesto Station (Station ID 23258) from the San Joaquin Valley APCD were downloaded and then input to AERMOD. | | | |
| Urban versus Rural Option | Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method specified in 40 CFR Part 51 Appendix W, the rural dispersion option was selected due to the predominant land use surrounding the project. | | | |
| Terrain Characteristics | The terrain in the vicinity of the modeled project site is generally hilly. The elevation of the modeled site is about 1,107 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. | | | |
| Elevation Data | Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution. | | | |
| Emission Sources | Emissions from onsite and offsite sources (rail and haul trucks) were modeled within a 4-kilometer grid around the project site. | | | |
| Source Release Characterizations - Construction | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE1 | Haul Trucks North[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.491 g/s[1] |
| | SLINE2 | Haul Trucks South[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.509 g/s[1] |
| | SLINE3 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| Source Release Characterizations - Operation | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE1 | Haul Trucks North[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.491 g/s[2] |
| | SLINE2 | Haul Trucks South[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.509 g/s[2] |
| | SLINE3 | Rail Travel[a] | Line Volume | Plume Height: 9.7 m<br>Plume Width: 4.05 m<br>Release Height: 4.85 m<br>Emission Rate: 1 g/s |

## Table 3.2-17. AERMOD Principal Parameters – Tuolumne Health Risk Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | SLINE4 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.755 g/s[3] |
| | SLINE5 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.065 g/s[3] |
| | SLINE6 | Dryer Furnace Ash Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.18 g/s[3] |
| | VOL6 | Dry Chips Storage[c] | Volume | Release Height: 18.288 m<br>Length of Side: 19.72 m<br>Initial Lateral Dimension: 4.59 m<br>Initial Vertical Dimension: 8.51 m<br>Emission Rate: 1 g/s |
| | STCK1 | Dryer[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 330.0 F<br>Stack Inside Diameter: 1.93 m<br>Gas Exit Velocity: 18.762 m/s |
| | STCK2 | RTO Burners[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 330.0 F<br>Stack Inside Diameter: 1.93 m<br>Gas Exit Velocity: 0.006 m/s |
| | STCK3 | Furnace Abort[c] | Point | Release Height: 26.213 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 1,335.0 F<br>Stack Inside Diameter: 1.295 m<br>Gas Exit Velocity: 79.927 m/s |
| | STCK4 | Dry Hammermill[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 2.996 m<br>Gas Exit Velocity: 3.347 m/s |
| | STCK5 | Pellet Mill[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 250.0 F<br>Stack Inside Diameter: 2.996 m<br>Gas Exit Velocity: 3.347 m/s |
| | STCK6 | RCO Burners[c] | Point | Release Height: 18.288 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 250.0 F<br>Stack Inside Diameter: 2.996 m |

**Table 3.2-17. AERMOD Principal Parameters – Tuolumne Health Risk Assessment**

| Parameter | Details | | | |
|---|---|---|---|---|
| | | | | Gas Exit Velocity: 0.004 m/s |
| | STCK7 | Fire Pump[c] | Point | Release Height: 3.658 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 300.0 F<br>Stack Inside Diameter: 0.101 m<br>Gas Exit Velocity: 45.438 m/s |
| | STCK8 | Rail Idling[a] | Point | Release Height: 4.9 m<br>Emission Rate: 1.0 g/s<br>Gas Exit Temperature: 195.53 F<br>Stack Inside Diameter: 0.6 m<br>Gas Exit Velocity: 3.1 m/s |
| Receptors | Discrete cartesian receptors were placed on sensitive receptors in close proximity to the project site and haul truck/rail routes. | | | |

**Sources:** [a] Port of Stockton 2021; [b] EPA 2023b; [c] Nexus 2024.
**Notes:** g/s = grams per second; ID = Identification; F = degrees Fahrenheit; m = meters.
1 An emission rate of 1 g/s was divided equally between the number of volume sources within the sources modeled.
2 An emission rate of 1 g/s was divided equally between the number of volume sources within the sources modeled.
3 An emission rate of 1 g/s was divided equally between the number of volume sources within the sources modeled.
See Appendix B4 for additional information.

AERMOD was run with all sources emitting unit emissions (1 gram per second) to obtain the necessary input values for CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2). The line of volume sources was partitioned evenly based on the 1 gram per second emission rate. The ground-level concentration plot files were then used to estimate the long-term cancer health risk to an individual, and the noncancerous chronic health indices.

Dispersion model plotfiles from AERMOD were then imported into CARB's HARP2 to determine health risk, which requires peak 1-hour emission rates and annual emission rates for all pollutants for each modeling source. The exposure duration for the construction emissions was 1.25 years starting in the 3rd trimester of pregnancy. The operational exposure duration was assumed to be 30 years starting in the 3rd trimester of pregnancy. The results from the construction and operational assessment were summed to provide the combined risk results from the project. The risk results were then compared to Tuolumne County APCD thresholds to assess project impact significance.

### 3.2.4.1.3 Transport to Market (Project-Level)

SDFs are incorporated as enforceable best practices to reduce criteria air pollutant emissions and other environmental impacts, which include SDF-AQ-1 and SDF-AQ-2 as introduced under Section 3.2.4.1.2. SDF-AQ-1 requires all project activities to comply with the applicable air district requirements. SDF-AQ-2 requires the project to implement a construction fugitive dust control plan to reduce project-generated dust.

## Rail Transport

### Construction

All potential construction emissions associated with the rail transport aspect of the project are included in other parts of the analysis contained herein as follows:

- Rail spur construction at the Lassen Facility is included in the Lassen construction scenario.
- Rail spur construction at the Tuolumne Facility is included in the Tuolumne construction scenario.
- Rail spur construction at the Port of Stockton is included in the Port of Stockton construction scenario.

No additional construction emissions associated with rail transport are anticipated to occur as a result of the project.

### Operation

A project-dedicated Class I (line-haul) train ("unit train") would be required to transport pellets from the Lassen Facility and manifest trains[17] would be used for line-haul transport from the Tuolumne Facility. Figure 3.2-2 shows the air districts that the line haul routes go through. Line-haul locomotive emissions were estimated based on anticipated fuel use and locomotive emission factors. Fuel use was estimated based on the number and weight of filled railcars from the Lassen and Tuolumne Facilities to the Port, empty railcars from the Port to the Lassen and Tuolumne Facilities, the number and weight of locomotives needed to transport the railcars, the rail travel distance between the pellet facilities and the Port, and a fuel consumption factor for line-haul locomotives. The average Class I locomotive emission factors (in pounds per gallon of fuel) were based on CARB's *2021 Line-Haul Emission Inventory* (CARB 2021b). The total train travel emissions were then apportioned to each air district based on the length of rail through the air district jurisdictions. Finally, 1-hour of locomotive idling was assumed per train at the Lassen and Tuolumne Facility and Port. Line-haul rail assumptions are provided in Table 3.2-18 below.

**Table 3.2-18. Line-Haul Assumptions for Pellet Transport**

| Parameter | Values | Units | Source/Notes |
|---|---|---|---|
| **Lassen Facility** | | | |
| Annual Pellets Produced | 771,618 | tons | Project Description (700,000 MT) |
| Number of Trains per Year | 70 | trains | Project Description |
| Cars per Train | 100 | cars/train | Project Description |
| Weight of Empty Rail Car | 30.25 | tons/car | Based on Rail Car Specifications |
| Weight of Pellets Transported | 110.23 | tons/car | Project Description (100 MT) |
| Locomotives per Train | 6 | locomotive/train | Project Description |
| Weight of Locomotive | 208 | tons/locomotive | Based on Trammel Crow Project EIR for Port of Stockton (Trammel Crow DEIR 2022) |
| Net Aggregated Fuel Consumption Index | 868 | ton-mile/gal | Based on Trammel Crow Project EIR for Port of Stockton |

[17] A manifest train moves different types of rail cars carrying freight from multiple shippers. See Chapter 2 ("Project Description") and Chapter 3.14 ("Transportation") for additional information regarding unit and manifest train trip generation.

## Table 3.2-18. Line-Haul Assumptions for Pellet Transport

| Parameter | Values | Units | Source/Notes |
|---|---|---|---|
| Miles Traveled | 296 | miles/one-way | Based on GIS data |
| Trip Rate | 7,000 | cars/year | 70 Trains/Year per Project Description |
| Locomotive Idling | 420 | hours/year | 70 Trains/Year, each locomotive idling for 1 hour each at facility and Port |
| Project Fuel Consumption (Inbound) | 102,000.65 | gal/year | Inbound = Empty Train from Port |
| Project Fuel Consumption (Outbound) | 365,132.95 | gal/year | Outbound = Train + Pellets to Port |
| Project Fuel Consumption (Idling) | 2,100.00 | gal/year | 5 gal/hour; CARB 2016 Technology Assessment Freight Locomotives (CARB 2016) |
| % Train Travel in Lassen County APCD | 26.21% | | Based on GIS data |
| % Train Travel in Northern Sierra AQMD | 23.83% | | Based on GIS data |
| % Train Travel in Butte County AQMD | 17.10% | | Based on GIS data |
| % Train Travel in Feather River AQMD | 13.85% | | Based on GIS data |
| % Train Travel in Sacramento Metropolitan AQMD | 11.38% | | Based on GIS data |
| % Train Travel in San Joaquin Valley APCD | 9.19% | | Based on GIS data |
| **Tuolumne Facility** | | | |
| Annual Pellets Produced | 330,693 | tons | Project Description (300,000 MT) |
| Number of Manifest Trains per Year - Average | 240 | trains | Project Description (Adding cars to existing manifest trains each day) |
| Cars per Train - Average | 13 | cars/train | Project Description |
| Weight of Empty Rail Car | 30.25 | tons/car | Based on Rail Car Specifications |
| Weight of Materials Imported | 110.23 | tons/car | Project Description (100 MT) |
| Locomotives per Train | 0 | additional locomotives/train | It is anticipated that no additional locomotives would be needed for the manifest train to accommodate the project's 13 rail cars. |
| Weight of Locomotive | 208 | tons/locomotive | Based on Trammel Crow Project EIR for Port of Stockton |
| Net Aggregated Fuel Consumption Index | 868 | ton-mile/gal | Based on Trammel Crow Project EIR for Port of Stockton |
| Miles Traveled | 64 | miles/one-way | Based on GIS Maps |
| Trip Rate | 3,000 | cars/year | Project Description |

## Table 3.2-18. Line-Haul Assumptions for Pellet Transport

| Parameter | Values | Units | Source/Notes |
|---|---|---|---|
| Locomotive Idling | 240 | hours/year | 240 Trains/Year, 1 hour idling at facility (new stop) |
| Project Fuel Consumption (Inbound) | 6,645.24 | gal/year | Inbound = Empty Train from Port |
| Project Fuel Consumption (Outbound) | 30,860.53 | gal/year | Outbound = Train + Pellets to Port |
| Project Fuel Consumption (Idling) | 1,200 | gal/year | 5 gal/hour; CARB 2016 Technology Assessment Freight Locomotives |
| % Train Travel in Tuolumne County APCD | 14.87% | | Based on GIS data |
| % Train Travel in San Joaquin Valley APCD | 85.13% | | Based on GIS data |

**Source:** Appendix B2.

At the Lassen Facility and the Port, Class III (switcher) trains would be used to provide short transport to the project facilities. As with line-haul described above, switcher emissions were estimated based on fuel use and locomotive emission factors. Fuel use was based on the number, engine tier, running and idling load factors, and horsepower of switcher locomotives at the Port, number of anticipated switching events based on project trains, and average switching time. Switcher locomotive emission factors at the Port were estimated based on switcher emission factors by engine tier provided in CARB's *2017 Short Line/ Class III Documentation* (CARB 2017b) and weighted by the Port's switcher engine tier distribution. For the Lassen facility, similar parameters were assumed for the switcher, except the unmitigated scenario was modeled using a statewide average switcher tier and the mitigated scenario was modeled using Tier 4 engine emission factors for the switcher (per **MM-AQ-9**). Notably, as the switchers would operate in and around the Lassen Facility or Port of Stockton, all emissions associated with their operations would be within the Lassen County APCD and San Joaquin Valley APCD jurisdiction, respectively. Switcher rail assumptions are provided in Table 3.2-19 and Table 3.2-20 below.

## Table 3.2-19. Switcher Assumptions for the Lassen Facility

| Parameter | Values | Units | Source/Notes |
|---|---|---|---|
| **Unmitigated Scenario – Statewide Average Engine Tier Switcher** | | | |
| Engine Tier | Pre-Tier | | |
| Engine Horsepower | 1,500 | hp | Based on Trammel Crow Project EIR for Port of Stockton |
| Load Factor - Running | 0.245 | NA | EPA's Locomotive Emission Standards Regulatory Support Document (EPA 1998b) |
| Load Factor - Idling | 0.010 | NA | EPA's Locomotive Emission Standards Regulatory Support Document (EPA 1998b) |
| Fuel Usage - Running | 24.14 | gal/hour | Based on Tier, HP, Load Factor, and CARB's Conversion Factor (CARB 2017b) |
| Fuel Usage - Idling | 0.99 | gal/hour | Based on Tier, HP, Load Factor, and CARB's Conversion Factor (CARB 2017b) |

## Table 3.2-19. Switcher Assumptions for the Lassen Facility

| Parameter | Values | Units | Source/Notes |
|---|---|---|---|
| **Mitigated Scenario – Tier 4 Engine Switcher** | | | |
| Engine Tier | Tier 4 | | |
| Engine Horsepower | 1,500 | hp | Based on Trammel Crow Project EIR for Port of Stockton |
| Load Factor - Running | 0.245 | NA | EPA's Locomotive Emission Standards Regulatory Support Document (EPA 1998b) |
| Load Factor - Idling | 0.010 | NA | EPA's Locomotive Emission Standards Regulatory Support Document (EPA 1998b) |
| Fuel Usage - Running | 17.64 | gal/hour | Based on Tier, HP, Load Factor, and CARB's Conversion Factor (CARB 2017b) |
| Fuel Usage - Idling | 0.72 | gal/hour | Based on Tier, HP, Load Factor, and CARB's Conversion Factor (CARB 2017b) |
| **Average Port Switcher Engine Mode and Operations** | | | |
| Engines/Train | 1 | NA | |
| Daily Operation - Running | 1.00 | hours/day | Based on Trammel Crow Project EIR for Port of Stockton |
| Daily Operation - Idling | 0.17 | hours/day | Based on Trammel Crow Project EIR for Port of Stockton |
| Annual Operation - For Trains from Lassen Facility | 70.00 | days/year | Project Description (assuming 1 train/day) |

**Source:** Appendix B2.

## Table 3.2-20. Switcher Assumptions for Pellet Transport at the Port

| Parameter | Values | Units | Source/Notes |
|---|---|---|---|
| **SW1500 Engine** | | | |
| Engine Tier | Tier 0 | NA | Based on Trammel Crow Project EIR for Port of Stockton |
| Engine Horsepower | 1,500 | hp | Based on Trammel Crow Project EIR for Port of Stockton |
| Load Factor - Running | 0.245 | NA | EPA's Locomotive Emission Standards Regulatory Support Document (EPA 1998b) |
| Load Factor - Idling | 0.010 | NA | EPA's Locomotive Emission Standards Regulatory Support Document (EPA 1998b) |
| Fuel Usage - Running | 24.14 | gal/hour | Based on Tier, HP, Load Factor, and CARB's Conversion Factor (CARB 2017b) |
| Fuel Usage - Idling | 0.99 | gal/hour | Based on Tier, HP, Load Factor, and CARB's Conversion Factor (CARB 2017b) |
| **Brookville Genset** | | | |
| Engine Tier | Tier 4 | | Based on Trammel Crow Project EIR for Port of Stockton |

**Table 3.2-20. Switcher Assumptions for Pellet Transport at the Port**

| Parameter | Values | Units | Source/Notes |
|---|---|---|---|
| Engine Horsepower | 1,200 | hp | Based on Trammel Crow Project EIR for Port of Stockton |
| Load Factor - Running | 0.245 | NA | EPA's Locomotive Emission Standards Regulatory Support Document (EPA 1998b) |
| Load Factor - Idling | 0.010 | NA | EPA's Locomotive Emission Standards Regulatory Support Document (EPA 1998b) |
| Fuel Usage - Running | 14.11 | gal/hour | Based on Tier, HP, Load Factor, and CARB's Conversion Factor (CARB 2017b) |
| Fuel Usage - Idling | 0.58 | gal/hour | Based on Tier, HP, Load Factor, and CARB's Conversion Factor (CARB 2017b) |
| **Average Port Switcher Engine Mode and Operations** | | | |
| Engines/Train | 1 | NA | Based on Trammel Crow Project EIR for Port of Stockton |
| Average Fuel Use - Running | 19.13 | gal/hour | Averaged running fuel use for SW1500 and Brookville engines |
| Average Fuel Use - Idling | 0.78 | gal/hour | Averaged idling fuel use for SW1500 and Brookville engines |
| Daily Operation - Running | 1.00 | hours/day | Based on Trammel Crow Project EIR for Port of Stockton |
| Daily Operation - Idling | 0.17 | hours/day | Based on Trammel Crow Project EIR for Port of Stockton |
| Annual Operation - For Trains from Lassen Facility | 70.00 | days/year | Project Description (assuming 1 train/day) |
| Annual Operation - For Trains from Tuolumne Facility | 240.00 | days/year | Project Description (assuming 1 train/day) |

**Source:** Appendix B2.

## Port of Stockton

### Construction Mass Emissions

For purposes of estimating project emissions, and based on information provided by the project applicant, it is assumed that construction at the Port of Stockton would commence in October 2024 and would last approximately 15 months, ending in December 2025.[18] Table 3.2-21 presents the construction scenario assumptions used for estimating construction emissions of the Port of Stockton in CalEEMod. The construction schedule and equipment load has been developed based on available information provided by the project Applicant, typical construction practices, and CalEEMod default assumptions.

[18] The analysis assumes a construction start date of October 2024, which represents the earliest date construction was anticipated to potentially initiate at the time the analysis was performed. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

Construction of the Port of Stockton facilities would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application. It was assumed that 2,000 tons of debris would be removed during the demolition phase to account for the existing parking lot. As the Port has been previously graded, no import or export of material is anticipated to be required. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in $PM_{10}$ and $PM_{2.5}$ emissions. Construction of project components would be subject to San Joaquin Valley APCD Rule 8201, Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities. Compliance with Rule 8201 would limit fugitive dust ($PM_{10}$ and $PM_{2.5}$) that may be generated during grading and construction activities. SDF-AQ-2 would implement a dust control plan that would further reduce fugitive dust emissions.

The worker vehicles, vendor trucks, and haul trucks trip distances were based on CalEEMod defaults, which is a reasonable representation of actual conditions based upon the location and characteristics of this project site and construction activities.

### Table 3.2-21. Port of Stockton Construction Scenario Assumptions

| Construction Phase | Start Date | Finish Date | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average Daily Workers | Average Daily Vendor Trucks | Average Daily Haul Trucks | Type | Quantity | Usage Hours |
| Demolition | 10/1/2024 | 10/31/2024 | 18 | 4 | 0 | Concrete/ Industrial Saws | 1 | 8 |
| | | | | | | Crawler Tractors | 1 | 8 |
| | | | | | | Excavators | 3 | 8 |
| | | | | | | Rubber Tired Loaders | 2 | 8 |
| Site Preparation | 11/1/2024 | 11/30/2024 | 18 | 4 | 0 | Rubber Tired Dozers | 3 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 4 | 8 |
| Grading (Including Utilities) | 12/1/2024 | 12/31/2024 | 16 | 4 | 0 | Excavators | 1 | 8 |
| | | | | | | Graders | 1 | 8 |
| | | | | | | Rubber Tired Dozers | 1 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 3 | 8 |
| Building/ Vertical Construction | 1/1/2025 | 11/30/2025 | 32 | 12 | 0 | Cranes | 8 | 7 |
| | | | | | | Forklifts | 6 | 8 |
| | | | | | | Generator Sets | 8 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 3 | 7 |

**Table 3.2-21. Port of Stockton Construction Scenario Assumptions**

| Construction Phase | Start Date | Finish Date | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average Daily Workers | Average Daily Vendor Trucks | Average Daily Haul Trucks | Type | Quantity | Usage Hours |
| | | | | | | Welders | 20 | 8 |
| Rail Spurs Construction | 1/1/2025 | 9/1/2025 | 10 | 4 | 0 | Excavators | 1 | 8 |
| | | | | | | Rubber Tired Dozers | 1 | 8 |
| | | | | | | Tractors/ Loaders/ Backhoes | 1 | 8 |
| | | | | | | Rail Tampers[1] | 1 | 8 |
| Paving | 1/1/2025 | 3/1/2025 | 16 | 4 | 0 | Pavers | 2 | 8 |
| | | | | | | Paving Equipment | 2 | 8 |
| | | | | | | Rollers | 2 | 8 |
| Architectural Coating | 11/1/2025 | 11/30/2025 | 14 | 4 | 0 | Air Compressors | 1 | 6 |

**Notes:** See Appendix B1 for additional details.
[1] Rail Tamper modeled as Other Construction Equipment in CalEEMod at 280 hp.

## Operational Mass Emissions

Project operational activities would potentially generate VOC, $NO_x$, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$ emissions from area sources, energy sources, mobile sources, off-road equipment, and permitted sources, which are discussed below. Emissions from the operational phase of the project were estimated using a combination of CalEEMod Version 2022.1.1.25 and a spreadsheet model based on industry standard emission factors and project-specific information. Operational year 2025 was assumed.

### Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use and the reapplication of architectural coatings.

The description of the consumer products and the reapplication of architectural coating provided for the Lassen Facility operational area sources are the same for the Port of Stockton. Default CalEEMod values were applied for consumer products and the reapplication of architectural coating based on the land use inputs for the project.

### Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

Electricity consumption was provided by the project applicant and estimated to be 12,060,000 kWh per year. It was assumed that there would be no natural gas consumption at the Port of Stockton facility.

### Mobile Sources

Mobile sources for the Port of Stockton facility would be employees and vendor trucks traveling to and from the Port. Operations at the facility would occur 7 days per week. As described in the Project Description, the facility would require 8 daily GSNR employees over three shifts, and an additional 8 full-time equivalent stevedores for ship loading, resulting in 32 daily one-way trips[19]. It was conservatively assumed that there would be 2 vendor trucks per day to deliver materials and perform intermittent maintenance, resulting in 4 daily one-way trips.

Project-related traffic was assumed to include a mixture of vehicles in accordance with the associated use, as modeled within CalEEMod, which is based on the CARB EMFAC2021 model. Emission factors representing the vehicle mix and emissions for 2025 were used to estimate emissions associated with vehicular sources. Worker and vendor truck trip distances were based on CalEEMod defaults, which is a reasonable representation of actual conditions based upon the location and characteristics of this project site and operational activities. The fleet mix was adjusted in CalEEMod based on the daily trips of the vehicle categories described above.

The methodology for calculating emissions association with train transportation is described in the Rail Transport section above.

### Off-Road Equipment

The use of 1 yard truck and 1 tractor/loader/backhoe were assumed to operate at the facility. The yard truck was modeled as a rough terrain forklift at 200 horsepower. CalEEMod was used to estimate criteria air pollutant emissions of the off-road equipment assuming 24 hours of operation per day for 100 days per year, based upon anticipated facility operations. The operational off-road equipment information was provided by the applicant.

### Other Facility Emissions

#### Pellet Storage

The storage and loadout of pellets will generator PM emissions at several points at the POS. PM emissions were estimated using the pellet storage annual throughput of 1,025,149 STPY and emission factors from the baghouse vendor.

#### Fire Pump

The project includes two diesel fire pumps for use in case there is a fire. The fire pumps are rated at 50 horsepower and are assumed to operate up to 100 hours per year for maintenance and testing. Emissions of criteria air pollutants and TACs were estimated using emission factors from the US EPA AP-42 Section 3.3, *Gasoline and Diesel Industrial Engines*, Table 3.3-1 and 3.3-2 (EPA 1996a).

[19] As the Port of Stockton is a fully operational port, and given that the project's demand for stevedoring services is intermittent, it is anticipated that the 8 full-time equivalent stevedores required by the project would be filled by the large existing workforce at and around the Port. As such, the emissions associated with these stevedores' commute trips would be included in the existing workforce baseline and their emissions would be negligible, and thus only the 8 additional GSNR employees have been modeled as new trips for purposes of this analysis.

### Ship Transport

The project would receive pellets via railcar to the Port facility where they would be stored in domes. Once the domes are at sufficient quantity (approximately 35,000 MT), a cargo ship would be loaded for transport to end-markets. The emissions from the cargo ship and tugboats were estimated using a spreadsheet model and emission factors from the Port of Stockton 2020 Inventory of Air Emissions (Port of Stockton 2023b). As the exact vessel is not known, weighted emission factors were developed based on the Port's inventory of cargo ships and engine tier distribution. The vessel type was assumed to be of the handymax class. Load factors were calculated for travel during maneuvering, within the bay, and outside of the bay based on the Propeller Law. Ship emissions are quantified within a 100 nautical mile zone of the Port, as recommended in 2011 CARB Emissions Estimation Methodology for Ocean-Going Vessels (CARB 2011). Ships will travel from the Port, through San Joaquin Valley APCD, through BAAQMD, and into the Pacific Ocean beyond the Golden Gate Bridge. Emissions estimates have been grouped by activity, including hoteling, maneuvering, and transit. Transit emissions are split out based on the air district in which emissions occur.

Loadout of the wood pellets into the ships would generate PM emissions as well. Loadout emissions were estimated using the daily and annual throughput and emission factors from US EPA AP-42 Section 13.2.4, *Aggregate Handling and Storage Piles* (EPA 2006) and were included in the "Ships" category.

### Operational Ambient Air Quality Analysis

In accordance with the SJVAPD *Guidance for Assessing and Mitigating Air Quality Impacts*, when on-site project emissions exceed 100 pounds per day and ambient air quality assessment is required (San Joaquin Valley APCD 2015a). An ambient air quality analysis was performed to assess the project's potential impact on the SJVAB meeting the CAAQS and NAAQS during operation. The San Joaquin Valley Air Pollution Control District APR-1925 was followed as discussed below (San Joaquin Valley APCD 2019). Principal parameters of this Level 1 modeling are presented in Table 3.2-22. Complete model results for the AAQA are included as Appendix B3.

**Table 3.2-22. AERMOD Principal Parameters – Port of Stockton Air Quality Impact Assessment**

| Parameter | Details |
|---|---|
| Meteorological Data | The latest 5-year meteorological data (2018–2022) for the Stockton Station (Station ID 23237) from the San Joaquin Valley APCD were downloaded and then input to AERMOD. |
| Urban versus Rural Option | Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method specified in 40 CFR Part 51 Appendix W, the urban dispersion option was selected due to the predominant land use surrounding the project. |
| Terrain Characteristics | The terrain in the vicinity of the modeled project site is generally hilly. The elevation of the modeled site is at sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. |
| Elevation Data | Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution. |
| Emission Sources | Only onsite operational emissions were modeled for this assessment to determine the highest offsite concentration. For emission sources that extend offsite (rail and haul |

## Table 3.2-22. AERMOD Principal Parameters – Port of Stockton Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | trucks), the length of the source was limited to within the project boundary. Emissions were modeled using line-volume and point sources within AERMOD. | | | |
| Source Release Characterizations | **Source ID:** | **Source Name:** | **Source Type:** | **Source Parameters:** |
| | SLINE1 | Rail Travel[a] | Line Volume | Plume Height: 9.7 m<br>Plume Width: 4.05 m<br>Release Height: 4.85 m<br>Emission Rate: 1 g/s |
| | SLINE2 | Ship Manuevering[a] | Line Volume | Plume Height: 59.1 m<br>Plume Width: 32 m<br>Release Height: 29.55 m<br>Emission Rate: 1 g/s |
| | SLINE3 | Yard Trucks[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE4 | Front End Loader[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | STCK1 | Ship Hoteling[a] | Point | Release Height: 39.9 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: 546.53 F<br>Stack Inside Diameter: 0.5 m<br>Gas Exit Velocity: 18.2 m/s |
| | STCK2 | Pellet Storage[c] | Point | Release Height: 7.62 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK3 | Pellet Storage[c] | Point | Release Height: 7.62 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK4 | Pellet Storage[c] | Point | Release Height: 7.62 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK5 | Pellet Storage[c] | Point | Release Height: 7.62 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |

## Table 3.2-22. AERMOD Principal Parameters – Port of Stockton Air Quality Impact Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | STCK6 | Pellet Storage[c] | Point | Release Height: 7.62 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK7 | Pellet Storage[c] | Point | Release Height: 7.62 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK8 | Pellet Storage[c] | Point | Release Height: 7.62 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK9 | Diesel Fire Pump[c] | Point | Release Height: 3.658 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK10 | Diesel Fire Pump[c] | Point | Release Height: 3.658 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK11 | Rail Idling[c] | Point | Release Height: 4.9 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: 195.53<br>Stack Inside Diameter: 0.6 m<br>Gas Exit Velocity: 3.1 m/s |
| Receptors | A telescoping grid of receptors was placed around the project site boundary in the following spacing: 25-meter spacing on the facility boundary; 25-meter spacing from the facility boundary to 100 meters; 50-meter spacing from 100 meters to 250 meters; 100-meter spacing from 250 meters to 500 meters; 250-meter spacing from 500 meters to 1,000 meters; and 500-meter spacing from 1,000 meters to 2,000 meters. | | | |

**Sources:** [a] Port of Stockton 2021; [b] EPA 2023b; [c] Nexus 2024.
**Notes:** g/s = grams per second; ID = Identification; F = degrees Fahrenheit; m = meters.
See Appendix B3 for additional information.

### Health Risk Assessment

The greatest potential for TAC emissions during project construction would be DPM emissions from heavy equipment operations and heavy-duty trucks. During operation, the project would emit DPM from offroad, marine, and rail sources. As a precautionary measure, an HRA was performed to assess the impact of construction and operation on sensitive receptors proximate to the Port and along key travel corridors. Complete model results for

the HRA are included as Appendix B4. For risk assessment purposes, $PM_{10}$ in diesel exhaust is considered a proxy for DPM.[20] Emissions of TACs during construction were estimated using CalEEMod. During operation, emissions of TACs were estimated using CalEEMod and a spreadsheet model with emission factors from the US EPA AP-42 and Port of Stockton 2020 Inventory of Air Emissions (Port of Stockton 2023b).

The HRA applies the methodologies prescribed in the Office of Environmental Health Hazard Assessment (OEHHA) document, Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). Cancer risk parameters, such as age-sensitivity factors, daily breathing rates, exposure period, fraction of time at home, and cancer potency factors were based on the values and data recommended by OEHHA are implemented in CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2), which was used to estimate risk from construction activities.

The San Joaquin Valley APCD recommends a carcinogenic (cancer) risk threshold of 20 in one million and a Chronic Hazard Index significance threshold of 1.0 (San Joaquin Valley APCD 2015a).

A dispersion modeling analysis was conducted of TACs emitted from the project to assess the health risk impacts of the construction and operation on proximate existing off-site sensitive receptors.

The dispersion modeling was performed using AERMOD, which is the model San Joaquin Valley APCD requires for atmospheric dispersion of emissions. The dispersion modeling included the use of standard regulatory default options. AERMOD parameters were selected consistent with the EPA guidance and identified as representative of the project site and project activities Principal parameters of this modeling are presented in Table 3.2-23.

### Table 3.2-23. AERMOD Principal Parameters – Port of Stockton Health Risk Assessment

| Parameter | Details |
|---|---|
| Meteorological Data | The latest 5-year meteorological data (2018–2022) for the Stockton Station (Station ID 23237) from the San Joaquin Valley APCD were downloaded and then input to AERMOD. |
| Urban versus Rural Option | Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method specified in 40 CFR Part 51 Appendix W, the urban dispersion option was selected due to the predominant land use surrounding the project. |
| Terrain Characteristics | The terrain in the vicinity of the modeled project site is generally hilly. The elevation of the modeled site is at sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. |
| Elevation Data | Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution. |
| Emission Sources | Emissions from onsite and offsite sources (rail and marine vessels) were modeled within a 30-kilometer grid around the project site. |

[20] Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. The California EPA is a proponent of using the surrogate approach to quantifying cancer risks associated with diesel exhaust over a component-based approach, which involves estimating risks for each of the individual components of a mixture. The California EPA has concluded that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multi-pathway cancer risk from the speciated components" (OEHHA 2003).

## Table 3.2-23. AERMOD Principal Parameters – Port of Stockton Health Risk Assessment

| Parameter | Details | | | |
|---|---|---|---|---|
| | Source ID: | Source Name: | Source Type: | Source Parameters: |
| Source Release Characterizations – Construction | SLINE1 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.945 g/s[1] |
| | SLINE2 | Offroad Equipment[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 0.0554 g/s[1] |
| | SLINE3 | Haul Trucks[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| Source Release Characterizations – Operation | SLINE3 | Lassen Rail[a] | Line Volume | Plume Height: 9.7 m<br>Plume Width: 4.05 m<br>Release Height: 4.85 m<br>Emission Rate: 1 g/s |
| | SLINE4 | Tuolumne Rail[a] | Line Volume | Plume Height: 9.7 m<br>Plume Width: 4.05 m<br>Release Height: 4.85 m<br>Emission Rate: 1 g/s |
| | SLINE5 | Ship Travel[b] | Line Volume | Plume Height: 59.1 m<br>Plume Width: 32.0 m<br>Release Height: 29.55 m<br>Emission Rate: 1 g/s |
| | SLINE23 | Yard Trucks[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | SLINE24 | Front End Loader[b] | Line Volume | Plume Height: 6.8 m<br>Plume Width: 8.6 m<br>Release Height: 3.4 m<br>Emission Rate: 1 g/s |
| | STCK1 | Ship Hoteling[a] | Point | Release Height: 39.9 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: 546.53 F<br>Stack Inside Diameter: 0.5 m<br>Gas Exit Velocity: 18.2 m/s |
| | STCK9 | Diesel Fire Pump[c] | Point | Release Height: 3.658 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |

**Table 3.2-23. AERMOD Principal Parameters – Port of Stockton Health Risk Assessment**

| Parameter | Details | | | |
|---|---|---|---|---|
| | STCK10 | Diesel Fire Pump[c] | Point | Release Height: 3.658 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: ambient<br>Stack Inside Diameter: 0.347 m<br>Gas Exit Velocity: 16.708 m/s |
| | STCK11 | Rail Idling[c] | Point | Release Height: 4.9 m<br>Emission Rate: 1 g/s<br>Gas Exit Temperature: 195.53<br>Stack Inside Diameter: 0.6 m<br>Gas Exit Velocity: 3.1 m/s |
| Receptors | Discrete cartesian receptors were placed on sensitive receptors in close proximity to the project site and marine vessel/rail routes. | | | |

**Sources:** [a] Port of Stockton 2021; [b] EPA 2023b; [c] Nexus 2024.
**Notes:** g/s = grams per second; ID = Identification; F = degrees Fahrenheit; m = meters.
[1] An emission rate of 1 g/s was divided equally between the number of volume sources within the sources modeled.
See Appendix B4 for additional information.

AERMOD was run with all sources emitting unit emissions (1 gram per second) to obtain the necessary input values for CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2). The line of volume sources was partitioned evenly based on the 1 gram per second emission rate. The ground-level concentration plot files were then used to estimate the long-term cancer health risk to an individual, and the noncancerous chronic health indices.

Dispersion model plotfiles from AERMOD were then imported into CARB's HARP2 to determine health risk, which requires peak 1-hour emission rates and annual emission rates for all pollutants for each modeling source. The exposure duration for the construction emissions was 1.17 years starting in the 3rd trimester of pregnancy. The operational exposure duration was assumed to be 70 years starting in the 3rd trimester of pregnancy. The results from the construction and operational assessment were summed to provide the combined risk results from the project. The risk results were then compared to San Joaquin Valley APCD thresholds to assess project impact significance.

### 3.2.4.2 Project Impacts

Impact AQ-1 The project would potentially conflict with or obstruct implementation of the applicable air quality plan.

An area is designated as in attainment when it complies with the federal and/or state standards. These standards are set by EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or public welfare, with a margin of safety.

As recommended by California air districts, there are two general ways to determine the potential for a project to conflict with the applicable air quality plan(s): (1) consistency with the underlying land use designations (e.g., General Plan designation), and (2) potential to exceed numeric thresholds established to determine if a project would result in a significant air quality impact.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Sustainable Forest Management Projects would not result in a land use zoning change and would be consistent with the underlying land use designations. These projects take place in the Lassen and Tuolumne feedstock Working Areas which cover multiple air basins and air district jurisdictions. Feedstock acquisition would increase employment in the general region, but this employment would not be substantial in any given location give the scale of the Sustainable Forest Management Projects area and the distribution of crews. As such, the project would not result in substantial population or employment growth exceeding estimates found in applicable plans.

However, as shown in Tables 3.2-24, 3.2-25, 3.2-28, and 3.2-29, feedstock acquisition in the Lassen feedstock area and the Tuolumne Feedstock area, if each were undertaken simultaneously within any one air district, would have the potential to exceed air district thresholds for VOC, $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$ with implementation of PDF-AQ-1 (Air District Regulatory Compliance – Feedstock Acquisition) and PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition) and prior to mitigation, and the impact would be **potentially significant**. After implementation of **MM-AQ-1** through **MM-AQ-4**, which implement Tier 4 Final engines in offroad equipment, limit truck and offroad equipment idling, incorporate renewable diesel fuel in trucks and offroad equipment, and educate workers to optimize their commutes, and as shown in Tables 3.2-26, 3.2-27, 3.2-30, 3.2-31, the emissions during feedstock acquisition would still exceed daily and annual air district thresholds for $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$. Therefore, the project would conflict with the applicable air quality plans and the impact related to this portion of the project would be **significant and unavoidable**.

## Wood Pellet Production

### Lassen Facility

The proposed Lassen Facility would result in the construction of a wood pellet production facility on a previously partially developed site. The Lassen Facility site is located on a portion of a larger property that included a mill site (which is not part of the proposed facility) and an area used by the mill operators and others to load rail cars.

The northern parcel of the Lassen Facility site, where the production facility is located, is designated as Town Center by the County General Plan. Town Center designations are applied to central areas of small unincorporated areas in the County and generally serve as the commercial and social centers of the surrounding communities, containing a mixture of commercial and residential uses. The corresponding zoning of the northern parcel is A-1, General Agriculture. According to the County Municipal Code Chapter 18.16, the intent of A-1 is to be applied to unincorporated territory of the County where precise zoning is not required. The County determined that the general character of the county is agriculture, thus, A-1 is applied to areas not indicated specifically to be used for precise districts of agriculture, residential, commercial, manufacturing, open space, institutional, conservation, timber production, floodplain, or airport. The zoning allows for a variety of agricultural industrial uses, with approval of a conditional use permit, including sawmills.

A portion of the southern parcels of the Lassen Facility site, designated as Intensive Agriculture by the General Plan, would be used for feedstock storage (e.g., log decking). Intensive Agriculture identifies lands devoted to or having a high suitability potential for crop growing and/or the raising of livestock on improved or natural pastureland. The southerly parcels are zoned Exclusive Agricultural, Agricultural Preserve Combining District (E-A-A-P), consistent with the Intensive Agriculture planning designation. The E-A-A-P allows for storage of agricultural products, including

timber. As the production facilities would not be located on this parcel, the log decking would be allowed under the zoning designation. Therefore, the proposed Lassen Facility would be consistent with the underlying land use designations.

As discussed in below Impact AQ-2 and as shown in Table 3.2-32, emissions from criteria pollutants during construction would have the potential to exceed the Lassen County APCD daily BACT thresholds with implementation of SDF-AQ-1 and SDF-AQ-2 and prior to mitigation. As shown in Table 3.2-38, operational emissions at the Lassen Facility would have the potential to exceed daily BACT thresholds for VOC, $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$ prior to mitigation, and the impact would be **potentially significant**. After implementation **MM-AQ-2** through **MM-AQ-7**, and as shown in Table 3.2-34, construction emissions would not exceed Lassen County APCD daily BACT thresholds, and the impact related to that aspect of the project would be less than significant. However, after implementation of **MM-AQ-2** through **MM-AQ-4**, **MM-AQ-8**, and **MM-AQ-9**, and as shown in Table 3.2-40, the operational emissions at the Lassen Facility would still exceed daily BACT thresholds for VOC, $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$. Therefore, the project would conflict with the Lassen County APCD air quality plans and the impact related to this portion of the project would be **significant and unavoidable**. The site design features and mitigation measures described above and implemented at the Lassen Facility are as follows:

- **SDF-AQ-1: Air District Regulatory Compliance –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **SDF-AQ-2: Construction Fugitive Dust Control Plans –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-2: Construction and Operation Limit Truck and Equipment Idling –** Feedstock Acquisition, Lassen Facility, and Tuolumne Facility
- **MM-AQ-3: Construction and Operation Renewable Diesel Fuel –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-4: Construction and Operational Worker Commute Optimization –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-5: Construction Equipment Exhaust Minimization –** Tier 4 Final – Lassen Facility
- **MM-AQ-6: Construction Lower-VOC Paints –** Lassen Facility
- **MM-AQ-7: Construction Activities Notification –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-8: Operational Equipment Exhaust Minimization –** Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-9: Operational Switcher Locomotive Exhaust Minimization –** Lassen Facility

### Tuolumne Facility

The proposed Tuolumne Facility would result in the construction of a wood pellet production facility on a previously developed site used as wood processing facility. The Tuolumne Facility is designated as Heavy Industrial uses by the County General Plan. This designation allows for several uses including all types of manufacturing and processing activities.

The Tuolumne Facility is also zoned as M-2, or Heavy Industrial by the County. According to Chapter 17.40 of the Tuolumne County Ordinance Code, this zoning allows for several uses including general manufacturing, sawmills, processing, and refining as a permitted land use. As an agricultural industrial use, similar to a sawmill, the proposed facility is allowed under the existing zoning, and would require only a Site Development Permit approval, in

accordance with Chapter 17.68 of the Tuolumne County Ordinance Code. Therefore, the proposed Tuolumne Facility would be consistent with the underlying land use designations.

As discussed in Impact AQ-2, emissions from criteria pollutants during construction would not exceed the Tuolumne County APCD significance thresholds with implementation of SDF-AQ-1 and SDF-AQ-2 (Tables 3.2-44 and 3.2-45). However, as shown in Table 3.2-49, operational emissions at the Tuolumne Facility would have the potential to exceed the annual threshold for CO and prior to mitigation, and the impact would be **potentially significant**. After implementation of **MM-AQ-2** through **MM-AQ-4**, **MM-AQ-7** through **MM-AQ-8**, and **MM-AQ-10**, and as shown in Table 3.2-50, the operational emissions at the Tuolumne Facility would still exceed the annual threshold for CO. Therefore, the project would conflict with the Tuolumne County APCD air quality plans and the impact would be **significant and unavoidable**. The site design features and mitigation measures described above and implemented at the Tuolumne Facility are as follows:

- **SDF-AQ-1: Air District Regulatory Compliance –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **SDF-AQ-2: Construction Fugitive Dust Control Plans –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-2: Construction and Operation Limit Truck and Equipment Idling –** Feedstock Acquisition, Lassen Facility, and Tuolumne Facility
- **MM-AQ-3: Construction and Operation Renewable Diesel Fuel –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-4: Construction and Operational Worker Commute Optimization –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-7: Construction Activities Notification –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-8: Operational Equipment Exhaust Minimization –** Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-10: Construction Equipment Exhaust Minimization –** Tier 4 Final –Tuolumne Facility

## Transport to Market

### Rail Transport

There are no land use changes associated with the line-haul rail transport of the project. However, as shown in Tables 3.2-53 and 3.2-54, line-haul rail transport emissions would exceed the Northern Sierra AQMD, Butte County AQMD, Feather River AQMD, and Sacramento Metropolitan AQMD daily thresholds for $NO_X$, and the Butte County AQMD and Feather River AQMD annual thresholds for $NO_X$. Therefore, the project would conflict with the applicable air quality plans, resulting in a **potentially significant impact**. The impact related to this portion of the project is **significant and unavoidable** because no feasible mitigation exists to reduce impacts below a level of significance, as discussed under Impact AQ-2.

### Port of Stockton

The proposed Port of Stockton facility would result in the construction of project specific features and the use of an existing Port of Stockton Berth. The Port of Stockton site is located in the Port of Stockton West Complex, which has historically been used for port related activities, including warehousing. The Port of Stockton site is designated as Institutional use by the City's General Plan and zoned as Port district. The Port is zoned as such, which allows for

the operation of port facilities including dockage, wharves, and warehousing. Therefore, the proposed Port of Stockton facility would be consistent with the underlying land use designations.

A project is non-conforming with an air quality plan if it conflicts with or delays implementation of any applicable attainment or maintenance plan. The San Joaquin Valley APCD has prepared plans to attain federal and state $O_3$ and particulate matter ambient air quality standards as required under the federal and California Clean Air Act, as detailed in the Regulatory Section above. The San Joaquin Valley APCD has established thresholds of significance for criteria pollutant emissions, which are based on San Joaquin Valley APCD New Source Review offset requirements for stationary sources. Stationary sources in the San Joaquin Valley APCD jurisdiction are subject to some of the most stringent regulatory requirements in the nation. Emission reductions achieved through implementation of San Joaquin Valley APCD offset requirements are a major component of the San Joaquin Valley APCD's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined to not conflict or obstruct implementation of the San Joaquin Valley APCD's air quality plan (San Joaquin Valley APCD 2015a).

As discussed in Impact AQ-2, emissions from criteria pollutants during construction would not exceed the San Joaquin Valley APCD significance thresholds with implementation of SDF-AQ-1 and SDF-AQ-2 (Table 3.2-55). However, Port of Stockton facility operations would result in a net increase in emissions and, as shown in Table 3.2-57, the increase in emissions would exceed the San Joaquin Valley APCD annual $NO_X$ significance threshold prior to mitigation, and the impact would be **potentially significant**. After implementation of **MM-AQ-2** through **MM-AQ-4**, **MM-AQ-7**, **MM-AQ-8** and **MM-AQ-11**, the operational emissions caused by the Port of Stockton facility would still exceed numeric thresholds for $NO_X$ (Table 3.2-59). Therefore, the project would conflict with the San Joaquin Valley APCD's air quality plans and the impact would be **significant and unavoidable**. The mitigation measures described above and implemented during operation at the Port of Stockton are as follows:

- **SDF-AQ-1: Air District Regulatory Compliance –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **SDF-AQ-2: Construction Fugitive Dust Control Plans –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-2: Construction and Operation Limit Truck and Equipment Idling –** Feedstock Acquisition, Lassen Facility, and Tuolumne Facility
- **MM-AQ-3: Construction and Operation Renewable Diesel Fuel –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-4: Construction and Operational Worker Commute Optimization –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-7: Construction Activities Notification –** Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-8: Operational Equipment Exhaust Minimization –** Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-11: Operational Switcher Exhaust Minimization –** Port of Stockton

Similar to Impact AQ-2 (discussed in greater detail below), this impact is reflective of project-related emissions occurring within the entire San Joaquin Valley APCD, a significant portion of which (such as the majority of rail transport emissions) may not be experienced in the immediate vicinity of the Port of Stockton. This does not affect the final impact conclusion, but is noted here for informational purposes to help the public evaluate the effects of the project for the Stockton community.

### Ship Transport – Bay Area AQMD[21]

There are no land use changes associated with the ship transport of the project. As shown in Table 3.2-68, emissions from ship transport within the Bay Area AQMD jurisdiction would exceed the Bay Area AQMD daily and annual threshold for $NO_X$. Therefore, the project would conflict with the applicable air quality plans, resulting in a **potentially significant impact**. The impact related to this portion of the project is **significant and unavoidable** because no feasible mitigation exists to reduce impacts below a level of significance, as discussed under Impact AQ-2.

## Conclusion

Because activities implemented under the project would generate levels of criteria air pollutants and precursors that are anticipated to exceed air district thresholds, these emissions could result in, or contribute to, exceedances of the NAAQS and CAAQS for criteria air pollutants (specifically VOC and $NO_x$ that contribute to ozone, CO, $PM_{10}$, and $PM_{2.5}$), thereby potentially conflicting with the air quality planning efforts of regional air districts (including but not limited to Lassen County APCD, Tuolumne County APCD, and San Joaquin Valley APCD), including those that comprise the SIP. With implementation of the mitigation measures described herein, there remain emissions in excess of the applicable thresholds of significance. As such, impacts associated with the potential for the project to conflict with or obstruct implementation of the applicable air quality plan are **significant and unavoidable**.

Impact AQ-2 The project would potentially result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would generate VOC, $NO_x$, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$ emissions from mobile sources (worker vehicles, vendor trucks [i.e. water trucks], and haul trucks) and off-road equipment. Emissions would also be generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil. The first year of operation was assumed to be 2025, which is a conservative assumption, as noted above.

The maximum daily and annual thresholds for each respective air district that the Lassen and Tuolumne feedstock areas have the potential to occur within are provided in Tables 3.2-24 through 3.2-31, below. “Summer” emissions are representative of the project operations anticipated to occur during the $O_3$ season (May 1 to October 31), and “winter” emissions are representative of the project operations anticipated to occur during the balance of the year (November 1 to April 30). The emissions associated with feedstock acquisition would be compared to the most stringent daily and annual thresholds for each criteria air pollutant. This comparison is anticipated to be conservative because it was assumed that all operations would take place in one air district, which is unlikely in practice. (More precise specification of the percentage of crews operating in any given air district at any given time is impracticable at the program-level, as individual Sustainable Forest Management Project locations and timing have not yet been determined.)

[21] As noted under Impact AQ-2, emissions from ship transport within the San Joaquin APCD are included in the analysis of the Port of Stockton facility.

As described in Section 3.2.4.1.1, the project would implement PDF-AQ-1 (Air District Regulatory Compliance – Feedback Acquisition) and PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition) during feedstock acquisition, which would require air district regulatory compliance and fugitive dust control. PDF-AQ-2, which specifically limits vehicle speed on unpaved roads, would be quantified in the analysis to reduce fugitive dust emissions. PDF-AQ-2 also requires watering where feasible, but the fugitive dust emissions reductions associated with watering were not quantified. Watering unpaved roads and exposed areas twice per day would reduce fugitive dust emissions by up to 55%, but this reduction was not quantified because watering feasibility will depend on each site condition.

Details of the emission calculations are provided in Appendix B1.

### Lassen Feedstock Area

Table 3.2-24 presents the unmitigated maximum daily criteria air pollutant emissions for the Lassen feedstock area compared to the most stringent air district daily threshold. "Summer" emissions are representative of the project operations anticipated to occur during the $O_3$ season (May 1 to October 31), and "winter" emissions are representative of the project operations anticipated to occur during the balance of the year (November 1 to April 30).

**Table 3.2-24. Estimated Maximum Daily Criteria Air Pollutant Emissions – Lassen Feedstock Area – Unmitigated**

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| 2025 and Subsequent[22] | 79.96 | 1,120.34 | 607.20 | 2.69 | 1,879.16 | 345.15 |
| **Winter** | | | | | | |
| 2025 and Subsequent | 79.76 | 1,130.07 | 596.08 | 2.69 | 1,879.16 | 345.15 |
| **Maximum Daily Emissions** | **79.96** | **1,130.07** | **607.20** | **2.69** | **1,879.16** | **345.15** |
| Butte County AQMD Threshold | 137 | 137 | N/A | N/A | 150 | 150 |
| Lassen County APCD Threshold | 150 | 150 | 550 | 150 | 150 | 150 |
| Northern Sierra AQMD Threshold | 136 | 136 | N/A | N/A | 136 | N/A |
| Shasta County AQMD Threshold | 137 | 137 | N/A | N/A | 137 | N/A |
| Tehama County APCD Threshold | 137 | 137 | N/A | N/A | 137 | N/A |
| *Most Stringent Threshold* | *136* | *136* | *550* | *150* | *136* | *150* |
| **Most Stringent Threshold Exceeded?** | **No** | **Yes** | **Yes** | **No** | **Yes** | **Yes** |

**Notes**: AQMD = Air Quality Management District; APCD = Air Pollution Control District; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition)Air districts in which feedstock activities may occur but that have not established any applicable daily thresholds are not listed.

[22] The analysis assumes an operational year of 2025, which represents the earliest year feedstock operations could initiate. Assuming the earliest start date for operations represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

As shown in Table 3.2-24, the sustainable forest management projects in the Lassen feedstock area, if undertaken simultaneously within any one air district, would exceed the most stringent applicable air district daily thresholds for $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$ prior to mitigation. This impact would be **potentially significant** prior to mitigation.

Table 3.2-25 presents the unmitigated annual criteria air pollutant emissions for the Lassen feedstock area compared to Butte County AQMD's annual thresholds, which is the only air district within the Lassen Working Area with applicable annual thresholds.

### Table 3.2-25. Estimated Annual Criteria Air Pollutant Emissions – Lassen Feedstock Area – Unmitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| 2025 and Subsequent | 6.98 | 98.84 | 52.35 | 0.24 | 148.87 | 28.64 |
| **Total Annual Emissions** | **6.98** | **98.84** | **52.35** | **0.24** | **148.87** | **28.64** |
| Butte County AQMD Threshold | 4.5 | 4.5 | N/A | N/A | N/A | N/A |
| **Most Stringent Threshold Exceeded?** | **Yes** | **Yes** | **N/A** | **N/A** | **N/A** | **N/A** |

**Notes**: AQMD = Air Quality Management District; APCD = Air Pollution Control District; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition).
Air districts in which feedstock activities may occur but that have not established any applicable annual thresholds are not listed.

As shown in Table 3.2-25, the sustainable forest management projects in the Lassen feedstock area, if undertaken simultaneously within any one air district, would exceed the Butte County AQMD annual thresholds for VOC and $NO_X$ prior to mitigation. This impact would be **potentially significant** prior to mitigation.

Mitigation measures identified to reduce project-generated emissions and environmental impacts during feedstock activity include **MM-AQ-1** through **MM-AQ-4** as follows.

**MM-AQ-1** (Operational Equipment Exhaust Minimization – Tier 4 Final – Feedstock Acquisition) would reduce criteria air pollutant emissions, specifically VOC, $NO_X$, $PM_{10}$, and $PM_{2.5}$, by requiring the project to minimize off-road equipment exhaust with Tier 4 Final equipment, which is quantified herein. **MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility) would reduce emissions by limiting truck and equipment idling time. **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce emissions by incorporating renewable diesel fuel. **MM-AQ-4** (Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce emissions by encouraging workers to carpool. **MM-AQ-2** through **MM-AQ-4** are not quantified herein.

Table 3.2-26 presents the mitigated maximum daily criteria air pollutant emissions for the Lassen feedstock area for summer and winter.

### Table 3.2-26. Estimated Maximum Daily Criteria Air Pollutant Emissions – Lassen Feedstock Area – Mitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| 2025 and Subsequent | 29.97 | 601.65 | 952.52 | 2.69 | 1,856.64 | 324.78 |
| **Winter** | | | | | | |
| 2025 and Subsequent | 29.77 | 611.38 | 941.39 | 2.69 | 1,856.64 | 324.78 |
| **Maximum Daily Emissions** | **29.97** | **611.38** | **952.52** | **2.69** | **1,856.64** | **324.78** |
| Butte County AQMD Threshold | 137 | 137 | N/A | N/A | 150 | 150 |
| Lassen County APCD Threshold | 150 | 150 | 550 | 150 | 150 | 150 |
| Northern Sierra AQMD Threshold | 136 | 136 | N/A | N/A | 136 | N/A |
| Shasta County AQMD Threshold | 137 | 137 | N/A | N/A | 137 | N/A |
| Tehama County APCD Threshold | 137 | 137 | N/A | N/A | 137 | N/A |
| *Most Stringent Threshold* | *136* | *136* | *550* | *150* | *136* | *150* |
| **Most Stringent Threshold Exceeded?** | **No** | **Yes** | **Yes** | **No** | **Yes** | **Yes** |

**Notes**: AQMD = Air Quality Management District; APCD = Air Pollution Control District; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition) and **MM-AQ-1** (Operational Equipment Exhaust Minimization – Tier 4 Final – Feedstock Acquisition).
Air districts in which feedstock activities may occur but that have not established any applicable daily thresholds are not listed.

As shown in Table 3.2-26, the sustainable forest management projects in the Lassen feedstock area, if undertaken simultaneously within any one air district, would exceed the most stringent applicable air district daily thresholds for $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$ with incorporation of PDFs and mitigation. This impact would be **significant and unavoidable** with mitigation.

Table 3.2-27 presents the mitigated annual criteria air pollutant emissions for the Lassen feedstock area.

### Table 3.2-27. Estimated Annual Criteria Air Pollutant Emissions – Lassen Feedstock Area – Mitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| 2025 and Subsequent | 2.61 | 53.46 | 82.56 | 0.24 | 146.90 | 26.86 |
| **Total Annual Emissions** | **2.61** | **53.46** | **82.56** | **0.24** | **146.90** | **26.86** |
| Butte County AQMD Threshold | 4.5 | 4.5 | N/A | N/A | N/A | N/A |
| **Most Stringent Threshold Exceeded?** | **No** | **Yes** | **N/A** | **N/A** | **N/A** | **N/A** |

**Notes**: AQMD = Air Quality Management District; APCD = Air Pollution Control District; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition).
Air districts in which feedstock activities may occur but that have not established any applicable annual thresholds are not listed.

As shown in Table 3.2-27, the sustainable forest management projects in the Lassen feedstock area, if undertaken simultaneously within any one air district, would exceed the Butte County AQMD annual thresholds for $NO_X$ with incorporation of PDFs and mitigation. This impact would be **significant and unavoidable** with mitigation.

### Tuolumne Feedstock Area

Table 3.2-28 presents the unmitigated maximum daily criteria air pollutant emissions for the Tuolumne feedstock area for summer and winter compared to the most stringent air district daily threshold.

**Table 3.2-28. Estimated Maximum Daily Criteria Air Pollutant Emissions – Tuolumne Feedstock Area – Unmitigated**

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| 2025 and Subsequent | 26.30 | 416.33 | 221.28 | 1.04 | 468.08 | 83.16 |
| **Winter** | | | | | | |
| 2025 and Subsequent | 26.22 | 420.26 | 214.43 | 1.04 | 468.08 | 83.16 |
| **Maximum Daily Emissions** | **26.30** | **420.26** | **221.28** | **1.04** | **468.08** | **83.16** |
| Calaveras County APCD Threshold | 150 | 150 | N/A | N/A | 150 | N/A |
| El Dorado APCD Threshold | 82 | 82 | N/A | N/A | N/A | N/A |
| Feather River AQMD Threshold | 25 | 25 | N/A | N/A | 80 | N/A |
| Northern Sierra AQMD Threshold | 136 | 136 | N/A | N/A | 136 | N/A |
| Placer County APCD Threshold | 55 | 55 | N/A | N/A | 82 | N/A |
| Sacramento Metropolitan AQMD Threshold | 65 | 65 | N/A | N/A | 80 | 82 |
| Tuolumne County APCD Threshold | 1,000 | 1,000 | 1,000 | N/A | 1,000 | N/A |
| *Most Stringent Threshold* | *25* | *25* | *1,000* | *N/A* | *80* | *82* |
| **Most Stringent Threshold Exceeded?** | **Yes** | **Yes** | **No** | **N/A** | **Yes** | **Yes** |

**Notes**: AQMD = Air Quality Management District; APCD = Air Pollution Control District; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition).
Air districts in which feedstock activities may occur but that have not established any applicable daily thresholds are not listed.

As shown in Table 3.2-28, the sustainable forest management projects in the Tuolumne feedstock area, if undertaken simultaneously within any one air district, would exceed the most stringent applicable air district daily thresholds for VOC, $NO_X$, $PM_{10}$, and $PM_{2.5}$ with incorporation of PDFs and prior to mitigation. This impact would be **potentially significant** prior to mitigation.

Table 3.2-29 presents the unmitigated annual criteria air pollutant emissions for the Tuolumne feedstock area.

### Table 3.2-29. Estimated Annual Criteria Air Pollutant Emissions – Tuolumne Feedstock Area – Unmitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| 2025 and Subsequent | 2.55 | 40.75 | 20.93 | 0.10 | 40.98 | 7.62 |
| **Total Annual Emissions** | **2.55** | **40.75** | **20.93** | **0.10** | **40.98** | **7.62** |
| Feather River AQMD Threshold | 4.5 | 4.5 | N/A | N/A | N/A | N/A |
| Mariposa County APCD Threshold | 100 | 100 | 100 | 100 | 100 | 100 |
| Sacramento Metropolitan AQMD Threshold | N/A | N/A | N/A | N/A | 14.6 | 15 |
| San Joaquin Valley APCD Threshold | 10 | 10 | 100 | 27 | 15 | 15 |
| Tuolumne County APCD Threshold | 100 | 100 | 100 | N/A | 100 | N/A |
| *Most Stringent Threshold* | *4.5* | *4.5* | *100* | *27* | *14.6* | *15* |
| **Most Stringent Threshold Exceeded?** | **No** | **Yes** | **No** | **No** | **Yes** | **No** |

**Notes**: AQMD = Air Quality Management District; APCD = Air Pollution Control District; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition).
Air districts in which feedstock activities may occur but that have not established any applicable annual thresholds are not listed.

As shown in Table 3.2-29, the sustainable forest management projects in the Tuolumne feedstock area, if undertaken simultaneously within any one air district, would exceed the most stringent applicable air district annual thresholds for $NO_x$ and $PM_{10}$ with incorporation of PDFs and prior to mitigation. This impact would be **potentially significant** prior to mitigation.

As described for the Lassen feedstock area, **MM-AQ-1** (Operational Equipment Exhaust Minimization – Tier 4 Final – Feedstock Acquisition) would reduce criteria air pollutant emissions, which is quantified. **MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility), **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-4** (Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would also reduce criteria air pollutant emissions but are not quantified herein.

Table 3.2-30 presents the mitigated maximum daily criteria air pollutant emissions for the Tuolumne feedstock area for summer and winter.

### Table 3.2-30. Estimated Maximum Daily Criteria Air Pollutant Emissions – Tuolumne Feedstock Area – Mitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| 2025 and Subsequent | 10.58 | 267.06 | 391.13 | 1.04 | 461.50 | 77.26 |
| **Winter** | | | | | | |
| 2025 and Subsequent | 10.50 | 270.99 | 384.28 | 1.04 | 461.50 | 77.26 |

### Table 3.2-30. Estimated Maximum Daily Criteria Air Pollutant Emissions – Tuolumne Feedstock Area – Mitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Maximum Daily Emissions** | **10.58** | **270.99** | **391.13** | **1.04** | **461.50** | **77.26** |
| Calaveras County APCD Threshold | 150 | 150 | N/A | N/A | 150 | N/A |
| El Dorado APCD Threshold | 82 | 82 | N/A | N/A | N/A | N/A |
| Feather River AQMD Threshold | 25 | 25 | N/A | N/A | 80 | N/A |
| Northern Sierra AQMD Threshold | 136 | 136 | N/A | N/A | 136 | N/A |
| Placer County APCD Threshold | 55 | 55 | N/A | N/A | 82 | N/A |
| Sacramento Metropolitan AQMD Threshold | 65 | 65 | N/A | N/A | 80 | 82 |
| Tuolumne County APCD Threshold | 1,000 | 1,000 | 1,000 | N/A | 1,000 | N/A |
| *Most Stringent Threshold* | *25* | *25* | *1,000* | *N/A* | *80* | *82* |
| **Most Stringent Threshold Exceeded?** | **No** | **Yes** | **No** | **N/A** | **Yes** | **No** |

**Notes**: AQMD = Air Quality Management District; APCD = Air Pollution Control District; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition) and **MM-AQ-1** (Operational Equipment Exhaust Minimization – Tier 4 Final – Feedstock Acquisition).
Air districts in which feedstock activities may occur but that have not established any applicable daily thresholds are not listed.

As shown in Table 3.2-30, the sustainable forest management projects in the Tuolumne feedstock area, if undertaken simultaneously within any one air district, would exceed the most stringent applicable air district daily thresholds for $NO_x$, and $PM_{10}$, with incorporation of PDFs and mitigation. This impact would be **significant and unavoidable** with mitigation.

Table 3.2-31 presents the mitigated annual criteria air pollutant emissions for the Tuolumne feedstock area.

### Table 3.2-31. Estimated Annual Criteria Air Pollutant Emissions – Tuolumne Feedstock Area – Mitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| 2025 and Subsequent | 1.02 | 26.27 | 37.40 | 0.10 | 40.34 | 7.05 |
| **Total Annual Emissions** | **1.02** | **26.27** | **37.40** | **0.10** | **40.34** | **7.05** |
| Feather River AQMD Threshold | 4.5 | 4.5 | N/A | N/A | N/A | N/A |
| Mariposa County APCD Threshold | 100 | 100 | 100 | 100 | 100 | 100 |
| Sacramento Metropolitan AQMD Threshold | N/A | N/A | N/A | N/A | 14.6 | 15 |
| San Joaquin Valley APCD Threshold | 10 | 10 | 100 | 27 | 15 | 15 |
| Tuolumne County APCD Threshold | 100 | 100 | 100 | N/A | 100 | N/A |
| *Most Stringent Threshold* | *4.5* | *4.5* | *100* | *27* | *14.6* | *15* |
| **Most Stringent Threshold Exceeded?** | **No** | **Yes** | **No** | **No** | **Yes** | **No** |

**Notes**: AQMD = Air Quality Management District; APCD = Air Pollution Control District; VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition) and **MM-AQ-1** (Operational Equipment Exhaust Minimization – Tier 4 Final – Feedstock Acquisition).
Air districts in which feedstock activities may occur but that have not established any applicable annual thresholds are not listed.

As shown in Table 3.2-31, the sustainable forest management projects in the Tuolumne feedstock area, if undertaken simultaneously within any one air district, would exceed the most stringent applicable air district annual thresholds for $NO_X$ and $PM_{10}$ with incorporation of PDFs and mitigation. This impact would be **significant and unavoidable** with mitigation.

#### Feedstock Acquisition - Conclusion

As shown in Tables 3.2-24, 3.2-25, 3.2-28, and 3.2-29, feedstock acquisition in the Lassen feedstock area and the Tuolumne feedstock area, if undertaken simultaneously within any one air district, would have the potential to exceed numerical thresholds of significance established by Butte County AQMD, Calaveras County APCD, El Dorado APCD, Feather River AQMD, Lassen County AQMD, Northern Sierra AQMD, Placer County APCD, Sacramento Metropolitan AQMD, San Joaquin Valley APCD, Shasta County AQMD, and Tehama County APCD for VOC, NOX, CO, PM10, and PM2.5, with implementation of PDF-AQ-1 (Air District Regulatory Compliance – Feedstock Acquisition) and PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition) and prior to mitigation. Of the 14 counties located within these air districts, 11 are nonattainment for one of these pollutants, or for $O_3$, to which VOC and NOx are precursors (see Table 3.2-1), and therefore this would be a **potentially significant** impact.

After implementation of **MM-AQ-1** through **MM-AQ-4**, which provide for Tier 4 Final engines in offroad equipment, limit truck and offroad equipment idling, incorporate renewable diesel fuel in trucks and offroad equipment, and educate workers to optimize their commutes, and as shown in Tables 3.2-26, 3.2-27, 3.2-30, and 3.2-31, the emissions during feedstock acquisition in each area, if undertaken simultaneously within any one air district, would still exceed the numerical thresholds of significance established by Butte County AQMD, Calaveras County APCD, El Dorado APCD, Feather River AQMD, Lassen County AQMD, Northern Sierra AQMD, Placer County APCD, Sacramento Metropolitan AQMD, San Joaquin Valley APCD, Shasta County AQMD, and Tehama County APCD for $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$. Since this represents a cumulatively considerable net increase within counties that are nonattainment for these pollutants, or for $O_3$, the impact related to this portion of the project would be **significant and unavoidable** with mitigation.

## Wood Pellet Production

### Lassen Facility

#### Construction Emissions

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road vendor trucks and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for particulate matter, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated.

CalEEMod Version 2022.1.1.25 was used to estimate emissions from construction of the project. Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of

VOCs, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$. $PM_{10}$ and $PM_{2.5}$ emissions would also be generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil. As described in Section 3.2.4.1.2, the project would implement SDF-AQ-1 (Air District Regulatory Compliance – Lassen Facility, Tuolumne Facility, and Port of Stockton) and SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton) at the Lassen Facility, which would require air district regulatory compliance and fugitive dust control. SDF-AQ-2 is quantified in the construction analysis within CalEEMod where "water three times per day," "water demolished area," "water unpaved construction roads," and "limit vehicle speeds on unpaved roads" were selected to reduce fugitive dust emissions.

Table 3.2-32 presents the estimated maximum daily construction emissions generated during construction of the Lassen Facility for summer and winter. Details of the emission calculations are provided in Appendix B1.

### Table 3.2-32. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Lassen Facility - Unmitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| 2025 | 172.01 | 155.55 | 186.41 | 0.37 | 19.03 | 8.73 |
| **Winter** | | | | | | |
| 2024 | 6.04 | 63.58 | 60.91 | 0.11 | 12.06 | 6.39 |
| 2025 | 170.21 | 168.85 | 194.08 | 0.40 | 20.05 | 9.23 |
| **Maximum** | **172.01** | **168.85** | **194.08** | **0.40** | **20.05** | **9.23** |
| Lassen County APCD Daily BACT Threshold | 150 | 150 | 550 | 150 | 150 | 150 |
| **Threshold Exceeded?** | **Yes** | **Yes** | **No** | **No** | **No** | **No** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; Lassen County APCD = Lassen County Air Pollution Control District; BACT = best available control technology.
The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton).

As shown in Table 3.2-32, construction of the Lassen Facility would exceed the Lassen County APCD daily BACT thresholds for VOC, $NO_x$, and CO with incorporation of SDFs and prior to mitigation. This impact would be **potentially significant** prior to mitigation.

The Lassen County APCD has not established annual thresholds for criteria air pollutants. However, Table 3.2-33 presents the unmitigated annual construction criteria air pollutant emissions for informational purposes.

### Table 3.2-33. Estimated Annual Construction Criteria Air Pollutant Emissions – Lassen Facility – Unmitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| 2024 | 0.11 | 1.15 | 1.12 | <0.01 | 0.21 | 0.11 |
| 2025 | 6.06 | 17.25 | 20.30 | 0.04 | 1.89 | 0.86 |
| **Maximum** | **6.06** | **17.25** | **20.30** | **0.04** | **1.89** | **0.86** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.
The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton).

Mitigation measures identified to reduce project-generated emissions and environmental impacts during construction of the Lassen Facility include **MM-AQ-5** through **MM-AQ-7** as follows.

**MM-AQ-5** (Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility) would reduce criteria air pollutant emissions, specifically VOC, $NO_x$, $PM_{10}$, and $PM_{2.5}$, by requiring the project to minimize construction off-road equipment exhaust with Tier 4 Final equipment, which is quantified. **MM-AQ-6** (Construction Lower-VOC Paints – Lassen Facility) would reduce VOC emissions by requiring a lower VOC paint, which is quantified. **MM-AQ-7** (Construction Activities Notification – Lassen Facility, Tuolumne Facility, and Port of Stockton) would require the project to provide public notification of the construction activity. **MM-AQ-7** is not quantified herein.

Furthermore, **MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility), **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), and **MM-AQ-4** (Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce impacts during construction at the Lassen Facility but are not quantified herein.

Table 3.2-34 presents the mitigated maximum daily construction criteria air pollutant emissions for the Lassen Facility for summer and winter.

### Table 3.2-34. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Lassen Facility - Mitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| 2025 | 142.11 | 95.43 | 201.08 | 0.37 | 16.48 | 6.41 |
| **Winter** | | | | | | |
| 2024 | 1.22 | 12.96 | 55.96 | 0.11 | 9.74 | 4.27 |
| 2025 | 141.31 | 103.65 | 209.38 | 0.40 | 17.26 | 6.69 |
| **Maximum** | **142.11** | **103.65** | **209.38** | **0.40** | **17.26** | **6.69** |
| Lassen County APCD Daily BACT Threshold | 150 | 150 | 550 | 150 | 150 | 150 |
| **Threshold Exceeded?** | **No** | **No** | **No** | **No** | **No** | **No** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; Lassen County APCD = Lassen County Air Pollution Control District; BACT = best available control technology.
The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton), MM-AQ-5 (Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility), and **MM-AQ-6** (Construction Lower-VOC Paints – Lassen Facility).

As shown in Table 3.2-34, construction of the Lassen Facility would not exceed the Lassen County APCD daily BACT thresholds with incorporation of SDFs and mitigation.

The Lassen County APCD has not established annual thresholds for criteria air pollutants. However, Table 3.2-35 presents the mitigated annual construction criteria air pollutant emissions for informational purposes.

### Table 3.2-35. Estimated Annual Construction Criteria Air Pollutant Emissions – Lassen Facility – Mitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| 2024 | 0.02 | 0.27 | 1.06 | <0.01 | 0.17 | 0.07 |
| 2025 | 4.83 | 11.30 | 22.17 | 0.04 | 1.64 | 0.64 |
| **Maximum Emissions** | **4.83** | **11.30** | **22.17** | **0.04** | **1.64** | **0.64** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.
The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton).

Overall, construction of the Lassen Facility would not exceed the Lassen County APCD daily BACT thresholds with incorporation of SDFs and mitigation.

## Construction Air Quality Impact Assessment

Although the project would not exceed the maximum daily significance threshold established by the Lassen County APCD BACT requirements for any criteria pollutant with the inclusion of mitigation, the project would emit more than 100 pounds of VOC, $NO_x$, and CO per day onsite during construction. As recommended by the Guidance for Assessing and Mitigating Air Quality Impacts (San Joaquin Valley APCD 2015a), an ambient air quality impacts assessment should be performed if any pollutants exceed 100 pounds per day during construction or operation. Maximum daily emissions were used as the basis for determining the project's potential impact on ambient air quality. Summary tables of annual and daily emissions associated with construction are included in Appendix B3.

For the initial assessment (Step 1) of the ambient air quality impact analysis, the maximum background concentration for the Lassen Facility for each pollutant and averaging period combination was added to the corresponding maximum ground level concentration (GLC) from project-related construction. The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1, with one major difference. For this second step, the maximum GLC of each pollutant and averaging period combination were compared to its corresponding SIL. The SIL is used to evaluate whether the project's construction emissions would contribute to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required. Table 3.2-36 presents a summary of the Air Quality Impact Assessment undertaken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts.

## Table 3.2-36. Lassen Facility Construction Air Quality Impact Assessment - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| 1-hour CO | State | 1.7 | 1,948 | 78.54 | 2,026 | 22,900 | **PASS** | 2000 | Step 1 |
| | Federal | 1.7 | 1,948 | 78.54 | 2,026 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 11.26 | 1,730 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 1.5 | 1,718 | 11.26 | 1,730 | 10,300 | **PASS** | 500 | Step 1 |
| 1-hour $NO_2$ | State | 0.032 | 60 | 52.80 | 113 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.032 | 60 | 52.80 | 113 | 188 | **PASS** | 7.5 | Step 1 |
| Annual $NO_2$ | State | 0.005 | 10 | 0.84 | 10 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.005 | 9 | 0.84 | 10 | 100 | **PASS** | 1 | Step 1 |
| 1-hour $SO_2$ | State | 0.001 | 3 | 0.13 | 3 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.001 | 3 | 0.13 | 3 | 196 | **PASS** | 7.8 | Step 1 |
| 24-Hour $SO_2$ | State | 0.001 | 3 | 0.01 | 3 | 105 | **PASS** | 5 | Step 1 |
| | Federal | 0.001 | 3 | 0.01 | 3 | 367 | **PASS** | 5 | Step 1 |
| Annual $SO_2$ | Federal | 0.000 | 1 | 0.00 | 1 | 79 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 117 | 0.18 | 117 | 50 | Step 2 | 5 | **PASS** |
| | Federal | -- | 117 | 0.18 | 117 | 150 | **PASS** | 5 | Step 1 |
| Annual $PM_{10}$ | State | -- | 19 | 0.05 | 19 | 20 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{2.5}$ | Federal | -- | 303 | 0.15 | 303 | 35 | Step 2 | 1.2 | **PASS** |
| Annual $PM_{2.5}$ | State | -- | 15 | 0.04 | 15 | 12 | Step 2 | 0.3 | **PASS** |
| | Federal* | -- | 15 | 0.04 | 15 | 9 | Step 2 | 0.13 | **PASS** |

**Source:** See Appendix B3.

**Notes:** ppmv = parts per million by volume; µg/m³ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.

The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton).

As discussed in Section 3.2.1.3, the closest monitoring station for $NO_2$ is 102 miles, $PM_{10}$ is 69 miles, and $PM_{2.5}$ is 87 miles from the project site because the NEPAB is in attainment for these pollutants. Therefore, the background concentrations used in this AQIA are from areas that may not be representative of the project site and may overestimate the background concentrations where the facility is located. Therefore, results presented herein are considered conservative.

## Table 3.2-37. Lassen Facility Construction Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| 1-hour CO | State | 1.7 | 1,948 | 86.09 | 2,034 | 22,900 | **PASS** | 2000 | Step 1 |
| | Federal | 1.7 | 1,948 | 86.09 | 2,034 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 12.34 | 1,731 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 1.5 | 1,718 | 12.34 | 1,731 | 10,300 | **PASS** | 500 | Step 1 |
| 1-hour $NO_2$ | State | 0.032 | 60 | 27.03 | 87 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.032 | 60 | 27.03 | 87 | 188 | **PASS** | 7.5 | Step 1 |
| Annual $NO_2$ | State | 0.005 | 10 | 0.43 | 10 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.005 | 9 | 0.43 | 10 | 100 | **PASS** | 1 | Step 1 |
| 1-hour $SO_2$ | State | 0.001 | 3 | 0.13 | 3 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.001 | 3 | 0.13 | 3 | 196 | **PASS** | 7.8 | Step 1 |
| 24-Hour $SO_2$ | State | 0.001 | 3 | 0.01 | 3 | 105 | **PASS** | 5 | Step 1 |
| | Federal | 0.001 | 3 | 0.01 | 3 | 367 | **PASS** | 5 | Step 1 |
| Annual $SO_2$ | Federal | 0.000 | 1 | 0.00 | 1 | 79 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 117 | 0.19 | 117 | 50 | Step 2 | 5 | **PASS** |
| | Federal | -- | 117 | 0.19 | 117 | 150 | **PASS** | 5 | Step 1 |
| Annual $PM_{10}$ | State | -- | 19 | 0.05 | 19 | 20 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{2.5}$ | Federal | -- | 303 | 0.09 | 303 | 35 | Step 2 | 1.2 | **PASS** |
| Annual $PM_{2.5}$ | State | -- | 15 | 0.02 | 15 | 12 | Step 2 | 0.3 | **PASS** |
| | Federal* | -- | 15 | 0.02 | 15 | 9 | Step 2 | 0.13 | **PASS** |

**Source:** See Appendix B3.

**Notes:** ppmv = parts per million by volume; ug/m³ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.

The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton), **MM-AQ-5** (Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility), and **MM-AQ-6** (Construction Lower-VOC Paints – Lassen Facility).

As discussed in Section 3.2.1.3, the closest monitoring station for $NO_2$ is 102 miles, $PM_{10}$ is 69 miles, and $PM_{2.5}$ is 87 miles from the project site because the NEPAB is in attainment for these pollutants. Therefore, the background concentrations used in this AQIA are from areas that may not be representative of the project site and may overestimate the background concentrations where the facility is located. Therefore, results presented herein are considered conservative.

As shown in Table 3.2-36, the unmitigated construction emissions would not exceed the AAQS for the CO, $NO_2$, and $SO_2$ or the SILs for $PM_{10}$ and $PM_{2.5}$ with incorporation of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton). As such, no AAQS is expected to be exceeded during construction. Regardless, Table 3.2-37 shows the mitigated construction emissions, including application of **MM-AQ-2** through **MM-AQ-7**, with **MM-AQ-5** and **MM-AQ-6** being quantified. These mitigation measures are listed as follows:

- **MM-AQ-2: Construction and Operation Limit Truck and Equipment Idling –** Feedstock Acquisition, Lassen Facility, and Tuolumne Facility
- **MM-AQ-3: Construction and Operation Renewable Diesel Fuel –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-4: Construction and Operational Worker Commute Optimization –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-5: Construction Equipment Exhaust Minimization –** Tier 4 Final – Lassen Facility
- **MM-AQ-6: Construction Lower-VOC Paints –** Lassen Facility
- **MM-AQ-7: Construction Activities Notification –** Lassen Facility, Tuolumne Facility, and Port of Stockton

As shown in Table 3.2-37, the mitigated construction emissions would not exceed the AAQS for the CO, $NO_2$, and $SO_2$ or the SILs for $PM_{10}$ and $PM_{2.5}$. As such, no AAQS is expected to be exceeded during construction. For the reasons noted above, the impact related to this portion of the project would be **less than significant**.

### Operational Emissions

Operation at the Lassen Facility would generate VOC, $NO_x$, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$ emissions from area sources (consumer products and architectural coatings), mobile sources (worker vehicles, vendor trucks, and logging/haul trucks), off-road equipment, stationary equipment, and rail sources (switcher locomotive and line-haul trains). As discussed in Section 3.2.4.1.2, pollutant emissions associated with long-term operations were quantified using a combination of project-specific information and CalEEMod default values.

Table 3.2-38 presents the estimated maximum daily unmitigated operational emissions associated with Lassen Facility operation and anticipated project activities within the Lassen County APCD jurisdictional boundaries for summer and winter.

**Table 3.2-38. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Lassen Facility and Project Activities within Lassen County APCD - Unmitigated**

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| Area | 9.05 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.59 | 4.14 | 13.05 | 0.05 | 3.44 | 0.91 |
| Off-Road Equipment | 1.21 | 11.33 | 21.65 | 0.03 | 0.44 | 0.41 |
| Stationary Equipment | 1,146.55 | 782.61 | 1,372.45 | 1.37 | 836.34 | 832.23 |
| Logging/Haul Trucks[a] | 1.73 | 113.52 | 28.49 | 0.67 | 29.66 | 9.56 |

### Table 3.2-38. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Lassen Facility and Project Activities within Lassen County APCD - Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| Rail[b] | 18.04 | 426.54 | 103.11 | 0.40 | 9.74 | 8.96 |
| Switcher Locomotive | 0.47 | 10.59 | 1.04 | 0.01 | 0.26 | 0.24 |
| *Total* | *1,177.64* | *1,348.73* | *1,539.79* | *2.53* | *879.88* | *852.31* |
| **Winter** | | | | | | |
| Area | 9.05 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.58 | 4.78 | 11.40 | 0.05 | 3.44 | 0.91 |
| Off-Road Equipment | 1.21 | 11.33 | 21.65 | 0.03 | 0.44 | 0.41 |
| Stationary Equipment | 1,146.55 | 782.61 | 1,372.45 | 1.37 | 836.34 | 832.23 |
| Logging/Haul Trucks[a] | 1.68 | 119.90 | 28.69 | 0.67 | 29.66 | 9.56 |
| Rail[b] | 18.04 | 426.54 | 103.11 | 0.40 | 9.74 | 8.96 |
| Switcher Locomotive | 0.47 | 10.59 | 1.04 | 0.01 | 0.26 | 0.24 |
| *Total* | *1,177.58* | *1,355.75* | *1,538.34* | *2.53* | *879.88* | *852.31* |
| **Maximum** | **1,177.64** | **1,355.75** | **1,539.79** | **2.53** | **879.88** | **852.31** |
| Lassen County APCD Daily BACT Threshold | 150 | 150 | 550 | 150 | 150 | 150 |
| **Threshold Exceeded?** | **Yes** | **Yes** | **Yes** | **No** | **Yes** | **Yes** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; Lassen County APCD = Lassen County Air Pollution Control District; BACT = best available control technology.

[a] Logging/Haul Trucks emissions include the emissions from all of the Lassen logging/haul trucks assuming a 54.5-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the Lassen County APCD boundaries concurrently.

[b] Rail emissions include the line haul train emissions within the Lassen County APCD.

As shown in Table 3.2-38, the project would exceed the daily Lassen County APCD thresholds for VOC, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$ prior to mitigation. This impact would be **potentially significant** prior to mitigation.

The Lassen County APCD has not established annual thresholds for criteria air pollutants. However, Table 3.2-39 presents the estimated unmitigated annual operational emissions for the Lassen Facility and anticipated project activities within the Lassen County APCD jurisdictional boundaries for informational purposes.

### Table 3.2-39. Estimated Annual Operation Criteria Air Pollutant Emissions – Lassen Facility and Project Activities within Lassen County APCD – Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Area | 1.65 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.10 | 0.81 | 2.10 | 0.01 | 0.61 | 0.16 |
| Off-Road Equipment | 0.20 | 1.90 | 3.63 | 0.01 | 0.07 | 0.07 |
| Stationary Equipment | 192.0 | 131.1 | 229.9 | 0.23 | 140.1 | 139.4 |

### Table 3.2-39. Estimated Annual Operation Criteria Air Pollutant Emissions – Lassen Facility and Project Activities within Lassen County APCD – Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Logging/Haul Trucks[a] | 0.15 | 10.50 | 2.52 | 0.06 | 2.56 | 0.83 |
| Rail[b] | 0.63 | 14.93 | 3.61 | 0.01 | 0.34 | 0.31 |
| Switcher Locomotive | 0.02 | 0.37 | 0.04 | 0.00 | 0.01 | 0.01 |
| Total | 194.75 | 159.61 | 241.80 | 0.32 | 143.69 | 140.78 |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; Lassen County APCD = Lassen County Air Pollution Control District; BACT = best available control technology.

[a] Logging/Haul Trucks emissions include the emissions from all the Lassen logging/haul trucks assuming a 54.5-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the Lassen County APCD boundaries concurrently.

[b] Rail emissions include the line haul train emissions within the Lassen County APCD.

Mitigation measures identified to reduce project-generated emissions during operation at the Lassen Facility include **MM-AQ-8** and **MM-AQ-9** as follows.

**MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce criteria air pollutant emissions, specifically VOC, $NO_x$, $SO_x$, $PM_{10}$, and $PM_{2.5}$, by requiring the project to minimize operational off-road equipment exhaust with Tier 4 Final equipment, which is quantified. **MM-AQ-9** (Operational Switcher Locomotive Exhaust Minimization – Lassen Facility) would reduce criteria air pollutant emissions by requiring a Tier 4 Final engine for the on-site switcher locomotive at the Lassen Facility, which is quantified.

Furthermore, **MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility), **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), and **MM-AQ-4** (Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce impacts during operation at the Lassen Facility but are not quantified herein.

Table 3.2-40 presents the estimated maximum mitigated daily operational criteria air pollutant emissions for the Lassen Facility and anticipated project activities within the Lassen County APCD jurisdictional boundaries for summer and winter.

### Table 3.2-40. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Lassen Facility and Project Activities within Lassen County APCD - Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| Area | 9.05 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.59 | 4.14 | 13.05 | 0.05 | 3.44 | 0.91 |
| Off-Road Equipment | 0.33 | 1.70 | 24.17 | 0.03 | 0.07 | 0.07 |

## Table 3.2-40. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Lassen Facility and Project Activities within Lassen County APCD - Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| Stationary Equipment | 1,146.55 | 782.61 | 1,372.45 | 1.37 | 836.34 | 832.23 |
| Logging/Haul Trucks[a] | 1.73 | 113.52 | 28.49 | 0.67 | 29.66 | 9.56 |
| Portion of Rail[b] | 18.04 | 426.54 | 103.11 | 0.40 | 9.74 | 8.96 |
| Switcher Locomotive | 0.04 | 0.81 | 1.04 | 0.00 | 0.02 | 0.01 |
| *Total* | *1,176.33* | *1,329.32* | *1,542.31* | *2.52* | *879.27* | *851.74* |
| **Winter** | | | | | | |
| Area | 9.05 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.58 | 4.78 | 11.40 | 0.05 | 3.44 | 0.91 |
| Off-Road Equipment | 0.33 | 1.70 | 24.17 | 0.03 | 0.07 | 0.07 |
| Stationary Equipment | 1,146.55 | 782.61 | 1,372.45 | 1.37 | 836.34 | 832.23 |
| Logging/Haul Trucks[a] | 1.68 | 119.90 | 28.69 | 0.67 | 29.66 | 9.56 |
| Portion of Rail[b] | 18.04 | 426.54 | 103.11 | 0.40 | 9.74 | 8.96 |
| Switcher Locomotive | 0.04 | 0.81 | 1.04 | 0.00 | 0.02 | 0.01 |
| *Total* | *1,176.27* | *1,336.34* | *1,540.86* | *2.52* | *879.27* | *851.74* |
| **Maximum** | **1,176.33** | **1,336.34** | **1,542.31** | **2.52** | **879.27** | **851.74** |
| Lassen County APCD Daily BACT Threshold | 150 | 150 | 550 | 150 | 150 | 150 |
| **Threshold Exceeded?** | **Yes** | **Yes** | **Yes** | **No** | **Yes** | **Yes** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; Lassen County APCD = Lassen County Air Pollution Control District; BACT = best available control technology.

[a] Logging/Haul Trucks emissions include the emissions from all of the Lassen logging/haul trucks assuming a 54.5-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the Lassen County APCD boundaries concurrently.

[b] Rail emission include the line haul train emissions within the Lassen County APCD.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-9** (Operational Switcher Locomotive Exhaust Minimization – Lassen Facility).

As shown in Table 3.2-40, the project would exceed the daily Lassen County APCD thresholds for VOC, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$ with mitigation.

The Lassen County APCD has not established annual thresholds for criteria air pollutants. However, Table 3.2-41 presents the estimated mitigated annual operational emissions for the Lassen Facility and anticipated project activities within the Lassen County APCD jurisdictional boundaries for informational purposes.

## Table 3.2-41. Estimated Annual Operation Criteria Air Pollutant Emissions – Lassen Facility and Project Activities within Lassen County APCD – Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Area | 1.65 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |

## Table 3.2-41. Estimated Annual Operation Criteria Air Pollutant Emissions – Lassen Facility and Project Activities within Lassen County APCD – Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Mobile | 0.10 | 0.81 | 2.10 | 0.01 | 0.61 | 0.16 |
| Off-Road Equipment | 0.05 | 1.09 | 6.15 | 0.01 | 0.01 | 0.01 |
| Stationary Equipment | 192.0 | 131.1 | 229.9 | 0.23 | 140.1 | 139.4 |
| Logging/Haul Trucks[a] | 0.15 | 10.50 | 2.52 | 0.06 | 2.56 | 0.83 |
| Rail[b] | 0.63 | 14.93 | 3.61 | 0.01 | 0.34 | 0.31 |
| Switcher Locomotive | 0.00 | 0.03 | 0.04 | 0.00 | 0.00 | 0.00 |
| **Total** | **194.58** | **158.46** | **244.32** | **0.32** | **143.62** | **140.71** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; Lassen County APCD = Lassen County Air Pollution Control District; BACT = best available control technology.

[a] Logging/Haul Trucks emissions include the emissions from all of the Lassen logging/haul trucks assuming a 54.5-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the Lassen County APCD boundaries concurrently.

[b] Rail emissions include the line haul train emissions within the Lassen County APCD.

If 100% of feedstock acquisition and Lassen Facility operations (including line haul transport) occur within Lassen County APCD jurisdictional boundaries *at the same time*, the combined maximum daily emissions from Table 3.2-26 and Table 3.2-40 would be approximately 1,206 pounds per day of VOC, 1,948 pounds per day of $NO_x$, 2,495 pounds per day of CO, 5 pounds per day $SO_x$, 2,736 pounds per day of $PM_{10}$, and 1,177 pounds per day of $PM_{2.5}$ with incorporation of PDFs and mitigation, which is a conservative estimate. (As noted above, this is unlikely in practice; however, more precise determination of the percentage of these activities occurring within Lassen County APCD boundaries at any given time is impracticable at this stage, since the location and timing of specific feedstock acquisition and line haul transport activities is not yet known.) Note that even under this scenario, the majority of daily feedstock and rail-related emissions would not occur in the immediate vicinity of the Facility site.

Pellet storage at the Lassen Facility would result in negligible emissions of VOC from woody biomass decomposition. However, VOC concentrations associated with storage of wood pellets are very low, especially at shorter storage durations. More VOCs are emitted from stored sawdust and wood chips compared to stored wood pellets (Yazdanpanah et al. 2014). However, the project's intent is to convert all useable woody biomass into pellets and the remainder into dryer fuel, rather than disposal or long-term storage. Due to these factors, additional VOC emissions from pellet storage would be negligible.

### Operational Air Quality Impact Assessment

The project would exceed the maximum daily significance threshold established by the Lassen County APCD BACT requirements for VOC, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$ with the inclusion of mitigation, and the project would emit more than 100 pounds of VOC, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$ per day onsite during operation. As recommended by the Guidance for Assessing and Mitigating Air Quality Impacts (San Joaquin Valley APCD 2015a), an ambient air quality impacts assessment should be performed if any pollutants exceed 100 pounds per day during construction or operation. Maximum daily emissions were used as the basis for determining the project's potential impact on ambient air quality. Summary tables of annual and daily emissions associated with operation are included in Appendix B3.

For the initial assessment (Step 1) of the ambient air quality impact analysis, the maximum background concentration for the Lassen Facility for each pollutant and averaging period combination was added to the corresponding maximum ground level concentration (GLC) from project-related construction. The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1, with one major difference. For this second step, the maximum GLC of each pollutant and averaging period combination were compared to its corresponding SIL. The SIL is used to evaluate whether the project's construction emissions would contribute to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required. Table 3.2-42 presents a summary of the Air Quality Impact Assessment undertaken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts.

As shown in Table 3.2-42, the unmitigated operational emissions would exceed the SILs for the CO, $NO_2$, $PM_{10}$, and $PM_{2.5}$ AAQS. As such, a level 2 analysis is required. The Level 2 analysis showed the project would still exceed the AAQS for the 1-hour $NO_2$, 24-hour and annual $PM_{10}$ and $PM_{2.5}$. This would be a **potentially significant** impact, and therefore, mitigation is required.

Table 3.2-43 shows the mitigated operational emissions including application of **MM-AQ-2**, **MM-AQ-3**, **MM-AQ-4**, **MM-AQ-8**, and **MM-AQ-9**, with **MM-AQ-8** and **MM-AQ-9** being quantified. These mitigation measures are listed as follows:

- **MM-AQ-2: Construction and Operation Limit Truck and Equipment Idling –** Feedstock Acquisition, Lassen Facility, and Tuolumne Facility
- **MM-AQ-3: Construction and Operation Renewable Diesel Fuel –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-4: Construction and Operational Worker Commute Optimization –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-8: Operational Equipment Exhaust Minimization –** Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-9: Operational Switcher Locomotive Exhaust Minimization –** Lassen Facility

As demonstrated in Table 3.2-43, the project would result in operational activities that would generate ambient concentrations of criteria pollutants ($NO_2$, $PM_{10}$, and $PM_{2.5}$) above one or more of the applicable thresholds with application of mitigation.

## Table 3.2-42. Lassen Facility Operational Air Quality Impact Assessment - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| **Level 1 AAQA** | | | | | | | | | |
| 1-hour CO | State | 1.7 | 1,948 | 34,531.78 | 36,479 | 22,900 | Step 2 | 2000 | **Fail** |
| | Federal | 1.7 | 1,948 | 34,531.78 | 36,479 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 15,020.32 | 16,739 | 10,300 | Step 2 | 500 | **Fail** |
| | Federal | 1.5 | 1,718 | 15,020.32 | 16,739 | 10,300 | Step 2 | 500 | **Fail** |
| 1-hour $NO_2$ | State | 0.032 | 60 | 16,232.34 | 16,293 | 339 | Step 2 | 7.5 | **Fail** |
| | Federal | 0.032 | 60 | 16,232.34 | 16,292 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.005 | 10 | 1,894.40 | 1,904 | 57 | Step 2 | 1 | **Fail** |
| | Federal | 0.005 | 9 | 1,894.40 | 1,904 | 100 | Step 2 | 1 | **Fail** |
| 1-hour $SO_2$ | State | 0.001 | 3 | 35.13 | 38 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.001 | 3 | 35.13 | 38 | 196 | **PASS** | 7.8 | Step 1 |
| 24-Hour $SO_2$ | State | 0.001 | 3 | 10.01 | 13 | 105 | **PASS** | 5 | Step 1 |
| | Federal | 0.001 | 3 | 10.01 | 13 | 367 | **PASS** | 5 | Step 1 |
| Annual $SO_2$ | Federal | 0.000 | 1 | 3.28 | 4 | 79 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 117 | 5,848.50 | 5,965 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 117 | 5,848.50 | 5,965 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 19 | 1,916.76 | 1,936 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 303 | 5,818.53 | 6,121 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 15 | 1,906.93 | 1,922 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 15 | 1,906.93 | 1,922 | 9 | Step 2 | 0.13 | **Fail** |
| **Level 2 AAQA** | | | | | | | | | |
| 1-hour CO | State | 7.4 | 8,477 | 274.49 | 8,752 | 22,900 | **PASS** | 2000 | Step 1 |

## Table 3.2-42. Lassen Facility Operational Air Quality Impact Assessment - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| 8-hour CO | State | 4.9 | 5,613 | 175.18 | 5,789 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 4.9 | 5,613 | 175.18 | 5,789 | 10,300 | **PASS** | 500 | Step 1 |
| 1-hour $NO_2$ | State | 0.033 | 62 | 168.91 | 231 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.033 | 62 | 168.91 | 231 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.005 | 10 | 14.83 | 24 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.005 | 9 | 14.83 | 24 | 100 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 117 | 90.19 | 207 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 117 | 90.19 | 207 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 19 | 15.85 | 35 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 309 | 51.09 | 360 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 15 | 15.83 | 31 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 15 | 15.83 | 31 | 9 | Step 2 | 0.13 | **Fail** |

**Source:** See Appendix B3.

**Notes:** ppmv = parts per million by volume; µg/m³ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.

As discussed in Section 3.2.1.3, the closest monitoring station for $NO_2$ is 102 miles, $PM_{10}$ is 69 miles, and $PM_{2.5}$ is 87 miles from the project site because the NEPAB is in attainment for these pollutants. Therefore, the background concentrations used in this AQIA are from areas that may not be representative of the project site and may overestimate the background concentrations where the facility is located. Therefore, results presented herein are considered conservative.

## Table 3.2-43. Lassen Facility Operational Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| **Level 1** | | | | | | | | | |
| 1-hour CO | State | 1.7 | 1,948 | 34,599 | 36,547 | 22,900 | Step 2 | 2000 | **Fail** |
| | Federal | 1.7 | 1,948 | 34,599 | 36,547 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 15,050 | 16,768 | 10,300 | Step 2 | 500 | **Fail** |
| | Federal | 1.5 | 1,718 | 15,050 | 16,768 | 10,300 | Step 2 | 500 | **Fail** |
| 1-hour $NO_2$ | State | 0.032 | 60 | 16,027 | 16,087 | 339 | Step 2 | 7.5 | **Fail** |
| | Federal | 0.032 | 60 | 16,027 | 16,087 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.005 | 13 | 1,870 | 1,883 | 57 | Step 2 | 1 | **Fail** |
| | Federal | 0.005 | 13 | 1,870 | 1,883 | 100 | Step 2 | 1 | **Fail** |
| 1-hour $SO_2$ | State | 0.001 | 3 | 35 | 38 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.001 | 3 | 35 | 38 | 196 | **PASS** | 7.8 | Step 1 |
| 24-Hour $SO_2$ | State | 0.001 | 3 | 10 | 13 | 105 | **PASS** | 1 | Step 1 |
| | Federal | 0.001 | 3 | 10 | 13 | 367 | **PASS** | 1 | Step 1 |
| Annual $SO_2$ | Federal | 0.000 | 0 | 3 | 4 | 79 | **PASS** | 0 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 117 | 5,846 | 5,962 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 117 | 5,846 | 5,962 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 19 | 1,916 | 1,935 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 303 | 5,816 | 6,118 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 15 | 1,906 | 1,921 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 15 | 1,906 | 1,921 | 9 | Step 2 | 0.13 | **Fail** |
| **Level 2 AAQA** | | | | | | | | | |
| 1-hour CO | State | 1.7 | 1,948 | 274.50 | 2,222 | 22,900 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 175.24 | 1,894 | 10,300 | **PASS** | 500 | Step 1 |

## Table 3.2-43. Lassen Facility Operational Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| 1-hour $NO_2$ | Federal | 1.5 | 1,718 | 175.24 | 1,894 | 10,300 | **PASS** | 500 | Step 1 |
| | State | 0.032 | 60 | 168.11 | 228 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.032 | 60 | 168.11 | 228 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.005 | 13 | 14.36 | 27 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.005 | 13 | 14.36 | 27 | 100 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 117 | 90.18 | 207 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 117 | 90.18 | 207 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 19 | 15.84 | 35 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 303 | 51.06 | 354 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 15 | 15.82 | 31 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 15 | 15.82 | 31 | 9 | Step 2 | 0.13 | **Fail** |

**Source**: See Appendix B3.

Notes: ppmv = parts per million by volume; ug/m3 = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; NO2 = nitrogen dioxide; SO2 = sulfur dioxide; PM10 = particulate matter with an aerodynamic diameter less than or equal to 10 microns; PM2.5 = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-9** (Operational Switcher Locomotive Exhaust Minimization – Lassen Facility).

As discussed in Section 3.2.1.3, the closest monitoring station for $NO_2$ is 102 miles, $PM_{10}$ is 69 miles, and $PM_{2.5}$ is 87 miles from the project site because the NEPAB is in attainment for these pollutants. Therefore, the background concentrations used in this AQIA are from areas that may not be representative of the project site and may overestimate the background concentrations where the facility is located. Therefore, results presented herein are considered conservative.

### Lassen Facility - Conclusion

As shown in Table 3.2-38, operational emissions at the Lassen Facility would have the potential to exceed daily BACT thresholds for VOC, $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$ prior to mitigation. After implementation of **MM-AQ-2** through **MM-AQ-4**, **MM-AQ-8**, and **MM-AQ-9**, and as shown in Table 3.2-40, the operational emissions at the Lassen Facility would still exceed daily BACT thresholds for VOC, $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$. Furthermore, operations at the Lassen Facility would generate ambient concentrations of criteria pollutants ($NO_2$, $PM_{10}$, and $PM_{2.5}$) above one or more of the applicable thresholds with application of mitigation. While this represents a cumulatively considerable net increase, Lassen County is not nonattainment for any of these pollutants, or for $O_3$, and therefore the impact related to this portion of the project is **less than significant**.

### Tuolumne Facility

#### Construction Emissions

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road vendor trucks and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for particulate matter, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated.

CalEEMod Version 2022.1.1.25 was used to estimate emissions from construction of the project. Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of VOCs, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$. $PM_{10}$ and $PM_{2.5}$ emissions would also be generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil. As described in Section 3.2.4.1.2, the project would implement SDF-AQ-1 (Air District Regulatory Compliance – Lassen Facility, Tuolumne Facility, and Port of Stockton) and SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton) at the Tuolumne Facility, which would require air district regulatory compliance and fugitive dust control. SDF-AQ-2 is quantified in the construction analysis within CalEEMod where "water three times per day," "water demolished area," "water unpaved construction roads," and "limit vehicle speeds on unpaved roads" were selected to reduce fugitive dust emissions.

Table 3.2-44 presents the estimated maximum daily construction emissions generated during construction of the Tuolumne Facility. "Summer" emissions are representative of the conditions that may occur during the $O_3$ season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30). Details of the emission calculations are provided in Appendix B1.

**Table 3.2-44. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Tuolumne Facility - Unmitigated**

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| 2025 | 14.19 | 159.63 | 159.29 | 0.50 | 29.78 | 9.93 |
| **Winter** | | | | | | |
| 2024 | 9.37 | 132.81 | 94.44 | 0.41 | 28.32 | 10.03 |

### Table 3.2-44. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Tuolumne Facility - Unmitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| 2025 | 335.89 | 164.26 | 149.50 | 0.50 | 29.78 | 9.93 |
| **Maximum** | **335.89** | **164.26** | **159.29** | **0.50** | **29.78** | **10.03** |
| Tuolumne County APCD Daily Threshold | 1,000 | 1,000 | 1,000 | N/A | 1,000 | N/A |
| **Threshold Exceeded?** | **No** | **No** | **No** | **N/A** | **No** | **N/A** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; Tuolumne County APCD = Tuolumne County Air Pollution Control District.
The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton).

As shown in Table 3.2-44, construction of the Tuolumne Facility would not exceed the daily Tuolumne County APCD thresholds without mitigation. This impact would be less than significant without mitigation.

Table 3.2-45 presents the estimated annual construction emissions generated during construction of the Tuolumne Facility.

### Table 3.2-45. Estimated Annual Construction Criteria Air Pollutant Emissions – Tuolumne Facility - Unmitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| 2024 | 0.11 | 1.48 | 1.13 | <0.01 | 0.28 | 0.10 |
| 2025 | 4.42 | 11.30 | 12.62 | 0.03 | 1.56 | 0.61 |
| **Maximum** | **4.42** | **11.30** | **12.62** | **0.03** | **1.56** | **0.61** |
| Tuolumne County APCD Annual Threshold | 100 | 100 | 100 | N/A | 100 | N/A |
| **Threshold Exceeded?** | **No** | **No** | **No** | **N/A** | **No** | **N/A** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005; N/A = not applicable; Tuolumne County APCD = Tuolumne County Air Pollution Control District.
The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton).

As shown in Table 3.2-45, construction of the Tuolumne Facility would not exceed the annual Tuolumne County APCD thresholds without mitigation.

#### Construction Ambient Air Quality Analysis

Although the project would not exceed the daily or annual significance thresholds established by the Tuolumne County APCD for any criteria pollutant, the project would emit more than 100 pounds of VOC, $NO_x$, and CO per day onsite during construction. As recommended by the Guidance for Assessing and Mitigating Air Quality Impacts (San Joaquin Valley APCD 2015a), an ambient air quality impacts assessment should be performed if any pollutants exceed 100 pounds per day during construction or operation. Maximum daily emissions were used as the basis for

determining the project's potential impact on ambient air quality. Summary tables of annual and daily emissions associated with construction are included in Appendix B3.

For the initial assessment (Step 1) of the ambient air quality impact analysis, the maximum background concentration for the Tuolumne Facility for each pollutant and averaging period combination was added to the corresponding maximum ground level concentration (GLC) from project-related construction. The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1, with one major difference. For this second step, the maximum GLC of each pollutant and averaging period combination were compared to its corresponding SIL. The SIL is used to evaluate whether the project's construction emissions would contribute to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required. Table 3.2-46 presents a summary of the Air Quality Impact Assessment undertaken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts.

As shown in Table 3.2-46, the unmitigated construction emissions would exceed the SILs for the $NO_2$, $PM_{10}$, and $PM_{2.5}$ AAQS with incorporation of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton). As such, a Level 2 analysis is required. The Level 2 analysis showed the project would still exceed the AAQS for the 1-hour $NO_2$, 24-hour and annual $PM_{10}$ and $PM_{2.5}$. This would be a **potentially significant** impact, and therefore, mitigation is required.

**MM-AQ-10** (Construction Equipment Exhaust Minimization – Tier 4 Final –Tuolumne Facility) would reduce DPM emissions by requiring Tier 4 Final engines for construction off-road equipment over 50 horsepower at the Tuolumne Facility, which is quantified.

Table 3.2-47 shows the mitigated construction emissions including application of **MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility), **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), **MM-AQ-4** (Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), and **MM-AQ-10** (above), with **MM-AQ-10** being quantified.

## Table 3.2-46. Tuolumne Facility Construction Ambient Air Quality Analysis - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| **Level 1 AAQA** | | | | | | | | | |
| 1-hour CO | State | 2.1 | 2,406 | 727 | 3,133 | 22,900 | **PASS** | 2000 | Step 1 |
| | Federal | 2.1 | 2,406 | 727 | 3,133 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 413 | 2,131 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 1.5 | 1,718 | 413 | 2,131 | 10,300 | **PASS** | 500 | Step 1 |
| 1-hour $NO_2$ | State | 0.047 | 89 | 523 | 611 | 339 | Step 2 | 7.5 | **Fail** |
| | Federal | 0.047 | 88 | 523 | 611 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.009 | 17 | 79 | 96 | 57 | Step 2 | 1 | **Fail** |
| | Federal | 0.009 | 17 | 79 | 96 | 100 | **PASS** | 1 | Step 1 |
| 1-hour $SO_2$ | State | 0.008 | 21 | 1 | 22 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.008 | 21 | 1 | 22 | 196 | **PASS** | 7.8 | Step 1 |
| 24-Hour $SO_2$ | State | 0.003 | 8 | 0 | 8 | 105 | **PASS** | 5 | Step 1 |
| | Federal | 0.003 | 8 | 0 | 8 | 367 | **PASS** | 5 | Step 1 |
| Annual $SO_2$ | Federal | 0.000 | 1 | 0 | 1 | 79 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 121 | 56 | 177 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 121 | 56 | 177 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 20 | 18 | 38 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 94 | 22 | 116 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 9 | 7 | 16 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 9 | 7 | 16 | 9 | Step 2 | 0.13 | **Fail** |
| **Level 2 AAQA** | | | | | | | | | |
| 1-hour $NO_2$ | State | 0.047 | 88 | 504.42 | 593 | 339 | Step 2 | 7.5 | **Fail** |
| | Federal | 0.047 | 88 | 504.42 | 593 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.009 | 17 | 79.03 | 96 | 57 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{10}$ | State | -- | 121 | 55.84 | 177 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 121 | 55.84 | 177 | 150 | Step 2 | 5 | **Fail** |

## Table 3.2-46. Tuolumne Facility Construction Ambient Air Quality Analysis - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| Annual $PM_{10}$ | State | | | | | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 94 | 16.71 | 111 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 9 | 7.14 | 16 | 12 | Step 2 | 0.13 | **Fail** |
| | Federal | -- | 9 | 7.14 | 16 | 9 | Step 2 | 0.13 | **Fail** |

**Source:** Appendix B3.
**Notes:** ppmv = parts per million by volume; µg/m³ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.
As discussed in Section 3.2.1.4, the closest monitoring station for $NO_2$, $PM_{10}$, and $PM_{2.5}$ is 30 miles from the project site because the MCAB is in attainment for these pollutants. Therefore, the background concentrations for $PM_{10}$ used in this AQIA are from a nonattainment area that are not representative of the project site and overestimate the background concentrations where the facility is located. Therefore, results presented herein are considered conservative.

## Table 3.2-47. Tuolumne Facility Construction Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| 1-hour CO | State | 2.1 | 2,406 | 803 | 3,209 | 22,900 | **PASS** | 2000 | Step 1 |
| | Federal | 2.1 | 2,406 | 803 | 3,209 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 456 | 2,174 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 1.5 | 1,718 | 456 | 2,174 | 10,300 | **PASS** | 500 | Step 1 |
| 1-hour $NO_2$ | State | 0.047 | 89 | 239 | 328 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.047 | 88 | 239 | 328 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.009 | 17 | 36 | 53 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.009 | 17 | 36 | 53 | 100 | **PASS** | 1 | Step 1 |
| 1-hour $SO_2$ | State | 0.008 | 21 | 1 | 22 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.008 | 21 | 1 | 22 | 196 | **PASS** | 7.8 | Step 1 |
| 24-Hour $SO_2$ | State | 0.003 | 8 | 0 | 8 | 105 | **PASS** | 1 | Step 1 |

## Table 3.2-47. Tuolumne Facility Construction Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| | Federal | 0.003 | 8 | 0 | 8 | 367 | **PASS** | 1 | Step 1 |
| Annual $SO_2$ | Federal | 0.000 | 1 | 0 | 1 | 79 | **PASS** | 0 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 121 | 49 | 170 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 121 | 49 | 170 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 20 | 16 | 36 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 94 | 16 | 110 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 9 | 5 | 14 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 9 | 5 | 14 | 9 | Step 2 | 0.13 | **Fail** |
| **Level 2 AAQA** | | | | | | | | | |
| 1-hour $NO_2$ | Federal | 0.047 | 88 | 230.86 | 319 | 188 | Step 2 | 7.5 | **Fail** |
| 24-hour $PM_{10}$ | State | -- | 121 | 48.73 | 170 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 121 | 48.73 | 170 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 20 | 15.82 | 36 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 94 | 11.79 | 106 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 9 | 5.04 | 14 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 9 | 5.04 | 14 | 9 | Step 2 | 0.13 | **Fail** |

**Source:** Appendix B3.

**Notes:** ppmv = parts per million by volume; ug/$m^3$ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value. The values shown include quantification of **MM-AQ-10** (Construction Equipment Exhaust Minimization – Tier 4 Final –Tuolumne Facility).

As discussed in Section 3.2.1.4, the closest monitoring station for $NO_2$, $PM_{10}$, and $PM_{2.5}$ is 30 miles from the project site because the MCAB is in attainment for these pollutants. Therefore, the background concentrations for $PM_{10}$ used in this AQIA are from a nonattainment area that are not representative of the project site and overestimate the background concentrations where the facility is located. Therefore, results presented herein are considered conservative.

As demonstrated in Table 3.2-47, construction of the Tuolumne Facility would generate ambient concentrations of criteria pollutants (including $NO_2$) above the applicable thresholds with application of mitigation. This represents a cumulatively considerable increase in these pollutants. Tuolumne County is federal nonattainment (and California transitional/nonattainment) for $O_3$, and as set forth in GAMAQI, a cumulatively considerable increase in one or more $O_3$ precursors (such as $NO_2$) is considered to result in a cumulatively considerable net increase in $O_3$. Therefore, the impact related to this portion of the project would be **significant and unavoidable**.

Table 3.2-47 also demonstrates that construction of the Tuolumne Facility would generate ambient concentrations of $PM_{10}$ and $PM_{2.5}$ that exceed applicable thresholds; however, these are not pollutants for which Tuolumne County is in non-attainment. Tuolumne County is designated as attainment or unclassified for $PM_{10}$ and $PM_{2.5}$ under both CAAQS and NAAQS. Specifically, Tuolumne County is designated as unclassified for the $PM_{10}$ CAAQS, attainment for the $PM_{10}$ NAAQS, unclassified for the $PM_{2.5}$ CAAQS, and unclassifiable/attainment for the $PM_{2.5}$ NAAQS.

### Operational Emissions

Operation at the Tuolumne Facility would generate VOC, NOx, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$ emissions from area sources, mobile sources, off-road equipment, stationary equipment, and rail sources. As discussed in Section 3.2.4.1.2, pollutant emissions associated with long-term operations were quantified using CalEEMod using a combination of project-specific information and CalEEMod default values.

Table 3.2-48 presents the estimated unmitigated maximum daily operational emissions for the Tuolumne Facility and anticipated project activities within the Tuolumne County APCD jurisdictional boundaries for summer and winter.

**Table 3.2-48. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Tuolumne Facility and Project Activities within Tuolumne County APCD - Unmitigated**

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| Area | 7.34 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.73 | 2.92 | 20.19 | 0.05 | 3.82 | 1.00 |
| Off-Road Equipment | 1.36 | 12.93 | 22.66 | 0.04 | 0.51 | 0.47 |
| Stationary Equipment | 504.66 | 373.88 | 679.85 | 0.23 | 399.45 | 399.12 |
| Logging/Haul Trucks[a] | 0.76 | 49.89 | 12.48 | 0.30 | 13.06 | 4.21 |
| Rail[b] | 0.25 | 5.82 | 1.41 | 0.01 | 0.13 | 0.12 |
| **Total** | **515.10** | **445.44** | **736.59** | **0.63** | **416.97** | **404.92** |
| **Winter** | | | | | | |
| Area | 7.34 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.70 | 3.50 | 15.53 | 0.05 | 3.82 | 1.00 |
| Off-Road Equipment | 1.36 | 12.93 | 22.66 | 0.04 | 0.51 | 0.47 |
| Stationary Equipment | 504.66 | 373.88 | 679.85 | 0.23 | 399.45 | 399.12 |

### Table 3.2-48. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Tuolumne Facility and Project Activities within Tuolumne County APCD - Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| Logging/Haul Trucks[a] | 0.74 | 52.69 | 12.57 | 0.30 | 13.06 | 4.21 |
| Rail[b] | 0.25 | 5.82 | 1.41 | 0.01 | 0.13 | 0.12 |
| *Total* | *515.05* | *448.82* | *732.02* | *0.63* | *416.97* | *404.92* |
| **Maximum** | **515.10** | **448.82** | **736.59** | **0.63** | **416.97** | **404.92** |
| Tuolumne County APCD Daily Threshold | 1,000 | 1,000 | 1,000 | N/A | 1,000 | N/A |
| **Threshold Exceeded?** | **No** | **No** | **No** | **N/A** | **No** | **N/A** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; Tuolumne County APCD = Tuolumne County Air Pollution Control District.

[a] Logging/Haul Trucks emissions include the emissions from all of the Tuolumne logging/haul trucks assuming a 55.7-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the Tuolumne County APCD boundaries concurrently.

[b] Rail emissions include the line haul train emissions within the Tuolumne County APCD.

As shown in Table 3.2-48, Tuolumne Facility operations would not exceed the daily Tuolumne County APCD thresholds without mitigation.

Table 3.2-49 presents the estimated mitigated maximum daily operational emissions for the Tuolumne Facility and anticipated project activities within the Tuolumne County APCD jurisdictional boundaries for summer and winter. (As indicated in Table 3.2-48, the unmitigated maximum daily operational emissions for the Tuolumne Facility are less than the applicable thresholds, and this additional data regarding the effects of mitigation is provided for informational purposes.)

### Table 3.2-49. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Tuolumne Facility and Project Activities within Tuolumne County APCD - Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| Area | 7.34 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.73 | 2.92 | 20.19 | 0.05 | 3.82 | 1.00 |
| Off-Road Equipment | 0.36 | 1.89 | 26.10 | 0.04 | 0.07 | 0.07 |
| Stationary Equipment | 504.66 | 373.88 | 679.85 | 0.23 | 399.45 | 399.12 |
| Logging/Haul Trucks[a] | 0.76 | 49.89 | 12.48 | 0.30 | 13.06 | 4.21 |
| Rail[b] | 0.25 | 5.82 | 1.41 | 0.01 | 0.13 | 0.12 |
| **Total** | **514.10** | **434.40** | **740.03** | **0.63** | **416.53** | **404.52** |
| **Winter** | | | | | | |
| Area | 7.34 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |

### Table 3.2-49. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Tuolumne Facility and Project Activities within Tuolumne County APCD - Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| Mobile | 0.70 | 3.50 | 15.53 | 0.05 | 3.82 | 1.00 |
| Off-Road Equipment | 0.36 | 1.89 | 26.10 | 0.04 | 0.07 | 0.07 |
| Stationary Equipment | 504.66 | 373.88 | 679.85 | 0.23 | 399.45 | 399.12 |
| Logging/Haul Trucks[a] | 0.74 | 52.69 | 12.57 | 0.30 | 13.06 | 4.21 |
| Rail[b] | 0.25 | 5.82 | 1.41 | 0.01 | 0.13 | 0.12 |
| *Total* | *514.05* | *437.78* | *735.46* | *0.63* | *416.53* | *404.52* |
| **Maximum** | **515.10** | **437.78** | **740.03** | **0.63** | **416.53** | **404.52** |
| *Tuolumne County APCD Daily Threshold* | *1,000* | *1,000* | *1,000* | *N/A* | *1,000* | *N/A* |
| **Threshold Exceeded?** | **No** | **No** | **No** | **N/A** | **No** | **N/A** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; Tuolumne County APCD = Tuolumne County Air Pollution Control District.

[a] Logging/Haul Trucks emissions include the emissions from all of the Tuolumne logging/haul trucks assuming a 55.7-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the Tuolumne County APCD boundaries concurrently.

[b] Rail emissions include the line haul train emissions within the Tuolumne County APCD.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton).

If 100% of feedstock activity and Tuolumne Facility operations (including line haul transport) occur within Tuolumne County APCD jurisdictional boundaries *at the same time*, the combined maximum daily criteria air pollutant emissions from Table 3.2-30 and Table 3.2-48 would be approximately 526 pounds per day of VOC, 720 pounds per day of $NO_x$, 1,128 pounds per day of CO, 2 pounds per day $SO_x$, 878 pounds per day of $PM_{10}$, and 482 pounds per day of $PM_{2.5}$ with incorporation of PDFs and mitigation. (As noted above, this is unlikely in practice; however, more precise determination of the percentage of these activities occurring within Tuolumne County APCD boundaries at any given time is impracticable at this stage, since the location and timing of specific feedstock acquisition and line haul transport activities is not yet known.) Note that these figures do not include application of the Tuolumne Facility operations mitigation measures discussed below, and even under this scenario, the majority of daily feedstock and rail-related emissions would not occur in the immediate vicinity of the Facility site.

Table 3.2-50 presents the estimated unmitigated annual operational emissions for the Tuolumne Facility and anticipated project activities within the Tuolumne County APCD jurisdictional boundaries.

### Table 3.2-50. Estimated Annual Operation Criteria Air Pollutant Emissions – Tuolumne Facility and Project Activities within Tuolumne County APCD – Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Area | 1.34 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.13 | 0.60 | 2.93 | 0.01 | 0.68 | 0.18 |

## Table 3.2-50. Estimated Annual Operation Criteria Air Pollutant Emissions – Tuolumne Facility and Project Activities within Tuolumne County APCD – Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Off-Road Equipment | 0.23 | 2.17 | 3.80 | 0.01 | 0.08 | 0.08 |
| Stationary Equipment | 84.53 | 62.63 | 113.88 | 0.04 | 66.91 | 66.85 |
| Logging/Haul Trucks[a] | 0.07 | 5.12 | 1.22 | 0.03 | 1.25 | 0.40 |
| Rail[b] | 0.03 | 0.70 | 0.17 | 0.00 | 0.02 | 0.01 |
| **Total** | **86.33** | **71.22** | **122.00** | **0.09** | **68.94** | **67.52** |
| Tuolumne County APCD Annual Threshold | 100 | 100 | 100 | N/A | 100 | N/A |
| **Threshold Exceeded?** | **No** | **No** | **Yes** | **N/A** | **No** | **N/A** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; Tuolumne County APCD = Tuolumne County Air Pollution Control District.

[a] Logging/Haul Trucks emissions include the emissions from all of the Tuolumne logging/haul trucks assuming a 55.7-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the Tuolumne County APCD boundaries concurrently.

[b] Rail emissions include the line haul train emissions within the Tuolumne County APCD.

As shown in Table 3.2-50, the project would exceed the annual Tuolumne County APCD thresholds for CO prior to mitigation. This impact would be **potentially significant** prior to mitigation.

Mitigation measures identified to reduce project-generated emissions and environmental impacts during construction of the Lassen Facility include **MM-AQ-2** through **MM-AQ-4**, and **MM-AQ-8** as follows.

**MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility), **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), and **MM-AQ-4** (Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce impacts during operation at the Tuolumne Facility, which are not quantified. **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce criteria air pollutant emissions, specifically VOC, $NO_x$, $PM_{10}$, and $PM_{2.5}$, by requiring the project to minimize operational off-road equipment exhaust with Tier 4 Final equipment, which is quantified.

Table 3.2-51 presents the estimated mitigated annual operational emissions for the Tuolumne facility and anticipated project activities within the Tuolumne County APCD jurisdictional boundaries.

## Table 3.2-51. Estimated Annual Operation Criteria Air Pollutant Emissions – Tuolumne Facility and Project Activities within Tuolumne County APCD – Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Area | 1.34 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.13 | 0.60 | 2.93 | 0.01 | 0.68 | 0.18 |

**Table 3.2-51. Estimated Annual Operation Criteria Air Pollutant Emissions – Tuolumne Facility and Project Activities within Tuolumne County APCD – Mitigated**

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Off-Road Equipment | 0.06 | 0.32 | 4.37 | 0.01 | 0.01 | 0.01 |
| Stationary Sources | 84.53 | 62.63 | 113.88 | 0.04 | 66.91 | 66.85 |
| Logging/Haul Trucks[a] | 0.07 | 5.12 | 1.22 | 0.03 | 1.25 | 0.40 |
| Rail[b] | 0.03 | 0.70 | 0.17 | 0.00 | 0.02 | 0.01 |
| **Total** | ***86.16*** | ***69.37*** | ***122.57*** | ***0.09*** | ***68.87*** | ***67.45*** |
| Tuolumne County APCD Annual Threshold | 100 | 100 | 100 | N/A | 100 | N/A |
| **Threshold Exceeded?** | **No** | **No** | **Yes** | **N/A** | **No** | **N/A** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; <0.01 = value is less than 0.005; Tuolumne County APCD = Tuolumne County Air Pollution Control District.

[a] Logging/Haul Trucks emissions include the emissions from all of the Tuolumne logging/haul trucks assuming a 55.7-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the Tuolumne County APCD boundaries concurrently.

[b] Rail emissions include the line haul train emissions within the Tuolumne County APCD.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton).

As shown in Table 3.2-51, the project would exceed the annual Tuolumne County APCD threshold for CO with incorporation of mitigation.

Pellet storage at the Tuolumne Facility would result in negligible emissions of VOC from woody biomass decomposition. However, VOC concentrations associated with storage of wood pellets are very low, especially at shorter storage durations. More VOCs are emitted from stored sawdust and wood chips compared to stored wood pellets (Yazdanpanah et al. 2014). However, the project's intent is to convert all useable woody biomass into pellets and the remainder into dryer fuel, rather than disposal or long-term storage. Due to these factors, additional VOC emissions from pellet storage would be negligible.

### Operational Ambient Air Quality Analysis

The project would exceed the annual significance threshold established by the Tuolumne County APCD for CO with the inclusion of mitigation, and the project would emit more than 100 pounds of VOC, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$ per day onsite during operation. As recommended by the Guidance for Assessing and Mitigating Air Quality Impacts (San Joaquin Valley APCD 2015a), an ambient air quality impacts assessment should be performed if any pollutants exceed 100 pounds per day during construction or operation. Maximum daily emissions were used as the basis for determining the project's potential impact on ambient air quality. Summary tables of annual and daily emissions associated with operation are included in Appendix B3.

For the initial assessment (Step 1) of the ambient air quality impact analysis, the maximum background concentration for the Tuolumne Facility for each pollutant and averaging period combination was added to the corresponding maximum ground level concentration (GLC) from project-related construction. The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in

concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1, with one major difference. For this second step, the maximum GLC of each pollutant and averaging period combination were compared to its corresponding SIL. The SIL is used to evaluate whether the project's construction emissions would contribute to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required. Table 3.2-52 presents a summary of the Air Quality Impact Assessment undertaken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts.

As shown in Table 3.2-52, the unmitigated operational emissions would exceed the SILs for the CO, $NO_2$, $PM_{10}$, and $PM_{2.5}$ AAQS. As such, a Level 2 analysis is required. The Level 2 analysis showed the project would still exceed the AAQS for the 1-hour $NO_2$ and 24-hour and annual $PM_{10}$ and $PM_{2.5}$. This would be a **potentially significant** impact, and therefore, mitigation is required.

Table 3.2-53 shows the mitigated construction emissions including application of **MM-AQ-2**, **MM-AQ-3**, **MM-AQ-4**, and **MM-AQ-8**, with **MM-AQ-8** being quantified. These mitigation measures are listed as follows:

- **MM-AQ-2: Construction and Operation Limit Truck and Equipment Idling –** Feedstock Acquisition, Lassen Facility, and Tuolumne Facility
- **MM-AQ-3: Construction and Operation Renewable Diesel Fuel –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-4: Construction and Operational Worker Commute Optimization –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-8: Operational Equipment Exhaust Minimization –** Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton

As demonstrated in Table 3.2-53, operational activities at the Tuolumne Facility would generate ambient concentrations of criteria pollutants (including $NO_2$) above the applicable thresholds with application of mitigation. This represents a cumulatively considerable increase in these pollutants. Tuolumne County is federal nonattainment (and California transitional/nonattainment) for $O_3$, and as set forth in GAMAQI, a cumulatively considerable increase in one or more $O_3$ precursors (such as $NO_2$) is considered to result in a cumulatively considerable net increase in $O_3$. Therefore, the impact related to this portion of the project would be **significant and unavoidable**.

Table 3.2-53 also demonstrates that the project's Tuolumne Facility operation would generate ambient concentrations of $PM_{10}$ and $PM_{2.5}$ that exceed applicable thresholds; however, these are not pollutants for which Tuolumne County is in non-attainment. Tuolumne County is designated as attainment or unclassified for $PM_{10}$ and $PM_{2.5}$ under both CAAQS and NAAQS. Specifically, Tuolumne County is designated as unclassified for the $PM_{10}$ CAAQS, attainment for the $PM_{10}$ NAAQS, unclassified the$PM_{2.5}$ CAAQS, and unclassifiable/attainment for the $PM_{2.5}$ NAAQS.

## Table 3.2-52. Tuolumne Facility Operational Ambient Air Quality Analysis - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| **Level 1 AAQA** | | | | | | | | | |
| 1-hour CO | State | 2.1 | 2,406 | 26,325 | 28,731 | 22,900 | Step 2 | 2000 | **Fail** |
| | Federal | 2.1 | 2,406 | 26,325 | 28,731 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 14,450 | 16,168 | 10,300 | Step 2 | 500 | **Fail** |
| | Federal | 1.5 | 1,718 | 14,450 | 16,168 | 10,300 | Step 2 | 500 | **Fail** |
| 1-hour $NO_2$ | State | 0.047 | 89 | 11,675 | 11,764 | 339 | Step 2 | 7.5 | **Fail** |
| | Federal | 0.047 | 88 | 11,675 | 11,764 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.009 | 17 | 1,510 | 1,527 | 57 | Step 2 | 1 | **Fail** |
| | Federal | 0.009 | 17 | 1,510 | 1,527 | 100 | Step 2 | 1 | **Fail** |
| 1-hour $SO_2$ | State | 0.008 | 21 | 11 | 32 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.008 | 21 | 11 | 32 | 196 | **PASS** | 7.8 | Step 1 |
| 24-Hour $SO_2$ | State | 0.003 | 8 | 4 | 12 | 105 | **PASS** | 5 | Step 1 |
| | Federal | 0.003 | 8 | 4 | 12 | 367 | **PASS** | 5 | Step 1 |
| Annual $SO_2$ | Federal | 0.000 | 1 | 1 | 2 | 79 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 121 | 4,861 | 4,983 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 121 | 4,861 | 4,983 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 20 | 1,536 | 1,556 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 94 | 4,856 | 4,950 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 9 | 1,534 | 1,543 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 9 | 1,534 | 1,543 | 9 | Step 2 | 0.13 | **Fail** |
| **Level 2 AAQA** | | | | | | | | | |
| 1-hour CO | State | 2.1 | 2,406 | 150.18 | 2,556 | 22,900 | **PASS** | 2000 | Step 1 |
| | Federal | 2.1 | 2,406 | 150.18 | 2,556 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 100.01 | 1,818 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 1.5 | 1,718 | 100.01 | 1,818 | 10,300 | **PASS** | 500 | Step 1 |

## Table 3.2-52. Tuolumne Facility Operational Ambient Air Quality Analysis - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| 1-hour $NO_2$ | State | 0.047 | 89 | 110.07 | 199 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.047 | 88 | 110.07 | 198 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.009 | 17 | 15.37 | 32 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.009 | 17 | 15.37 | 32 | 100 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 121 | 97.72 | 219 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 121 | 97.72 | 219 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 20 | 26.57 | 46 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 94 | 63.53 | 158 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 9 | 26.54 | 35 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 9 | 26.54 | 35 | 9 | Step 2 | 0.13 | **Fail** |

**Source:** Appendix B3.
**Notes:** ppmv = parts per million by volume; µg/m³ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.
As previously discussed, the background concentrations used in this AQIA are from nonattainment areas that are not representative of the project site and overestimate the background concentrations where the facility is located. Therefore, results presented herein are considered conservative.

## Table 3.2-53. Tuolumne Facility Operational Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| **Level 1** | | | | | | | | | |
| 1-hour CO | State | 2.1 | 2,406 | 26,464 | 28,870 | 22,900 | Step 2 | 2000 | **Fail** |
| | Federal | 2.1 | 2,406 | 26,464 | 28,870 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 14,526 | 16,245 | 10,300 | Step 2 | 500 | **Fail** |

## Table 3.2-53. Tuolumne Facility Operational Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| | Federal | 1.5 | 1,718 | 14,526 | 16,245 | 10,300 | Step 2 | 500 | **Fail** |
| 1-hour $NO_2$ | State | 0.047 | 89 | 11,318 | 11,407 | 339 | Step 2 | 7.5 | **Fail** |
| | Federal | 0.047 | 88 | 11,318 | 11,407 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.009 | 17 | 1,464 | 1,481 | 57 | Step 2 | 1 | **Fail** |
| | Federal | 0.009 | 17 | 1,464 | 1,481 | 100 | Step 2 | 1 | **Fail** |
| 1-hour $SO_2$ | State | 0.008 | 21 | 11 | 32 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.008 | 21 | 11 | 32 | 196 | **PASS** | 7.8 | Step 1 |
| 24-Hour $SO_2$ | State | 0.003 | 8 | 4 | 12 | 105 | **PASS** | 1 | Step 1 |
| | Federal | 0.003 | 8 | 4 | 12 | 367 | **PASS** | 1 | Step 1 |
| Annual $SO_2$ | Federal | 0.000 | 1 | 1 | 2 | 79 | **PASS** | 0 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 121 | 4,856 | 4,977 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 121 | 4,856 | 4,977 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 20 | 1,534 | 1,554 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 94 | 4,851 | 4,945 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 9 | 1,533 | 1,541 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 9 | 1,533 | 1,541 | 9 | Step 2 | 0.13 | **Fail** |
| **Level 2 AAQA** | | | | | | | | | |
| 1-hour CO | State | 2.1 | 2,406 | 157.77 | 2,564 | 22,900 | **PASS** | 2000 | Step 1 |
| | Federal | 2.1 | 2,406 | 157.77 | 2,564 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.5 | 1,718 | 92.18 | 1,811 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 1.5 | 1,718 | 92.18 | 1,811 | 10,300 | **PASS** | 500 | Step 1 |
| 1-hour $NO_2$ | State | 0.047 | 89 | 132.67 | 221 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.047 | 88 | 132.67 | 221 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.009 | 17 | 14.04 | 31 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.009 | 17 | 14.04 | 31 | 100 | **PASS** | 1 | Step 1 |

## Table 3.2-53. Tuolumne Facility Operational Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| 24-hour $PM_{10}$ | State | -- | 121 | 97.66 | 219 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 121 | 97.66 | 219 | 150 | Step 2 | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 20 | 26.52 | 46 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 94 | 63.48 | 158 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 9 | 26.50 | 35 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 9 | 26.50 | 35 | 9 | Step 2 | 0.13 | **Fail** |

**Source:** Appendix B3.
**Notes:** ppmv = parts per million by volume; ug/m³ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.
The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton).
As previously discussed, the background concentrations used in this AQIA are from nonattainment areas that are not representative of the project site and overestimate the background concentrations where the facility is located. Therefore, results presented herein are considered conservative.

### Tuolumne Facility - Conclusion

Overall, emissions from criteria pollutants during construction would not exceed the Tuolumne County APCD significance thresholds with implementation of SDF-AQ-1 and SDF-AQ-2 (Tables 3.2-44 and 3.2-45), but would generate ambient concentrations of criteria pollutants (including $NO_2$) above the applicable thresholds with application of mitigation (Table 3.2-47). Additionally, as shown in Table 3.2-49, operational emissions at the Tuolumne Facility would have the potential to exceed the annual threshold for CO prior to mitigation, and the impact would be potentially significant. After implementation of **MM-AQ-2** through **MM-AQ-4**, **MM-AQ-7** through **MM-AQ-8**, and **MM-AQ-10**, and as shown in Table 3.2-50, the operational emissions at the Tuolumne Facility would still exceed the annual threshold for CO. Further, as demonstrated in Table 3.2-53, the project would result in operational activities that would generate ambient concentrations of criteria pollutants (including $NO_2$) above the applicable thresholds with application of mitigation. This represents a cumulatively considerable increase in these pollutants. Tuolumne County is federal nonattainment (and California transitional/nonattainment) for $O_3$, and as set forth in GAMAQI, a cumulatively considerable increase in one or more $O_3$ precursors (such as $NO_2$) is considered to result in a cumulatively considerable net increase in $O_3$. Therefore, the impact related to this portion of the project would be **significant and unavoidable**.

## Transport to Market

### Rail Transport

Rail transport would generate criteria air pollutants. As discussed in Section 3.2.4.1.3, pollutant emissions associated with long-term operations were quantified using a spreadsheet model.

Table 3.2-54 presents the estimated maximum daily criteria air pollutant emissions from line haul rail travel from the Lassen Facility and the Tuolumne Facility to the Port of Stockton in each respective air district.

**Table 3.2-54. Estimated Maximum Daily Criteria Air Pollutant Emissions – Line Haul - Unmitigated**

| Scenario | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Total Emissions by Air District** | | | | | | |
| Lassen County APCD | 18.04 | 426.54 | 103.11 | 0.40 | 9.74 | 8.96 |
| Northern Sierra AQMD | 16.40 | 387.83 | 93.75 | 0.37 | 8.86 | 8.15 |
| Butte County AQMD | 11.77 | 278.41 | 67.30 | 0.26 | 6.36 | 5.85 |
| Feather River AQMD | 9.53 | 225.40 | 54.49 | 0.21 | 5.15 | 4.73 |
| Sacramento Metropolitan AQMD | 7.83 | 185.15 | 44.76 | 0.17 | 4.23 | 3.89 |
| Tuolumne County APCD | 0.25 | 5.82 | 1.41 | 0.01 | 0.13 | 0.12 |
| San Joaquin Valley APCD | 7.74 | 182.96 | 44.23 | 0.17 | 4.18 | 3.84 |
| **Maximum Day Emissions** | **70.48** | **1,666.81** | **402.92** | **1.57** | **38.06** | **35.01** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; <0.01 = value is less than 0.005; APCD = Air Pollution Control District; AQMD = Air Quality Management District.

As shown in Table 3.2-7, Northern Sierra AQMD has a $NO_X$ threshold of 136 pounds per day, Butte County AQMD and Feather River AQMD both have a daily $NO_X$ threshold of 25 pounds per day, and Sacramento Metropolitan

AQMD has a daily $NO_X$ threshold of 65 pounds per day. As shown in Table 3.2-54, line haul emissions would exceed the Northern Sierra AQMD, Butte County AQMD, Feather River AQMD and Sacramento Metropolitan AQMD daily thresholds for $NO_X$, resulting in a **potentially significant impact**. The line haul emissions are the project's only source of emissions in these air districts. Line haul emissions would not exceed any other annual air district thresholds for any other criteria air pollutant.

Table 3.2-55 presents the estimated total annual criteria air pollutant emissions from line haul rail travel from the Lassen Facility and the Tuolumne Facility to the Port of Stockton in each respective air district.

### Table 3.2-55. Estimated Annual Criteria Air Pollutant Emissions – Line Haul - Unmitigated

| Scenario | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| **Total Emissions by Air District** | | | | | | |
| Lassen County APCD | 0.63 | 14.93 | 3.61 | 0.01 | 0.34 | 0.31 |
| Northern Sierra AQMD | 0.57 | 13.57 | 3.28 | 0.01 | 0.31 | 0.29 |
| Butte County AQMD | 0.41 | 9.74 | 2.36 | 0.01 | 0.22 | 0.20 |
| Feather River AQMD | 0.33 | 7.89 | 1.91 | 0.01 | 0.18 | 0.17 |
| Sacramento Metropolitan AQMD | 0.27 | 6.48 | 1.57 | 0.01 | 0.15 | 0.14 |
| Tuolumne County APCD | 0.03 | 0.70 | 0.17 | 0.00 | 0.02 | 0.01 |
| San Joaquin Valley APCD | 0.39 | 9.24 | 2.23 | 0.01 | 0.21 | 0.19 |
| **Total Annual Emissions** | **2.61** | **61.67** | **14.91** | **0.06** | **1.41** | **1.30** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; <0.01 = value is less than 0.005; APCD = Air Pollution Control District; AQMD = Air Quality Management District.

As shown in Table 3.2-7, Butte County AQMD and Feather River AQMD both have an annual $NO_X$ threshold of 4.5 tons per year. As shown in Table 3.2-55, line haul emissions would exceed the Butte County AQMD and Feather River AQMD annual thresholds for $NO_X$, resulting in a **potentially significant impact**. The line haul emissions are the project's only source of emissions in these air districts. Line haul emissions would not exceed any other annual air district thresholds for any other criteria air pollutant.

The line haul emissions within Lassen County APCD and Tuolumne County APCD jurisdictions have been evaluated against their respective thresholds earlier in this section (See Tables 3.2-40, 3.2-41, and 3.2-50). The line haul emissions within the San Joaquin Valley APCD jurisdiction are evaluated against the San Joaquin Valley APCD thresholds below in Table 3.2-60.

Potential mitigation measures were evaluated to attempt to decrease $NO_X$ emissions below the thresholds that were exceeded; however, GSNR does not have operational control over the line haul trains being used. Therefore, no feasible mitigation measures were identified.

As shown in Tables 3.2-54 and 3.2-55, line haul rail transport emissions would exceed the Northern Sierra AQMD, Butte County AQMD, Feather River AQMD and Sacramento Metropolitan AQMD daily thresholds for $NO_X$, and the Butte County AQMD and Feather River AQMD annual thresholds for $NO_X$, and there is no feasible mitigation. (Rail operations occurring with the Lassen APCD, Tuolumne APCD, and San Joaquin Valley APCD are included in the evaluation of those respective Lassen, Tuolumne, and Port of Stockton facilities, respectively.) Several of the

counties in which these emissions will occur, including Butte and Sacramento, are nonattainment for $O_3$, to which $NO_x$ is a precursor (see Table 3.2-1). Since this represents a cumulatively considerable net increase within counties that are nonattainment for $O_3$, the impact related to this portion of the project would be **significant and unavoidable**.

## Port of Stockton

### Construction Emissions

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road vendor trucks and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for particulate matter, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated.

CalEEMod Version 2022.1.1.25 was used to estimate emissions from construction of the project. Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of VOCs, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$. $PM_{10}$ and $PM_{2.5}$ emissions would also be generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil. The project would be required to comply with San Joaquin Valley APCD Regulation VIII (Fugitive $PM_{10}$ Prohibition) by law, which specifies standard construction practices to reduce fugitive dust emissions. As described in Section 3.2.4.1.2, the project would implement SDF-AQ-1 (Air District Regulatory Compliance – Lassen Facility, Tuolumne Facility, and Port of Stockton) and SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton) at the Port of Stockton, which would require air district regulatory compliance and fugitive dust control. SDF-AQ-2 is quantified in the construction analysis within CalEEMod where "water three times per day," "water demolished area," "water unpaved construction roads," and "limit vehicle speeds on unpaved roads" were selected to reduce fugitive dust emissions.

Table 3.2-56 presents the estimated annual construction emissions generated during construction of the Port of Stockton. Details of the emission calculations are provided in Appendix B1.

**Table 3.2-56. Estimated Annual Construction Criteria Air Pollutant Emissions – Port of Stockton - Unmitigated**

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| 2024 | 0.08 | 0.76 | 0.86 | <0.01 | 0.13 | 0.07 |
| 2025 | 1.28 | 9.52 | 10.21 | 0.02 | 0.57 | 0.42 |
| **Maximum** | **1.28** | **9.52** | **10.21** | **0.02** | **0.57** | **0.42** |
| San Joaquin Valley APCD Annual Threshold | 10 | 10 | 100 | 27 | 15 | 15 |
| **Threshold Exceeded?** | **No** | **No** | **No** | **No** | **No** | **No** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005; San Joaquin Valley APCD = San Joaquin Valley Air Pollution Control District.
The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton).

As shown in Table 3.2-56, emissions of VOC, $NO_x$, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$ emissions during construction would not exceed the San Joaquin Valley APCD annual significance thresholds Therefore, construction emissions related to the Port of Stockton facility would be **less than significant** without mitigation**.**

The San Joaquin Valley APCD has not established daily thresholds for criteria air pollutants. However, Table 3.2-57 presents the estimated unmitigated daily construction emissions for the Port of Stockton for informational purposes.

### Table 3.2-57. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Port of Stockton - Unmitigated

| Year | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| 2025 | 9.69 | 82.83 | 88.53 | 0.18 | 5.33 | 3.89 |
| **Winter** | | | | | | |
| 2024 | 3.72 | 36.18 | 33.79 | 0.05 | 6.89 | 4.14 |
| 2025 | 24.80 | 90.58 | 98.77 | 0.19 | 5.85 | 4.26 |
| **Maximum** | **24.80** | **90.58** | **98.77** | **0.19** | **6.89** | **4.26** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable.
The values shown include quantification of SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton).

As shown in Table 3.2-57, construction of the Port of Stockton would result in criteria air pollutant emissions that are less than the 100 pounds per day threshold for preparing an AAQA.

## Operational Emissions

Operation at the Port of Stockton would generate VOC, NOx, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$ emissions from area sources, mobile sources, off-road equipment, permitted sources, rail sources, and marine sources. As discussed in Section 3.2.4.1.3, pollutant emissions associated with long-term operations were quantified using CalEEMod using a combination of project-specific information and CalEEMod default values.

Table 3.2-58 presents the estimated unmitigated annual operational emissions associated with the Port of Stockton and anticipated project activities within the San Joaquin Valley APCD jurisdictional boundaries.

### Table 3.2-58. Estimated Annual Operation Criteria Air Pollutant Emissions – Port of Stockton and Project Activities within San Joaquin Valley APCD – Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Area | 0.30 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.01 | 0.06 | 0.11 | <0.01 | 0.04 | 0.01 |
| Off-Road Equipment | 0.04 | 0.46 | 0.50 | <0.01 | 0.01 | 0.01 |
| Stationary Equipment[a] | 0.01 | 0.16 | 0.03 | 0.01 | 0.91 | 0.91 |

### Table 3.2-58. Estimated Annual Operation Criteria Air Pollutant Emissions – Port of Stockton and Project Activities within San Joaquin Valley APCD – Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Ships[b] | 0.65 | 14.32 | 1.59 | 0.67 | 0.36 | 0.28 |
| Rail[c] | 0.39 | 9.24 | 2.23 | 0.01 | 0.21 | 0.19 |
| Switcher[d] | 0.03 | 0.50 | 0.15 | 0.00 | 0.02 | 0.02 |
| **Total** | **1.43** | **24.74** | **4.61** | **0.69** | **1.54** | **1.42** |
| San Joaquin Valley APCD Annual Threshold | 10 | 10 | 100 | 27 | 15 | 15 |
| **Threshold Exceeded?** | **No** | **Yes** | **No** | **No** | **No** | **No** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005; San Joaquin Valley APCD = San Joaquin Valley Air Pollution Control District.

[a] Stationary equipment includes the emissions from pellet storage and fire pumps.
[b] Ships includes the total emissions from cargo ships, tugboats, and pellet loadout within the San Joaquin Valley APCD.
[c] Rail includes the line haul train emissions within the San Joaquin Valley APCD.
[d] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

As shown in Table 3.2-58, project operations would exceed San Joaquin Valley APCD annual thresholds for $NO_X$. This impact would be **potentially significant** prior to mitigation.

The San Joaquin Valley APCD has not established daily thresholds for criteria air pollutants. However, Table 3.2-59 presents the estimated unmitigated daily operational emissions for the Port of Stockton and anticipated project activities within the San Joaquin County APCD jurisdictional boundaries for informational purposes.

### Table 3.2-59. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Port of Stockton and Project Activities within San Joaquin Valley APCD - Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| Area | 1.63 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.05 | 0.29 | 0.75 | <0.01 | 0.21 | 0.06 |
| Off-Road Equipment | 0.82 | 9.26 | 9.94 | 0.03 | 0.27 | 0.25 |
| Stationary Equipment[a] | 0.07 | 0.85 | 0.18 | 0.06 | 5.00 | 5.00 |
| Ships[b] | 22.31 | 493.88 | 54.82 | 23.24 | 11.64 | 9.55 |
| Rail[c] | 7.74 | 182.96 | 44.23 | 0.17 | 4.18 | 3.84 |
| Switcher[d] | 0.42 | 6.43 | 1.96 | 0.01 | 0.22 | 0.21 |
| **Total** | **33.04** | **693.67** | **111.88** | **23.51** | **21.52** | **18.92** |
| **Winter** | | | | | | |
| Area | 1.63 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.05 | 0.31 | 0.60 | <0.01 | 0.21 | 0.06 |

### Table 3.2-59. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Port of Stockton and Project Activities within San Joaquin Valley APCD - Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| Off-Road Equipment | 0.82 | 9.26 | 9.94 | 0.03 | 0.27 | 0.25 |
| Stationary Equipment[a] | 0.07 | 0.85 | 0.18 | 0.06 | 5.00 | 5.00 |
| Ships[b] | 22.31 | 493.88 | 54.82 | 23.24 | 11.64 | 9.55 |
| Rail[c] | 7.74 | 182.96 | 44.23 | 0.17 | 4.18 | 3.84 |
| Switcher[d] | 0.42 | 6.43 | 1.96 | 0.01 | 0.22 | 0.21 |
| **Total** | **33.04** | **693.69** | **111.73** | **23.51** | **21.52** | **18.92** |
| **Maximum** | **33.04** | **693.69** | **111.88** | **23.51** | **21.52** | **18.92** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.

[a] Stationary equipment includes the emissions from pellet storage and fire pumps.

[b] Ships includes the total emissions from cargo ships, tugboats, and pellet loadout within the San Joaquin Valley APCD.

[c] Rail includes the line haul train emissions within the San Joaquin Valley APCD.

[d] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

Mitigation measures identified to reduce project-generated emissions and environmental impacts during operation at the Port of Stockton include **MM-AQ-3**, **MM-AQ-4**, **MM-AQ-7**, **MM-AQ-8**, and **MM-AQ-11** as follows.

**MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) would further reduce criteria air pollutant emissions, which is quantified. In addition, **MM-AQ-11** (Operational Switcher Exhaust Minimization – Port of Stockton) would reduce criteria air pollutant emissions by requiring a Tier 4 Final engine for the on-site switcher at the Port of Stockton, which is quantified.

Furthermore, **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), **MM-AQ-4** (Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), and **MM-AQ-7** (Construction Activities Notification -- Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce impacts during operation at the Port of Stockton.

Table 3.2-60 presents the estimated mitigated annual operational emissions at the Port of Stockton and anticipated project activities within San Joaquin Valley APCD jurisdictional boundaries.

### Table 3.2-60. Estimated Annual Operation Criteria Air Pollutant Emissions – Port of Stockton and Project Activities within San Joaquin Valley APCD – Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Area | 0.30 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.01 | 0.06 | 0.11 | <0.01 | 0.04 | 0.01 |
| Off-Road Equipment | 0.01 | 0.08 | 0.85 | <0.01 | <0.01 | <0.01 |
| Stationary Equipment[a] | 0.01 | 0.16 | 0.03 | 0.01 | 0.91 | 0.91 |

### Table 3.2-60. Estimated Annual Operation Criteria Air Pollutant Emissions – Port of Stockton and Project Activities within San Joaquin Valley APCD – Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Ships[b] | 0.65 | 14.32 | 1.59 | 0.67 | 0.36 | 0.28 |
| Rail[c] | 0.39 | 9.24 | 2.23 | 0.01 | 0.21 | 0.19 |
| Switcher[d] | 0.03 | 0.50 | 0.15 | 0.00 | 0.02 | 0.02 |
| **Total** | **1.40** | **24.36** | **4.96** | **0.69** | **1.53** | **1.41** |
| San Joaquin Valley APCD Annual Threshold | 10 | 10 | 100 | 27 | 15 | 15 |
| **Threshold Exceeded?** | **No** | **Yes** | **No** | **No** | **No** | **No** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005; San Joaquin Valley APCD = San Joaquin Valley Air Pollution Control District.

[a] Stationary equipment includes the emissions from pellet storage and fire pumps.

[b] Ships includes the total emissions from cargo ships, tugboats, and pellet loadout within the San Joaquin Valley APCD.

[c] Rail includes the line haul train emissions within the San Joaquin Valley APCD.

[d] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-11** (Operational Switcher Exhaust Minimization – Port of Stockton).

As shown in Table 3.2-60, the project operations would exceed San Joaquin Valley APCD annual thresholds for $NO_x$ after incorporation of mitigation measures.

The San Joaquin Valley APCD has not established daily thresholds for criteria air pollutants. However, Table 3.2-61 presents the estimated mitigated daily operational emissions for the Port of Stockton and anticipated project activities within San Joaquin Valley APCD jurisdictional boundaries for informational purposes.

### Table 3.2-61. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Port of Stockton and Project Activities within San Joaquin Valley APCD – Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| Area | 1.63 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 0.05 | 0.29 | 0.75 | <0.01 | 0.21 | 0.06 |
| Off-Road Equipment | 0.29 | 1.53 | 17.09 | 0.03 | 0.06 | 0.06 |
| Stationary Equipment[a] | 0.07 | 0.85 | 0.18 | 0.06 | 5.00 | 5.00 |
| Ships[b] | 22.31 | 493.88 | 54.82 | 23.24 | 11.64 | 9.55 |
| Rail[c] | 7.74 | 182.96 | 44.23 | 0.17 | 4.18 | 3.84 |
| Switcher[d] | 0.42 | 6.43 | 1.96 | 0.01 | 0.22 | 0.21 |
| **Total** | **32.51** | **685.94** | **119.03** | **23.51** | **19.80** | **18.50** |
| **Winter** | | | | | | |
| Area | 1.63 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |

**Table 3.2-61. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Port of Stockton and Project Activities within San Joaquin Valley APCD – Mitigated**

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| Mobile | 0.05 | 0.31 | 0.60 | <0.01 | 0.21 | 0.06 |
| Off-Road Equipment | 0.29 | 1.53 | 17.09 | 0.03 | 0.06 | 0.06 |
| Stationary Equipment[a] | 0.07 | 0.85 | 0.18 | 0.06 | 5.00 | 5.00 |
| Ships[b] | 22.31 | 493.88 | 54.82 | 23.24 | 11.64 | 9.55 |
| Rail[c] | 7.74 | 182.96 | 44.23 | 0.17 | 4.18 | 3.84 |
| Switcher[d] | 0.42 | 6.43 | 1.96 | 0.01 | 0.22 | 0.21 |
| **Total** | **32.51** | **685.96** | **118.88** | **23.51** | **19.80** | **18.50** |
| **Maximum** | **32.51** | **685.96** | **119.03** | **23.51** | **19.80** | **18.50** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.

[a] Stationary equipment includes the emissions from pellet storage and fire pumps.

[b] Ships includes the total emissions from cargo ships, tugboats, and pellet loadout within the San Joaquin Valley APCD.

[c] Rail includes the line haul train emissions within the San Joaquin Valley APCD.

[d] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-11** (Operational Switcher Exhaust Minimization – Port of Stockton).

If 100% of feedstock activity and Port of Stockton facility operations (including line haul transport, and ship transport) occur within San Joaquin Valley APCD jurisdictional boundaries *at the same time*, the combined maximum daily air pollutant emissions from Table 3.2-30 and Table 3.2-61 would be approximately 43 pounds per day of VOC, 953 pounds per day of $NO_x$, 510 pounds per day of CO, 25 pounds per day of $SO_x$, 481 pounds per day of $PM_{10}$, and 96 pounds per day of $PM_{2.5}$ with incorporation of PDFs and mitigation. (As noted above, this is unlikely in practice; however, more precise determination of the percentage of these activities occurring within San Joaquin Valley APCD boundaries at any given time is impracticable at this stage, since the location and timing of specific feedstock acquisition and line haul transport activities is not yet known.) Note that even under this scenario, the majority of daily feedstock, ship, and rail-related emissions would not occur in the immediate vicinity of the Facility site.

Pellet storage at the Port of Stockton would result in negligible emissions of VOC from woody biomass decomposition. However, VOC concentrations associated with storage of wood pellets are very low, especially at shorter storage durations. More VOCs are emitted from stored sawdust and wood chips compared to stored wood pellets (Yazdanpanah et al. 2014). The Port of Stockton would store finished pellets only, and therefore, additional VOC emissions from pellet storage would be negligible.

### Operational Ambient Air Quality Analysis

The project would exceed the annual significance threshold established by the San Joaquin Valley APCD for $NO_x$ with the inclusion of mitigation, and the Port of Stockton facility would cause the emission of more than 100 pounds each of $NO_x$ and CO per day onsite during operation. As recommended by the Guidance for Assessing and Mitigating Air Quality Impacts (San Joaquin Valley APCD 2015a), an ambient air quality impacts assessment should be performed if any pollutants exceed 100 pounds per day during construction or operation. Maximum daily emissions were used as the basis for determining the project's potential impact on ambient air quality. Summary tables of annual and daily emissions associated with operation are included in Appendix B3.

For the initial assessment (Step 1) of the ambient air quality impact analysis, the maximum background concentration for the Port for each pollutant and averaging period combination was added to the corresponding maximum ground level concentration (GLC) from project-related construction. The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1, with one major difference. For this second step, the maximum GLC of each pollutant and averaging period combination were compared to its corresponding SIL. The SIL is used to evaluate whether the project's construction emissions would contribute to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required. Table 3.2-62 presents a summary of the Air Quality Impact Assessment undertaken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts.

As shown in Table 3.2-62, the unmitigated operational emissions would exceed the SILs for the $NO_2$, $SO_2$, $PM_{10}$, and $PM_{2.5}$ AAQS. As such, a Level 2 analysis is required. The Level 2 analysis showed the project would still exceed the AAQS for the annual $PM_{2.5}$. This would be a **potentially significant** impact, and therefore,, mitigation is required. Table 3.2-63 shows the mitigated construction emissions including application of **MM-AQ-3**, **MM-AQ-4**, **MM-AQ-8**, and **MM-AQ-11**, with **MM-AQ-8** and **MM-AQ-11** being quantified. These mitigation measures are listed as follows:

- **MM-AQ-3: Construction and Operation Renewable Diesel Fuel –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-4: Construction and Operational Worker Commute Optimization –** Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-8: Operational Equipment Exhaust Minimization –** Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton
- **MM-AQ-11: Operational Switcher Exhaust Minimization –** Port of Stockton

As demonstrated in Table 3.2-63, the project would result in operational activities that would generate ambient concentrations of criteria pollutant above the applicable thresholds with application of mitigation.

## Table 3.2-62. Transport to Market Operational Ambient Air Quality Analysis - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| **Level 1 AAQA** | | | | | | | | | |
| 1-hour CO | State | 2.6 | 2,979 | 945.48 | 3,924 | 22,900 | **PASS** | 2000 | Step 1 |
| | Federal | 2.6 | 2,979 | 945.48 | 3,924 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.7 | 1,948 | 359.90 | 2,307 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 1.7 | 1,948 | 359.90 | 2,307 | 10,300 | **PASS** | 500 | Step 1 |
| 1-hour $NO_2$ | State | 0.045 | 85 | 5,993.37 | 6,078 | 339 | Step 2 | 7.5 | **Fail** |
| | Federal | 0.045 | 85 | 5,993.37 | 6,078 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.008 | 15 | 407.13 | 422 | 57 | Step 2 | 1 | **Fail** |
| | Federal | 0.008 | 15 | 407.13 | 422 | 100 | Step 2 | 1 | **Fail** |
| 1-hour $SO_2$ | State | 0.009 | 24 | 365.96 | 390 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.009 | 24 | 365.96 | 389 | 196 | Step 2 | 7.8 | **Fail** |
| 24-Hour $SO_2$ | State | 0.004 | 11 | 82.88 | 93 | 105 | **PASS** | 5 | Step 1 |
| | Federal | 0.004 | 10 | 82.88 | 93 | 367 | **PASS** | 5 | Step 1 |
| Annual $SO_2$ | Federal | 0.001 | 3 | 19.89 | 23 | 79 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 82 | 58.75 | 140 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 82 | 58.75 | 140 | 150 | **PASS** | 5 | **Fail** |
| Annual $PM_{10}$ | State | -- | 26 | 14.10 | 40 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 52 | 55.86 | 108 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 11 | 13.40 | 24 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 11 | 13.40 | 24 | 9 | Step 2 | 0.13 | **Fail** |
| **Level 2 AAQA** | | | | | | | | | |
| 1-hour $NO_2$ | State | 0.045 | 85 | 26.39 | 111 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.045 | 85 | 26.39 | 111 | 188 | **PASS** | 7.5 | Step 1 |
| Annual $NO_2$ | State | 0.008 | 15 | 3.08 | 18 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.008 | 15 | 3.08 | 18 | 100 | **PASS** | 1 | Step 1 |

## Table 3.2-62. Transport to Market Operational Ambient Air Quality Analysis - Unmitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| 1-hour $SO_2$ | Federal | 0.009 | 24 | 1.26 | 25 | 196 | **PASS** | 7.8 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 82 | 1.71 | 83 | 50 | Step 2 | 5 | **PASS** |
| | Federal | -- | 82 | 1.71 | 83 | 150 | **PASS** | 5 | Step 1 |
| Annual $PM_{10}$ | State | -- | 26 | 0.40 | 27 | 20 | Step 2 | 1 | **PASS** |
| 24-hour $PM_{2.5}$ | Federal | -- | 52 | 1.08 | 53 | 35 | Step 2 | 1.2 | **PASS** |
| Annual $PM_{2.5}$ | State | -- | 11 | 0.39 | 11 | 12 | **PASS** | 0.3 | Step 1 |
| | Federal* | -- | 11 | 0.39 | 11 | 9 | Step 2 | 0.3 | **Fail** |

**Source:** Appendix B3.
**Notes:** ppmv = parts per million by volume; µg/m³ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.

## Table 3.2-63. Transport to Market Operational Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| **Level 1** | | | | | | | | | |
| 1-hour CO | State | 2.6 | 2,979 | 1,087.48 | 4,066 | 22,900 | **PASS** | 2000 | Step 1 |
| | Federal | 2.6 | 2,979 | 1,087.48 | 4,066 | 40,100 | **PASS** | 2000 | Step 1 |
| 8-hour CO | State | 1.7 | 1,948 | 413.96 | 2,361 | 10,300 | **PASS** | 500 | Step 1 |
| | Federal | 1.7 | 1,948 | 413.96 | 2,361 | 10,300 | **PASS** | 500 | Step 1 |
| 1-hour $NO_2$ | State | 0.045 | 85 | 5,870.56 | 5,955 | 339 | Step 2 | 7.5 | **Fail** |
| | Federal | 0.045 | 85 | 5,870.56 | 5,955 | 188 | Step 2 | 7.5 | **Fail** |
| Annual $NO_2$ | State | 0.008 | 15 | 398.79 | 414 | 57 | Step 2 | 1 | **Fail** |

## Table 3.2-63. Transport to Market Operational Air Quality Impact Assessment - Mitigated

| Impact Parameter | Applicable Standard | Project Area Maximum Background Concentration (Years 2020–2022) | | Project Contribution (µg/m3) | Cumulative Concentration (µg/m3) | AAQS Threshold (µg/m3) | Step 1 Significance | SIL (µg/m3) | Step 2 Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | ppmv | µg/m³ | | | | | | |
| | Federal | 0.008 | 15 | 398.79 | 414 | 100 | Step 2 | 1 | **Fail** |
| 1-hour $SO_2$ | State | 0.009 | 24 | 365.96 | 390 | 655 | **PASS** | 7.8 | Step 1 |
| | Federal | 0.009 | 24 | 365.96 | 389 | 196 | Step 2 | 7.8 | **Fail** |
| 24-Hour $SO_2$ | State | 0.004 | 11 | 82.88 | 93 | 105 | **PASS** | 5 | Step 1 |
| | Federal | 0.004 | 10 | 82.88 | 93 | 367 | **PASS** | 5 | Step 1 |
| Annual $SO_2$ | Federal | 0.001 | 3 | 19.89 | 23 | 79 | **PASS** | 1 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 82 | 57.80 | 140 | 50 | Step 2 | 5 | **Fail** |
| | Federal | -- | 82 | 57.80 | 140 | 150 | **PASS** | 5 | Step 1 |
| Annual $PM_{10}$ | State | -- | 26 | 13.87 | 40 | 20 | Step 2 | 1 | **Fail** |
| 24-hour $PM_{2.5}$ | Federal | -- | 52 | 55.01 | 107 | 35 | Step 2 | 1.2 | **Fail** |
| Annual $PM_{2.5}$ | State | -- | 11 | 13.20 | 24 | 12 | Step 2 | 0.3 | **Fail** |
| | Federal* | -- | 11 | 13.20 | 24 | 9 | Step 2 | 0.13 | **Fail** |
| **Level 2 AAQA** | | | | | | | | | |
| 1-hour $NO_2$ | State | 0.045 | 85 | 26.21 | 111 | 339 | **PASS** | 7.5 | Step 1 |
| | Federal | 0.045 | 85 | 26.21 | 111 | 188 | **PASS** | 7.5 | Step 1 |
| Annual $NO_2$ | State | 0.008 | 15 | 2.79 | 18 | 57 | **PASS** | 1 | Step 1 |
| | Federal | 0.008 | 15 | 2.79 | 18 | 100 | **PASS** | 1 | Step 1 |
| 1-hour $SO_2$ | Federal | 0.009 | 24 | 1.26 | 25 | 196 | **PASS** | 7.8 | Step 1 |
| 24-hour $PM_{10}$ | State | -- | 82 | 1.70 | 83 | 50 | Step 2 | 5 | **PASS** |
| | Federal | -- | 82 | 1.70 | 83 | 150 | **PASS** | 5 | Step 1 |
| Annual $PM_{10}$ | State | -- | 26 | 0.39 | 27 | 20 | Step 2 | 1 | **PASS** |
| 24-hour $PM_{2.5}$ | Federal | -- | 52 | 1.07 | 53 | 35 | Step 2 | 1.2 | **PASS** |
| Annual $PM_{2.5}$ | State | -- | 11 | 0.39 | 11 | 12 | **PASS** | 0.3 | Step 1 |
| | Federal* | -- | 11 | 0.39 | 11 | 9 | Step 2 | 0.3 | **Fail** |

**Source:** Appendix B3.

**Notes:** ppmv = parts per million by volume; ug/$m^3$ = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; SIL = Significant Impact Level; CO = carbon monoxide; $NO_2$ = nitrogen dioxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ND = insufficient data available to determine the value.
The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-11** (Operational Switcher Exhaust Minimization – Port of Stockton).

Because operational activities at the Port of Stockton would generate ambient concentrations of criteria pollutants (including $PM_{2.5}$) above the applicable thresholds with application of mitigation, this represents a cumulatively considerable increase in these pollutants. The SJVAB is designated as a nonattainment area for the national 24-hour and annual $PM_{2.5}$ standards, and as a nonattainment area for the California annual $PM_{2.5}$ standard, and as set forth in GAMAQI, a cumulatively considerable increase in $PM_{2.5}$ is considered to result in a cumulatively considerable net increase in $PM_{2.5}$. Therefore, the impact related to this portion of the project would be **significant and unavoidable**.

### Port of Stockton - Conclusion

Overall, emissions from criteria pollutants during construction would not exceed the San Joaquin Valley APCD significance thresholds with implementation of SDF-AQ-1 and SDF-AQ-2 (Table 3.2-56). During operations, the Port of Stockton would result in a net increase in emissions and, as shown in Table 3.2-58, the increase in emissions would exceed the San Joaquin Valley APCD annual $NO_X$ significance threshold prior to mitigation, and the impact would be potentially significant. After implementation of MM-AQ-2 through MM-AQ-4, MM-AQ-7, MM-AQ-8 and MM-AQ-11, the operational emissions at the Port of Stockton would still exceed numeric thresholds for $NO_X$ (Table 3.2-60). Further, as demonstrated in Table 3.2-52, the project would result in operational activities that would generate ambient concentrations of criteria pollutants (including $PM_{2.5}$) above the applicable thresholds with application of mitigation. This represents a cumulatively considerable increase in $PM_{2.5}$ as the SJVAB is nonattainment for $PM_{2.5}$. Therefore, the impact related to this portion of the project would be significant and unavoidable.

This impact is reflective of project-related emissions occurring within the entire San Joaquin Valley APCD, a significant portion of which (such as the majority of rail transport emissions) may not be experienced in the immediate vicinity of the Port of Stockton. The following analysis of project-related emissions occurring within the City of Stockton itself does not affect the final impact conclusion of this EIR, but is noted here for informational purposes to help the public evaluate the effects of the project for the Stockton community.

Tables 3.2-64 through Table 3.2-67 present the estimated daily and annual operational localized emissions (unmitigated and mitigated) within the City of Stockton for informational purposes. (The City of Stockton has not established daily or annual thresholds for criteria air pollutants.)

**Table 3.2-64. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – City of Stockton - Unmitigated**

| Emissions Source | VOC | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| Area | 1.63 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | <0.01 | 0.06 | 0.04 | <0.01 | <0.01 | <0.01 |
| Off-Road Equipment | 0.29 | 1.53 | 17.09 | 0.03 | 0.06 | 0.06 |
| Stationary Equipment[a] | 0.07 | 0.85 | 0.18 | 0.06 | 5.00 | 5.00 |
| Ships[b] | 13.22 | 360.36 | 35.67 | 18.33 | 7.64 | 7.03 |
| Rail[c] | 0.11 | 2.60 | 0.63 | 0.00 | 0.06 | 0.05 |
| Switcher[d] | 0.42 | 6.43 | 1.96 | 0.01 | 0.22 | 0.21 |
| **Total** | **15.74** | **371.83** | **55.57** | **18.43** | **12.98** | **12.35** |

## Table 3.2-64. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – City of Stockton - Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Winter** | | | | | | |
| Area | 1.63 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | <0.01 | 0.07 | 0.04 | <0.01 | <0.01 | <0.01 |
| Off-Road Equipment | 0.29 | 1.53 | 17.09 | 0.03 | 0.06 | 0.06 |
| Stationary Equipment[a] | 0.07 | 0.85 | 0.18 | 0.06 | 5.00 | 5.00 |
| Ships[b] | 13.22 | 360.36 | 35.67 | 18.33 | 7.64 | 7.03 |
| Rail[c] | 0.11 | 2.60 | 0.63 | 0.00 | 0.06 | 0.05 |
| Switcher[d] | 0.42 | 6.43 | 1.96 | 0.01 | 0.22 | 0.21 |
| **Total** | **15.74** | **371.84** | **55.57** | **18.43** | **12.98** | **12.35** |
| **Maximum** | **15.74** | **371.84** | **55.57** | **18.43** | **12.98** | **12.35** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.

[a] Stationary equipment includes the emissions from pellet storage and fire pumps.
[b] Ships includes the total emissions from cargo ships, tugboats, and pellet loadout within the City of Stockton.
[c] Rail includes the line haul train emissions within the City of Stockton.
[d] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

## Table 3.2-65. Estimated Annual Operation Criteria Air Pollutant Emissions – City of Stockton – Unmitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Area | 0.30 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | <0.01 | 0.01 | 0.01 | <0.01 | <0.01 | <0.01 |
| Off-Road Equipment | 0.04 | 0.46 | 0.50 | <0.01 | 0.01 | 0.01 |
| Stationary Equipment[a] | 0.01 | 0.16 | 0.03 | 0.01 | 0.91 | 0.91 |
| Ships[b] | 0.38 | 10.45 | 1.03 | 0.53 | 0.22 | 0.20 |
| Rail[c] | <0.01 | 0.11 | 0.03 | <0.01 | <0.01 | <0.01 |
| Switcher[d] | 0.03 | 0.50 | 0.15 | 0.00 | 0.02 | 0.02 |
| **Total** | **0.76** | **11.69** | **1.75** | **0.54** | **1.16** | **1.14** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.

[a] Stationary equipment includes the emissions from pellet storage and fire pumps.
[b] Ships includes the total emissions from cargo ships, tugboats, and pellet loadout within the City of Stockton.
[c] Rail includes the line haul train emissions within the City of Stockton.
[d] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

## Table 3.2-66. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – City of Stockton - Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Pounds per Day | | | | | |
| **Summer** | | | | | | |
| Area | 1.63 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | <0.01 | 0.06 | 0.04 | <0.01 | <0.01 | <0.01 |
| Off-Road Equipment | 0.82 | 9.26 | 9.94 | 0.03 | 0.27 | 0.25 |
| Stationary Equipment[a] | 0.07 | 0.85 | 0.18 | 0.06 | 5.00 | 5.00 |
| Ships[b] | 13.22 | 360.36 | 35.67 | 18.33 | 7.64 | 7.03 |
| Rail[c] | 0.11 | 2.60 | 0.63 | 0.00 | 0.06 | 0.05 |
| Switcher[d] | 0.42 | 6.43 | 1.96 | 0.01 | 0.22 | 0.21 |
| **Total** | **16.27** | **379.56** | **48.42** | **18.43** | **13.19** | **12.54** |
| **Winter** | | | | | | |
| Area | 1.63 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | <0.01 | 0.07 | 0.04 | <0.01 | <0.01 | <0.01 |
| Off-Road Equipment | 0.82 | 9.26 | 9.94 | 0.03 | 0.27 | 0.25 |
| Stationary Equipment[a] | 0.07 | 0.85 | 0.18 | 0.06 | 5.00 | 5.00 |
| Ships[b] | 13.22 | 360.36 | 35.67 | 18.33 | 7.64 | 7.03 |
| Rail[c] | 0.11 | 2.60 | 0.63 | 0.00 | 0.06 | 0.05 |
| Switcher[d] | 0.42 | 6.43 | 1.96 | 0.01 | 0.22 | 0.21 |
| **Total** | **16.27** | **379.57** | **48.42** | **18.43** | **13.19** | **12.54** |
| **Maximum** | **16.27** | **379.57** | **48.42** | **18.43** | **13.19** | **12.54** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.

[a] Stationary equipment includes the emissions from pellet storage and fire pumps.

[b] Ships includes the total emissions from cargo ships, tugboats, and pellet loadout within the City of Stockton.

[c] Rail includes the line haul train emissions within the City of Stockton.

[d] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-11** (Operational Switcher Exhaust Minimization – Port of Stockton).

## Table 3.2-67. Estimated Annual Operation Criteria Air Pollutant Emissions – City of Stockton – Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Area | 0.30 | N/A | N/A | N/A | N/A | N/A |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | <0.01 | 0.01 | 0.01 | <0.01 | <0.01 | <0.01 |
| Off-Road Equipment | 0.01 | 0.08 | 0.85 | <0.01 | <0.01 | <0.01 |
| Stationary Equipment[a] | 0.01 | 0.16 | 0.03 | 0.01 | 0.91 | 0.91 |
| Ships[b] | 0.38 | 10.45 | 1.03 | 0.53 | 0.22 | 0.20 |

## Table 3.2-67. Estimated Annual Operation Criteria Air Pollutant Emissions – City of Stockton – Mitigated

| Emissions Source | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons per Year | | | | | |
| Rail[c] | <0.01 | 0.11 | 0.03 | <0.01 | <0.01 | <0.01 |
| Switcher[d] | 0.03 | 0.50 | 0.15 | 0.00 | 0.02 | 0.02 |
| **Total** | **0.73** | **11.31** | **2.10** | **0.54** | **1.15** | **1.13** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.

[a] Stationary equipment includes the emissions from pellet storage and fire pumps.

[b] Ships includes the total emissions from cargo ships, tugboats, and pellet loadout within the City of Stockton.

[c] Rail includes the line haul train emissions within the City of Stockton.

[d] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-11** (Operational Switcher Exhaust Minimization – Port of Stockton).

As indicated in Table 3.2-60, approximately 38% of the operational $NO_X$ emissions attributable to Port of Stockton facility operations (9.24 tons per year) are generated by line haul train emissions occurring along rail lines extending from the northern and eastern boundaries of the San Joaquin Valley APCD to the project's port facilities. As shown in Table 3.2-67, only 1% of this rail travel (based on GIS data) occurs within the City of Stockton, and as a result, $NO_X$ emissions from rail transport *experienced within the City of Stockton* are only 0.11 tons per year. As indicated in Table 3.2-60, approximately 58.7% of the operational $NO_X$ emissions attributable to the Port facility operations (14.32 tons per year) are generated by ships occurring within San Joaquin Valley APCD boundaries. As shown in Table 3.2-67, 73% of this ship travel (based on GIS data) occurs within the City of Stockton. As a result, $NO_X$ emissions from ship transport *experienced within the City of Stockton* are only 10.32 tons per year. Utilizing this figure would indicate that total $NO_X$ emissions experienced within the City of Stockton would be 11.31 tons per year maximum (where 92% of the total $NO_X$ emissions are due to ship transport). While not affecting the final impact conclusion, this data is presented here for informational purposes to help the public evaluate the effects of the project for the Stockton community.

### Ship Transport – Bay Area AQMD

Ship transport would generate criteria air pollutants. As discussed in Section 3.2.4.1.3, pollutant emissions associated with ship transport operations were quantified using a spreadsheet model.

The estimated daily and annual emissions from cargo ships and tugboats within the Bay Area AQMD are shown in Table 3.2-68. (Emissions from cargo ships and tugboats within the San Joaquin Valley APCD jurisdiction have been evaluated against the San Joaquin Valley APCD thresholds earlier in this section. See Table 3.2-60).

## Table 3.2-68. Estimated BAAQMMD Annual Criteria Air Pollutant Emissions – Ships - Unmitigated

| Air District | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Pounds Per Day** | | | | | | |
| Bay Area AQMD | 36.47 | 592.80 | 78.01 | 19.62 | 10.05 | 9.24 |
| Bay Area AQMD Daily Threshold | 54 | 54 | N/A | N/A | 82 | 54 |

**Table 3.2-68. Estimated BAAQMMD Annual Criteria Air Pollutant Emissions – Ships - Unmitigated**

| Air District | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Threshold Exceeded?** | **No** | **Yes** | **N/A** | **N/A** | **No** | **No** |
| **Tons Per Year** | | | | | | |
| Bay Area AQMD | 1.06 | 17.19 | 2.26 | 0.57 | 0.29 | 0.27 |
| Bay Area AQMD Annual Threshold | 10 | 10 | N/A | N/A | 15 | 10 |
| **Threshold Exceeded?** | **No** | **Yes** | **N/A** | **N/A** | **No** | **No** |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005; Bay Area AQMD = Bay Area Air Quality Management District.

As shown in Table 3.2-68, emissions from ship transport within the Bay Area AQMD jurisdiction would exceed the Bay Area AQMD daily and annual threshold for $NO_X$. This impact would be **potentially significant**.

Potential mitigation measures were evaluated to attempt to decrease $NO_X$ emissions below the thresholds that were exceeded; however, GSNR does not have operational control over the type of ships being used. Therefore, no feasible mitigation measures were identified. Ship transport occurring within the Bay Area AQMD would exceed the Bay Area AQMD daily and annual thresholds for $NO_X$, and there is no feasible mitigation. This represents a cumulatively considerable increase in **$NO_X$**. Every county within the Bay Area AQMD is nonattainment for $O_3$, and as set forth in GAMAQI, a cumulatively considerable increase in one or more $O_3$ precursors (such as **$NO_X$**) is considered to result in a cumulatively considerable net increase in $O_3$. Therefore, the impact related to this portion of the project would **be significant and unavoidable**.

### Conclusion

Activities implemented under the project would generate levels of criteria air pollutants and precursors that are anticipated to exceed applicable air district thresholds, in regions that are nonattainment for these pollutants. With implementation of the mitigation measures described herein, there remain emissions of these pollutants in excess of the applicable thresholds of significance in these areas. Impacts associated with the potential for the project to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard are **significant and unavoidable.**

## Health Effects of Criteria Air Pollutants (Impacts AQ-1 and AQ-2)

The California Supreme Court's Sierra Club v. County of Fresno (2018) 6 Cal. 5th 502 decision (referred to herein as the Friant Ranch decision) (issued on December 24, 2018) addresses the need to correlate mass emission values for air pollutants to specific health consequences and contains the following direction from the California Supreme Court: "The Environmental Impact Report (EIR) must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must explain what the agency *does* know and why, given existing scientific constraints, it cannot translate potential health impacts further" (Italics in original) (Sierra Club v. County of Fresno 2018). The following discussion summarizes the detailed information within Appendix B5, Health Effects of Criteria Air Pollutants.

There are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days. Currently, CARB and EPA have not approved a quantitative method to reliably, meaningfully, and consistently translate the mass emission estimates for the criteria air pollutants resulting from the project to specific health effects. Within the state, currently, only the Sacramento Metropolitan Air Quality Management District (Sacramento Metropolitan AQMD) has established quantitative guidance (Sacramento Metropolitan AQMD 2020a); however, application of the Sacramento Metropolitan AQMD screening analysis is not appropriate for the project on the whole because activities and associated emissions largely occur outside of the region evaluated in the (Sacramento Metropolitan AQMD, Yolo-Solano AQMD, Placer County APCD, El Dorado County AQMD, and Feather River AQMD) and project emissions span multiple air districts. Project emissions do occur within Sacramento Metropolitan AQMD, Placer County APCD, El Dorado County AQMD, and Feather River AQMD as a result of feedstock acquisition and/or line-haul (train) travel whereas emissions would be dispersed (line-haul travel would be linear and not concentrated in one area) and the specific location within the air district is not identifiable at this time for feedstock activities, which would also likely not occur in one location for a prolonged period of time (e.g., under a year). The project would also result in air quality benefits associated with avoided wildfire and associated avoided criteria air pollutant emissions, which would complicate modeling as the specific location of the anticipated benefits cannot be determined at this time.

In connection with the judicial proceedings culminating in issuance of the Friant Ranch decision, the South Coast Air Quality Management District (South Coast AQMD) and the San Joaquin Valley APCD filed amicus briefs attesting to the extreme difficulty of correlating an individual project's criteria air pollutant emissions to specific health impacts. Both San Joaquin Valley APCD and South Coast AQMD have among the most sophisticated air quality modeling and health impact evaluation capabilities of the air districts in California. The key, relevant points from the South Coast AQMD and San Joaquin Valley APCD briefs are summarized herein.

In requiring a health impact type of analysis for criteria air pollutants, it is important to understand how $O_3$ and PM are formed, dispersed, and regulated. The formation of $O_3$ and PM in the atmosphere, as secondary pollutants,[23] involves complex chemical and physical interactions of multiple pollutants from natural and anthropogenic sources. The $O_3$ reaction is self-perpetuating (or catalytic) in the presence of sunlight because $NO_2$ is photochemically reformed from nitric oxide. In this way, $O_3$ is controlled by both $NO_x$ and VOC emissions (NRC 2005). The complexity of these interacting cycles of pollutants means that incremental decreases in one emission may not result in proportional decreases in $O_3$ (NRC 2005). Although these reactions and interactions are well understood, variability in emission source operations and meteorology creates uncertainty in the modeled $O_3$ concentrations to which downwind populations may be exposed (NRC 2005). Once formed, $O_3$ can be transported long distances by wind and due to atmospheric transport; contributions of precursors from the surrounding region can also be important (EPA 2008c). Because of the complexity of $O_3$ formation, a specific tonnage amount of VOCs or $NO_X$ emitted in a particular area does not equate to a particular concentration of $O_3$ in that area (San Joaquin Valley APCD 2015d). PM can be divided into two categories: directly emitted PM and secondary PM. Secondary PM, like $O_3$, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as $SO_x$ and $NO_x$ (San Joaquin Valley APCD 2015d). Because of the complexity of secondary PM formation, including the potential to be transported long distances by wind, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area (San Joaquin Valley APCD 2015d). This is especially true for individual projects, like the project, where project-generated criteria air pollutant emissions are

[23] Air pollutants formed through chemical reactions in the atmosphere are referred to as secondary pollutants.

not derived from a single "point source," but from construction equipment and mobile sources (passenger cars and trucks) driving to, from, and around the project sites.

Another important technical nuance is that health effects from air pollutants are related to the concentration of the air pollutant that an individual is exposed to, not necessarily the individual mass quantity of emissions associated with an individual project. For example, health effects from $O_3$ are correlated with increases in the ambient level of $O_3$ in the air a person breathes (South Coast AQMD 2015). However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient $O_3$ levels over an entire region (South Coast AQMD 2015). The lack of link between the tonnage of precursor pollutants and the concentration of $O_3$ and $PM_{2.5}$ formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects; rather, it is the concentration of resulting $O_3$ that causes these effects (San Joaquin Valley APCD 2015d). Indeed, the ambient air quality standards, which are statutorily required to be set by EPA at levels that are requisite to protect the public health, are established as concentrations of $O_3$ and $PM_{2.5}$ and not as tonnages of their precursor pollutants (San Joaquin Valley APCD 2015d). Because the ambient air quality standards are focused on achieving a particular concentration region-wide, the tools and plans for attaining the ambient air quality standards are regional in nature. For CEQA analyses, project-generated emissions are typically estimated in pounds per day or tons per year and compared to mass daily or annual emission thresholds. While CEQA thresholds are established at levels that the air basin can accommodate without affecting the attainment date for the ambient air quality standards, even if a project exceeds established CEQA significance thresholds, this does not mean that one can easily determine the concentration of $O_3$ or PM that will be created at or near the project site on a particular day or month of the year, or what specific health impacts will occur (San Joaquin Valley APCD 2015d).

In regard to regional concentrations and air basin attainment, San Joaquin Valley APCD emphasized that attempting to identify a change in background pollutant concentrations that can be attributed to a single project, even one as large as the entire Friant Ranch Specific Plan,[24] is a theoretical exercise. The San Joaquin Valley APCD brief noted that it "would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have" (San Joaquin Valley APCD 2015d). The situation is further complicated by the fact that background concentrations of regional pollutants are not uniform either temporally or geographically throughout an air basin but are constantly fluctuating based upon meteorology and other environmental factors. San Joaquin Valley APCD noted that the currently available modeling tools are equipped to model the impact of all emission sources in the San Joaquin Valley Air Basin on attainment (San Joaquin Valley APCD 2015d). The San Joaquin Valley APCD brief then indicated that "[r]unning the photochemical grid model used for predicting $O_3$ attainment with the emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total $NO_x$ and VOC in the Valley) is not likely to yield valid information given the relative scale involved" (San Joaquin Valley APCD 2015d).

South Coast AQMD and San Joaquin Valley APCD have indicated that it is not feasible to quantify project-level health impacts based on existing modeling (South Coast AQMD 2015; San Joaquin Valley APCD 2015d). Even if a metric could be calculated, it would not be reliable because the models are equipped to model the impact of all emission sources in an air basin on attainment and would likely not yield valid information or a measurable increase in $O_3$ concentrations sufficient to accurately quantify $O_3$-related health impacts for an individual project.

[24] The Friant Ranch Specific Plan proposed 2,683 single-family age-restricted units, 83 multifamily age-restricted units, 180 non-age-restricted multifamily units, and 250,000 square feet of commercial village within a Village Core that also provides for up to 50 residential units on approximately 942 acres (County of Fresno 2010).

Nonetheless, following the Supreme Court's Friant Ranch decision, some EIRs where estimated criteria air pollutant emissions exceeded applicable air district thresholds have included a quantitative analysis of potential project-generated health effects using a combination of a regional photochemical grid model[25] and the EPA Benefits Mapping and Analysis Program (BenMAP or BenMAP–Community Edition [CE]).[26] The publicly available health impact assessments (HIAs) typically present results in terms of an increase in health incidences and/or the increase in background health incidence for various health outcomes resulting from the project's estimated increase in concentrations of $O_3$ and $PM_{2.5}$.[27] To date, the six publicly available HIAs reviewed herein have concluded that the evaluated project's health effects associated with the estimated project-generated increase in concentrations of $O_3$ and $PM_{2.5}$ represent a small increase in incidences and a very small percent of the number of background incidences, indicating that these health impacts are negligible and potentially within the models' margin of error. It is also important to note that while the results of the six available HIAs conclude that the project emissions do not result in a substantial increase in health incidences, the estimated emissions and assumed toxicity is also conservatively inputted into the HIA and thus, overestimate health incidences, particularly for $PM_{2.5}$. The six reviewed HIAs were conducted for individual projects or defined areas such as a campus master plan or airport master plan, which differs from the project, where emissions may occur within 19 air districts.

The Sacramento Metropolitan AQMD's Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District (Sacramento Metropolitan AQMD 2020a) included an approach for analyzing individual projects in addition to the screening tools for minor projects and strategic area project. The analysis of individual projects guidance states that "In order to estimate the health effects of the increases of criteria pollutants for a proposed Project, practitioners should apply a PGM to estimate the increases in concentrations of ozone and $PM_{2.5}$ in the region as a result of the emissions of criteria and precursor pollutants from a Project. Next apply the U.S. EPA-authored program, the Benefits Mapping and Analysis Program (BenMAP2), to estimate the resulting health effects from the increases in concentration" (Sacramento Metropolitan AQMD 2020a). The Sacramento Metropolitan AQMD guidance outlines the same or similar approach taken in the six available HIAs noted above, which as explained herein, has not produced meaningful information for the public.

The Bay Area AQMD released qualitative health effects assessment for criteria air pollutants guidance to address the Friant Ranch case as part of their 2022 CEQA Guidelines. The Bay Area AQMD guidance states that, "use of these [photochemical grid-based] models is typically beyond the resources available for air quality analysis prepared pursuant to CEQA, and even if such an analysis was to be completed consideration would need be given to ensure the results would be meaningful based on modeling and data limitations" (Bay Area AQMD 2022). The Bay Area AQMD guidance also states that, "data applicability should be considered to determine whether the model

[25] The first step in the publicly available health impact assessments (HIAs) includes running a regional photochemical grid model, such as the Community Multiscale Air Quality model or the Comprehensive Air Quality Model with extensions to estimate the increase in concentrations of $O_3$ and $PM_{2.5}$ as a result of project-generated emissions of criteria and precursor pollutants. Air districts, such as SCAQMD, use photochemical air quality models for regional air quality planning. These photochemical models are large-scale air quality models that simulate the changes of pollutant concentrations in the atmosphere using a set of mathematical equations characterizing the chemical and physical processes in the atmosphere (EPA 2023c).

[26] After estimating the increase in concentrations of $O_3$ and $PM_{2.5}$, the second step in the six examples includes use of BenMAP or BenMAP-CE to estimate the resulting associated health effects. BenMAP estimates the number of health incidences resulting from changes in air pollution concentrations (EPA 2023d). The health impact function in BenMAP-CE incorporates four key sources of data: (i) modeled or monitored air quality changes, (ii) population, (iii) baseline incidence rates, and (iv) an effect estimate. All of the five example HIAs focused on $O_3$ and $PM_{2.5}$.

[27] The following CEQA documents included a quantitative HIA to address Friant Ranch: (1) World Logistics Center Revised Final EIR (City of Moreno Valley 2019), (2) March Joint Powers Association K4 Warehouse and Cactus Channel Improvements EIR (March JPA 2019), (3) Mineta San Jose Airport Amendment to the Airport Master Plan EIR (City of San Jose 2019), (4) City of Inglewood Basketball and Entertainment Center Project EIR (City of Inglewood 2019), (5) San Diego State University Mission Valley Campus Master Plan EIR (SDSU 2019), and (6) California State University Dominguez Hills 2018 Campus Master Plan EIR (CSU Dominguez Hills 2019).

[BenMAP] may be appropriate for an air quality analysis prepared pursuant to CEQA and if such an analysis would provide meaningful results based on modeling and data limitations" (Bay Area AQMD 2022).

As explained in the San Joaquin Valley APCD brief and noted previously, running the photochemical grid model used for predicting $O_3$ attainment with the emissions solely from an individual project like the Friant Ranch project or the project is not likely to yield valid information given the relative scale involved. The six examples reviewed support the San Joaquin Valley APCD brief's contention that consistent, reliable, and meaningful results may not be provided by methods applied at this time and Bay Area AQMD's caution to provide meaningful information to the public. Accordingly, additional work in the industry and more importantly, air district participation, is needed to develop a more meaningful analysis to correlate project-level mass criteria air pollutant emissions and health effects for decision makers and the public. Furthermore, at the time of writing, no HIA has concluded that health effects estimated using the photochemical grid model and BenMAP approach are substantial provided that the estimated project-generated incidences represent a very small percent of the number of background incidences, potentially within the models' margin of error. Nonetheless, further evaluation of project-generated criteria air pollutant emissions and associated health effects is provided below.

Construction of the Lassen Facility would result in emissions that would not exceed the Lassen County APCD daily BACT thresholds for criteria air pollutants after implementation of **MM-AQ-5** (Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility) and **MM-AQ-6** (Construction Lower-VOC Paints – Lassen Facility). Construction of the Tuolumne Facility and the Port of Stockton would result in emissions that would not exceed their respective Tuolumne County APCD and San Joaquin Valley APCD thresholds for criteria air pollutants without mitigation.

Operation of the project, including feedstock acquisition, wood pellet production, and transport to market, however, would result in exceedances of regional thresholds for emissions of VOCs, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$, even after implementation of mitigation.

As discussed in Section 3.2.1.1, Pollutants and Effects, health effects associated with $O_3$ include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue. VOCs and $NO_x$ are precursors to $O_3$ and the contribution of VOCs and $NO_x$ to regional ambient $O_3$ concentrations is the result of complex photochemistry. The increases in $O_3$ concentrations due to $O_3$ precursor emissions tend to be found downwind of the source location because of the time required for the photochemical reactions to occur. Further, the potential for exacerbating excessive $O_3$ concentrations would also depend on the time of year that the VOC emissions would occur, because exceedances of the $O_3$ NAAQS and CAAQS tend to occur between April and October when solar radiation is highest. As described above, due to the lack of quantitative methods to assess this complex photochemistry, determining the holistic effect of a single project's emissions of $O_3$ precursors is not scientifically possible at this time. ("[I]f it is not scientifically possible to do more than has already been done to connect air quality effects with potential human health impacts, the EIR itself must explain why, in a manner reasonably calculated to inform the public of the scope of what is and is not yet known about the Project's impacts." Sierra Club v. County of Fresno 2018.)

That being said, as shown in Table 3.2-69, because the project would exceed the VOC thresholds in the Lassen County APCD and $NO_x$ thresholds in the Bay Area AQMD, Butte County AQMD, Calaveras County APCD, El Dorado County AQMJD, Feather River AQMD, Lassen County APCD, Northern Sierra AQMD, Placer County APCD, Sacramento Metropolitan AQMD, San Joaquin Valley APCD, Shasta County AQMD, and Tehama County APCD. However, for those counties designated as attainment or unclassified/unclassifiable areas for $O_3$ (i.e., Lassen County APCD) project-generated VOC and/or $NO_x$ emissions may not cause an exceedance of the NAAQS and CAAQS for $O_3$ or result in

potential health effects associated with $O_3$. For the air districts designated as nonattainment areas for $O_3$ (i.e., Bay Area AQMD, Butte County AQMD, Calaveras County APCD, El Dorado County AQMD, Feather River AQMD, Northern Sierra AQMD, Placer County APCD, Sacramento Metropolitan AQMD, San Joaquin Valley APCD, Shasta County AQMD, and Tehama County APCD), project-generated VOC and/or $NO_x$ emissions may contribute to health effects associated with $O_3$, but, as noted, it is not scientifically possible to quantify the precise magnitude of these effects.

Health effects associated with $NO_x$ and $NO_2$ (which is a constituent of $NO_x$) include lung irritation and enhanced allergic responses (see Section 3.2.1.1). As shown in Table 3.2-68, project-related $NO_x$ emissions would exceed the applicable $NO_x$ thresholds in Bay Area AQMD, Butte County AQMD, Calaveras County APCD, El Dorado County AQMJD, Feather River AQMD, Lassen County APCD, Northern Sierra AQMD, Placer County APCD, Sacramento Metropolitan AQMD, San Joaquin Valley APCD, Shasta County AQMD, and Tehama County APCD. Furthermore, as shown in Tables 3.2-43 and 3.2-53, operational activities at the Lassen Facility and Tuolumne Facility would generate ambient concentrations of criteria pollutants above the 1-hour $NO_2$ thresholds with application of mitigation. However, all the applicable air districts are designated as attainment areas for $NO_2$ (and $NO_2$ is a constituent of $NO_x$). Accordingly, project-generated NOx emissions may not cause an exceedance of the NAAQS and CAAQS for $NO_2$ or result in potential health effects associated with $NO_2$ and $NO_x$.

Health effects associated with CO include chest pain in patients with heart disease, headache, light-headedness, and reduced mental alertness (see Section 3.2.1.1). CO tends to be a localized impact associated with congested intersections, yet the project would also generate localized emissions of CO at the Lassen and Tuolumne facility sites from area sources, mobile sources, off-road equipment, and stationary sources that would exceed the applicable threshold of significance for CO after application of feasible mitigation measures. However, the project would not generate emissions of CO that would exceed the federal and California AAQS. The potential for CO hotspots is discussed under Impact AQ-3 below and determined to be less than significant. Thus, the project's CO emissions would not contribute to significant health effects associated with CO but, as noted, it is not scientifically possible to quantify the precise magnitude of these effects.

Health effects associated with $PM_{10}$ and $PM_{2.5}$ include premature death and hospitalization, primarily for worsening of respiratory disease (see Section 3.2.1.1). As shown in Table 3.2-69, project-related $PM_{10}$ emissions would exceed the applicable $PM_{10}$ thresholds in Butte County AQMD, Calaveras County APCD, Feather River AQMD, Lassen County APCD, Northern Sierra AQMD, Placer County APCD, Sacramento Metropolitan AQMD, San Joaquin Valley ACPD, Shasta County AQMD, and Tehama County APCD. Furthermore, as shown in Tables 3.2-43 and 3.2-53, operational activities at the Lassen Facility and Tuolumne Facility would generate ambient concentrations of criteria pollutants above the applicable $PM_{10}$ and $PM_{2.5}$ thresholds with application of mitigation. In addition, as shown in Table 3.2-63, operational activities at the Port of Stockton would generate ambient concentrations of criteria pollutants above the annual $PM_{2.5}$ threshold with application of mitigation. However, for those counties designated as attainment or unclassified/unclassifiable areas for $PM_{10}$ (i.e., Lassen County APCD and Shasta County AQMD) and $PM_{2.5}$ (i.e., Calaveras County APCD, Lassen County APCD, Northern Sierra AQMD, Placer County AQMD, Sacramento Metropolitan AQMD, Shasta County AQMD, and Tehama County APCD), project-generated $PM_{10}$ and/or $PM_{2.5}$ emissions may not cause an exceedance of the NAAQS and CAAQS for or result in potential health effects associated with $PM_{10}$ or $PM_{2.5}$. For the air districts designated as nonattainment areas for $PM_{10}$ (i.e., Butte County AQMD, Calaveras County APCD, Feather River AQMD, Northern Sierra AQMD, Placer County APCD, Sacramento Metropolitan AQMD, San Joaquin Valley ACPD, and Tehama County APCD) and/or $PM_{2.5}$ (i.e., Butte County AQMD, Feather River AQMD, San Joaquin Valley ACPD), project-generated $PM_{10}$ and/or $PM_{2.5}$ emissions may contribute to health effects associated with $PM_{10}$ or $PM_{2.5}$.

For the reasons noted above under Impacts AQ-1 and AQ-2, any attempt to quantify the actual nature and magnitude of these effects would be speculative. The determination that project activities in these districts may exceed the applicable thresholds has been based largely on a scenario in which all feedstock activities occur simultaneously within the same air district (which is unlikely in practice, but more precise determination of actual feedstock activities is not practicable at this programmatic stage). Even under this scenario, feedstock activities would be dispersed through forested regions within the district, which are typically remote from populated areas. The impact of a fugitive dust source on air pollution depends on the quantity, size, and drift potential of the dust particles injected into the atmosphere (EPA 1995). Therefore, the actual concentrations resulting at any given location, and the thus the associated magnitude of health effects, cannot be precisely determined.

Table 3.2-69 shows operational air district threshold exceedances and/or federal or California AAQS exceedances for multiple air districts. With the exception of Lassen County APCD, Tuolumne County APCD, and the San Joaquin Valley APCD, emissions would be a result of feedstock acquisition, rail transport, and/or ship transport only. As described in Section 3.2.4.1.1, it is likely that during feedstock acquisition, the project would have multiple crews operating in different air districts on a given day. However, for purposes of comparing emissions to the most stringent daily or annual threshold, it was conservatively assumed that all crews would be operating in the same air district 100% of the time, which is unlikely in practice.

## Table 3.2-69. Health Effects of Criteria Air Pollutants – Criteria Air Pollutant Threshold Exceedances with Mitigation

| Scenario | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Mass Daily or Annual Threshold Exceeded with Mitigation and/or AAQS Exceedance with Mitigation? | | | | | |
| Bay Area AQMD | No | **Yes** | No | No | No | No |
| Butte County AQMD | No | **Yes** | N/A | N/A | **Yes** | **Yes** |
| Calaveras County APCD | No | **Yes** | N/A | N/A | **Yes** | N/A |
| El Dorado County AQMD | No | **Yes** | N/A | N/A | N/A | N/A |
| Feather River AQMD | No | **Yes** | N/A | N/A | **Yes** | N/A |
| Lassen County APCD | **Yes** | **Yes** | **Yes** | No | **Yes** | **Yes** |
| Mariposa County APCD | No | No | No | No | No | No |
| Northern Sierra AQMD | No | **Yes** | N/A | N/A | **Yes** | N/A |
| Placer County APCD | No | **Yes** | N/A | N/A | **Yes** | N/A |
| Sacramento Metropolitan AQMD | No | **Yes** | N/A | N/A | **Yes** | No |
| San Joaquin Valley APCD | No | **Yes** | No | No | **Yes** | **Yes** |
| Shasta County AQMD | No | **Yes** | N/A | N/A | **Yes** | N/A |
| Tehama County APCD | No | **Yes** | N/A | N/A | **Yes** | N/A |
| Tuolumne County APCD | No | **Yes** | **Yes** | N/A | **Yes** | N/A |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable; AAQS = ambient air quality standard; APCD = Air Pollution Control District; AQMD = Air Quality Management District.
This table only shows the operational impacts of the project. Construction impacts were described above.

While the above scientific and technological constraints present considerable doubt that quantifying health effects for individual CEQA projects may not accurately and meaningfully inform the public of how project-generated bare numbers (i.e., estimated criteria air pollutant emissions) translate to create potential adverse health effects, due

to the size and scale of the project, additional analysis is presented below for emissions occurring within Lassen County, Tuolumne County, and San Joaquin County, where the two pellet facilities and the Port of Stockton are located, respectively, as well as for all project emissions within the State.

The EPA CO–Benefits Risk Assessment (COBRA) screening model was used to estimate the potential health effects of the project based on the emissions of air pollutants (EPA 2024d). The analysis year of 2028 was selected as it is closest to the project's operational year. The state of California and each respective county (Lassen, Tuolumne, and San Joaquin) was selected for the location. For the statewide run, California was selected as the geographical extent. The criteria air pollutant emissions estimated using the methodologies above (see Section 3.2.4.1 Methodology and Impact AQ-2) were assumed for each location. A discount rate of 2% was selected as it is the default. COBRA assumes changes in adult mortality and non-fatal heart attacks occur over a 20-year period.

For Lassen County,[28] $O_3$ and $PM_{2.5}$ related health outcomes attributed to project-related increases in ambient air concentrations include asthma-related emergency room visits (<0.004 incidences per year), lung cancer incidence (<0.004 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (<0.004 incidences per year), all respiratory-related hospital admissions (<0.004 incidences per year), mortality (0.05 incidences per year), and nonfatal acute myocardial infarction (less than <0.004 incidences per year for all age groups). For context, between 2020-2022, the CDPH reported that Lassen County had an annual average of 328.3 mortalities from all causes and an age-adjusted death rate of 886.8 mortalities per 100,000 population (CDPH 2024).

For Tuolumne County,[29] $O_3$ and $PM_{2.5}$ related health outcomes attributed to project-related increases in ambient air concentrations include asthma-related emergency room visits (<0.004 incidences per year), lung cancer incidence (<0.004 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (<0.004 incidences per year), all respiratory-related hospital admissions (<0.004 incidences per year), mortality (0.07 incidences per year), and nonfatal acute myocardial infarction (less than 0.01 incidences per year for all age groups). For context, between 2020-2022, the CDPH reported that Tuolumne County had an annual average of 807 mortalities from all causes and an age-adjusted death rate of 872.2 mortalities per 100,000 population (CDPH 2024).

For San Joaquin County,[30] $O_3$ and $PM_{2.5}$ related health outcomes attributed to project-related increases in ambient air concentrations include asthma-related emergency room visits (<0.004 incidences per year), lung cancer incidence (<0.004 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (<0.004 incidences per year), all respiratory-related hospital admissions (0.01 incidences per year), mortality (0.10 incidences per year), and nonfatal acute myocardial infarction (less than 0.02 incidences per year for all age groups). For context, between 2020-2022, the CDPH reported that San Joaquin County had an annual average of 6,890 mortalities from all causes and an age-adjusted death rate of 870.7 mortalities per 100,000 population (CDPH 2024).

[28] The COBRA inputs for mitigated annual criteria air pollutant emissions within Lassen County include the following (see Table 3.2-41): 194.58 tons per year VOC, 158.46 tons per year $NO_x$, 0.32 tons per year $SO_2$, and 140.71 tons per year $PM_{2.5}$.

[29] The COBRA inputs for mitigated annual criteria air pollutant emissions within Tuolumne County include the following (see Table 3.2-51): 86.16 tons per year VOC, 69.37 tons per year $NO_x$, 0.09 tons per year $SO_2$, and 67.45 tons per year $PM_{2.5}$.

[30] The COBRA inputs for mitigated annual criteria air pollutant emissions within San Joaquin County include the following (see Table 3.2-60): 1.4 per year VOC, 24.36 tons per year $NO_x$, 0.69 tons per year $SO_2$, and 1.41 tons per year $PM_{2.5}$.

On a statewide level,[31] $O_3$ and $PM_{2.5}$ related health outcomes attributed to project-related increases in ambient air concentrations include asthma-related emergency room visits (0.03 incidences per year), lung cancer incidence (0.43 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (0.81 incidences per year), all respiratory-related hospital admissions (75 incidences per year), mortality (6.6 – 12 incidences per year), and nonfatal acute myocardial infarction (3.9 incidences per year for all age groups). For context, between 2020-2022, the CDPH reported that the state of California had an annual average of 322,300 mortalities from all causes and an age-adjusted death rate of 670 mortalities per 100,000 population (CDPH 2024).

As noted above, the Sacramento Metropolitan AQMD has developed Friant Ranch guidance and tools for projects located within the evaluated 5-Air-District Region. Project-generated emissions of feedstock and rail would occur with the Sacramento Metropolitan AQMD and Feather River AQMD jurisdiction; emissions of feedstock only would occur within El Dorado APCD and Placer County APCD jurisdiction.[32] Because the conservatively estimated maximum daily emissions would exceed the highest mass daily threshold of 82 pounds per day of $NO_x$ assumed in the Minor Project Health Screening Tool, this evaluation uses the Strategic Area Project Health Screening instead, which can evaluate projects resulting in up to 8 times the emissions threshold (e.g., 656 pounds per day of VOC, $NO_x$, or $PM_{2.5}$)( Sacramento Metropolitan AQMD 2020b). The closest strategic area location was selected for each air district scenario based on where the emissions may occur.[33]

Using the Strategic Area Project Health Screening tool, for project emissions occurring within Sacramento Metropolitan AQMD, $O_3$-related health outcomes attributed to project-related increases in ambient air concentrations include all respiratory-related hospital admissions (0.33 incidences per year, 0.0017% of background incidences and mortality (0.21 incidences per year, 0.00071% of background incidences). $PM_{2.5}$-related health outcomes attributed to project-related increases in ambient air concentrations include asthma-related emergency room visits (3.5 incidences per year, 0.019% of background incidences), all respiratory-related hospital admissions (1.0 incidences per year, 0.0053% of background incidences), all cardiovascular-related hospital admissions (not including myocardial infarctions) (0.61 incidences per year, 0.0025% of background incidences), and mortality (6.9 incidences per year, 0.016% of background incidences). Complete results, including all health endpoints estimated, are provided in Appendix B5.

Similarly, based on the Strategic Area Project Health Screening tool, for project emissions occurring within Feather River AQMD, $O_3$-related health outcomes attributed to project-related increases in ambient air concentrations include all respiratory-related hospital admissions (0.16 incidences per year, 0.00083% of background incidences and mortality (0.1 incidences per year, 0.00034% of background incidences). $PM_{2.5}$-related health outcomes attributed to project-related increases in ambient air concentrations include asthma-related emergency room visits (0.33 incidences per year, 0.0018% of background incidences), all respiratory-related hospital admissions (0.11 incidences per year, 0.00055% of background incidences), all cardiovascular-related hospital admissions (not including myocardial infarctions) (0.055 incidences per year, 0.00023% of background incidences), and mortality

31 The COBRA inputs for mitigated annual criteria air pollutant emissions within San Joaquin County include the following (totals from multiple tables provided herein): 288.17 per year VOC, 370.29 tons per year $NO_x$, 1.96 tons per year $SO_2$, and 243.31 tons per year $PM_{2.5}$.

32 The Sacramento Metropolitan AQMD Strategic Area Project Health Effects Tool assumptions include the following: Sacramento Metropolitan AQMD: 18.41 pounds per day of VOC, 456.14 pounds per day of $NO_x$, and 81.15 pounds per day of $PM_{2.5}$. Feather River AQMD: 20.11 pounds per day of VOC, 496.39 pounds per day of $NO_x$, and 81.99 pounds per day of $PM_{2.5}$.
El Dorado County APCD: 10.58 pounds per day of VOC, 270.99 pounds per day of $NO_x$, and 77.26 pounds per day of $PM_{2.5}$.
Placer County APCD: 10.58 pounds per day of VOC, 270.99 pounds per day of $NO_x$, and 77.26 pounds per day of $PM_{2.5}$.

33 The following representative strategic area locations were assumed: South Sacramento for project emissions occurring within the Sacramento Metropolitan AQMD region, Woodland for project emissions occurring within the Feather River AQMD region, Rancho Cordova for project emissions occurring within the El Dorado County APCD region, and West Roseville for project emissions occurring within the Placer County ACPD region.

(0.70 incidences per year, 0.0016% of background incidences). Complete results, including all health endpoints estimated, are provided in Appendix B5.

For project emissions occurring within El Dorado County APCD, based on the Strategic Area Project Health Screening tool, $O_3$-related health outcomes attributed to project-related increases in ambient air concentrations include all respiratory-related hospital admissions (0.2 incidences per year, 0.001% of background incidences and mortality (0.13 incidences per year, 0.00043% of background incidences). $PM_{2.5}$-related health outcomes attributed to project-related increases in ambient air concentrations include asthma-related emergency room visits (1.8 incidences per year, 0.0096% of background incidences), all respiratory-related hospital admissions (0.66 incidences per year, 0.0034% of background incidences), all cardiovascular-related hospital admissions (not including myocardial infarctions) (0.38 incidences per year, 0.0016% of background incidences), and mortality (4.4 incidences per year, 0.0099% of background incidences). Complete results, including all health endpoints estimated, are provided in Appendix B5.

For project emissions occurring within Placer County APCD, based on the Strategic Area Project Health Screening tool, $O_3$-related health outcomes attributed to project-related increases in ambient air concentrations include all respiratory-related hospital admissions (0.23 incidences per year, 0.0012% of background incidences and mortality (0.15 incidences per year, 0.00051% of background incidences). $PM_{2.5}$-related health outcomes attributed to project-related increases in ambient air concentrations include asthma-related emergency room visits (1.3 incidences per year, 0.0069% of background incidences), all respiratory-related hospital admissions (0.43 incidences per year, 0.0022% of background incidences), all cardiovascular-related hospital admissions (not including myocardial infarctions) (0.23 incidences per year, 0.00094% of background incidences), and mortality (2.9 incidences per year, 0.0066% of background incidences). Complete results, including all health endpoints estimated, are provided in Appendix B5.

These results are considered conservative because the tool's outputs are based on the simulation of a full year of exposure at the maximum daily average of the increases in air pollution concentrations. In addition, the estimated maximum daily emissions are conservative because it was conservatively assumed that all feedstock crews would be operating in the same air district on the same day, which is unlikely in practice. Furthermore, it is more unlikely that all feedstock crews would be operating in the same air district every day of the year. For context, between 2020-2022, the CDPH reported that the counties included in the 5-Air-District Region (i.e., Sutter, Yuba, Placer, El Dorado, Sacramento, Yolo, Solano) had a total annual average of 26,652 mortalities from all causes (CDPH 2024).

Of note, the project would also result in air quality benefits associated with avoided wildfire and associated avoided criteria air pollutant emissions, which would complicate modeling as the specific location of the anticipated benefits cannot be determined at this time and those benefits are not included in the above COBRA modeling or Sacramento Metropolitan AQMD screening tools.

In summary, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and methods available to quantitatively evaluate health effects may not be appropriate to apply to emissions concentrations associated with the project, which cannot be estimated with a high-level of accuracy. Nonetheless, additional information is provided to support impact conclusions in AQ-1 and AQ-2 that explains what is known and what is not given constraints.

See Appendix B5 for a detailed discussion of health effects of project-generated criteria air pollutant emissions.

## Avoided Criteria Air Pollutant Emissions from Wildfire

Sustainable Forest Management Projects would implement forest fuel treatments, including hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests to reduce the impacts of wildfires. Forest fuel treatments can result in substantial reductions in emissions produced by wildfires (Brodie et al, 2024, North and Hurteau, 2011, Stephens et al., 2012). Fuels treatments reduce the severity of wildfires and therefore result in reduced fuel consumption and associated emissions. Treated stands often experience greater levels of carbon retained in live trees compared to untreated stands following wildfire.

As outlined in Chapter 3.7, Greenhouse Gas Emissions, within this EIR, an assessment was performed to evaluate potential changes in emissions due to reduced wildfires as a result of fuel treatment activities. The avoided wildfire criteria air pollutant emissions are presented below for informational purposes and are not considered in the impact significance conclusions.

The Forest Vegetation Simulator (FVS) provides $PM_{2.5}$ emissions during wildfire based on fuels composition and wildfire severity. Predicted $PM_{2.5}$ emissions from wildfires in treated and untreated stands were then cross walked to the Fire Order Fire Effects Model (FOFEM) to quantify other emission types. FOFEM uses emission factors to calculate particulate and chemical emissions based on the fuel consumed during flaming and smoldering combustion (Ward and Hardy 1991). These emission factors allow the determination of CO, $SO_2$, $NO_x$, and $PM_{10}$ emissions from the known $PM_{2.5}$ emissions calculated in FVS. Table 3.2-70 presents the estimated changes in potential criteria air pollutant emissions due to forest thinning projects conducted by GSNR only.

### Table 3.2-70. Avoided Wildfire Criteria Air Pollutant Emissions Due to GSNR Only Thinning Projects

| Pollutant | Untreated Stands (tons) | Treated Stands (tons) | Emissions Reduction (tons) | Emissions Reduction (tons per year)[a] |
|---|---|---|---|---|
| CO | 6,208,259 | 5,439,164 | 769,095 | **38,455** |
| $NO_X$ | 13,754 | 12,160 | 1,594 | **80** |
| $SO_2$ | 25,106 | 22,020 | 3,086 | **154** |
| $PM_{2.5}$ | 474,530 | 415,778 | 58,752 | **2,938** |
| $PM_{10}$ | 559,946 | 490,618 | 69,328 | **3,466** |

**Notes:** $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_2$ = sulfur dioxide; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix B6.
[a] Total emissions were divided by 20 years, which is the project's estimated lifespan.

As presented above in Table 3.2-70, emissions from wildfires predicted to occur over the life of the project are substantially reduced in treated stands. In practical terms, this means that the project is likely to produce substantial air quality benefits that could holistically offset its criteria pollution emissions. For example, the total annual emissions of $PM_{10}$ and $PM_{2.5}$ generated by project operations (i.e., feedstock acquisition, Lassen Facility and Tuolumne Facility operations, line haul transport, Port of Stockton operations, and ship transport) are approximately 403 and 245 tons per year, respectively -- which is substantially *less* than the reductions anticipated to result from project operations, as set forth in Table 3.2-70. These potential air quality benefits are identified here for informational purposes only, and have not been taken into account for purposes of the air quality impact significance determinations in this chapter (or to reduce any otherwise applicable mitigation requirements).

Impact AQ-3 The project would potentially expose sensitive receptors to substantial pollutant concentrations.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Toxic Air Contaminants

Implementation of treatments under the Sustainable Forest Management Projects would result in exhaust emissions of diesel PM from off-road equipment and haul truck trips associated with treatment activities. Heavy-duty construction equipment is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions. According to the Office of Environmental Health Hazard Assessment, health risk assessments (which determine the exposure of sensitive receptors to toxic emissions) should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should also be limited to the period/duration of activities associated with the project. Multiple crews would move across treatment sites such that diesel PM generated by treatment activities would not take place near any single sensitive receptor for an extended period. This means the period during which a single person could be exposed to diesel PM emissions from a treatment activity would be short relative to the 30-year exposure period recommended for health risk assessments.

Additionally, CARB has established that diesel PM concentrations substantially reduce at approximately 1,000 feet from their source (CARB 2005). Treatment activities would take place in forested areas away from potential sensitive receptors. Also, PDF-NOI-4 requires vegetation treatment activities and staging areas be located as far as possible from human receptors and PDF-NOI-5 restricts equipment idling time.

Therefore, TACs generated during Sustainable Forest Management Projects are not expected to result in concentrations causing significant health risks, and impacts would be **less than significant**.

Furthermore, implementation of **MM-AQ-1** (Operational Equipment Exhaust Minimization – Tier 4 Final – Feedstock Acquisition) and MM-AQ-3 (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would significantly reduce diesel PM generated by off-road equipment during feedstock acquisition.

### Carbon Monoxide Hotspots

As discussed previously, a CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. Projects that do not generate CO concentrations in excess of the health-based CAAQS would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded.

As discussed under Impacts AQ-1 and AQ-2, while implementation of Sustainable Forest Management Projects will generate localized CO emissions at the individual project sites. These emissions would be temporary and of short duration. Further, it is anticipated that these project sites will be dispersed and generally in forested areas not in close proximity to sensitive receptors. While the combined total of all Sustainable Forest Management Projects occurring in the Lassen Feedstock Working Area would exceed the most stringent daily air district threshold for CO (see Table 3.2-26), the CO emissions at any individual project site (1/33 of that total, see text accompanying

Table 3.2-8) would be significantly below the most stringent daily significance threshold. (The combined total CO emissions in the Tuolumne Feedstock Working Area – and thus those of individual projects in that area – would likewise be below the most stringent daily significance threshold. See Table 3.2-30.)

Beyond the individual Sustainable Forest Management Project sites, the potential for the project to result in localized CO impacts at intersections resulting from addition of its traffic volumes is assessed based on the CO "hot spot" analysis conducted by the South Coast Air Quality Management District (SCAQMD) for their request to the USEPA for resignation as a CO attainment area (South Coast AQMD 2003). In SCAQMD's analysis, they modeled the four most congested intersections identified in their basin (South Coast Air Basin [SCAB]). The most congested intersection, Wilshire Boulevard and Veteran Avenue, had an average daily traffic volume of 100,000 vehicles/day.

The SCAQMD's analysis found that these intersections had an average 7.7 ppm 1-hour CO concentrations predicted by the models, which is only 38.5% of the 1-hour CO CAAQS of 20 ppm. Therefore, even the most congested intersections in SCAQMD's air basin would not experience a CO "hot spot".

The air quality monitoring station closest to the most congested intersection in Los Angeles County (Wilshire Boulevard/Veteran Avenue) is the VA Hospital, West Los Angeles Station (Site ID 060370113) located at Wilshire Boulevard and Sawtelle Boulevard, approximately 0.5 miles to the southwest. For the original analysis year (2002), the maximum ambient CO levels monitored at this representative monitoring station were 4.3 ppm 1-hour CO concentrations and 2.7 ppm 8-hour concentrations. For the most recent year of available data (2021), the maximum ambient CO levels were 1.5 ppm for 1-hour CO concentrations and 1.0 ppm for 8-hour concentrations. There is noticeable improvement in background levels of CO since the SCAQMD's regional hotspot analysis.

In addition, the CO "hot spot" analysis performed by the SCAQMD included emissions for 1997 and 2002. In 1997, the running exhaust emission factor was 13.13 grams CO per mile and the idling exhaust CO emission factor was 2.43 grams CO per mile. In 2002, the running exhaust emission factor went down to 7.98 grams CO per mile and the idling exhaust CO emission factor went down to 1.30 grams CO per mile. This decrease in CO emission factors is indicative of a phase-out of older vehicles and increasingly strict emissions standards implemented by CARB. Continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion means that the potential for CO hotspots in the state is likely to decrease.

Implementation of Sustainable Forest Management Projects would result in 547 average daily trips as a result of logging/haul trucks in the Lassen Feedstock area and 236 average daily trips as a result of logging/haul trucks in the Tuolumne Feedstock area. The projects would be temporary in nature and occur in areas where vegetation management would be consistent with land use and the circulation system (such as forest lands and timberlands). The projects would be dispersed between several crews that could be driving on multiple haul routes on a given day. Furthermore, these feedstock areas are primarily rural, the population is low, and local roads are typically traversed by residents. Therefore, Sustainable Forest Management Projects are unlikely to create a traffic scenario that have an ADT greater than the 100,000 that was anticipated for the most congested intersection analyzed by SCAQMD and would not cause a CO hotspot while acquiring feedstock. Consequently, implementation of the project would not result in CO concentrations in excess of the health protective CAAQS or NAAQS, and as such, would not expose sensitive receptors to significant pollutant concentrations or health effects. Therefore, impacts related to sensitive receptor exposure to substantial CO concentrations would be **less than significant**, and no mitigation measures are required.

### Valley Fever Exposure

Valley Fever is caused by inhalation of dust containing the Coccidioides immitis, a fungal spore. Most people who are exposed have no or very mild systems; however, in a small percentage of the population, it can generate more serious systems of meningitis, pneumonia, or chronic fatigue. As described in Section 3.2.1.1.2, treatment activities within the Lassen Feedstock area would not take place in any counties that are highly endemic for Valley Fever, as their incidence rates are well below the statewide average. However, treatment activities within the Tuolumne Feedstock area could take place in Madera County, Fresno County, Tulare County, or Merced County, which are all counties that are highly endemic to Valley Fever, as their annual incidence rates of Valley Fever are greater than 20 cases per 100,000 persons per year.

Sustainable forest management projects would not involve grading or earth-moving operations, but they would require off-road equipment for treatment activities that could potentially disturb the soil. As described in PDF-AQ-1 (Air District Regulatory Compliance – Feedstock Acquisition), the project would be required to comply with air district guidance related to fugitive dust control, which would help control the release of the Coccidioides immitis fungus during treatment activities. Additionally, PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition) requires a 15-mph speed limit on unpaved surfaces and treatment crews to wet unpaved roads using water trucks or treat roads with a non-toxic chemical dust suppressant (e.g., emulsion polymers, organic material) during dry, dusty conditions, which would reduce the risk of airborne fungal spores.

However, workers have increased risk of exposure, since this job results in the disturbance of soils where fungal spores are found. Valley Fever infection rates are highest in California from June to November. Therefore, a risk of Valley Fever infection exists for construction personnel working on the project in the peak summer and fall months. Therefore, the project would have a **potentially significant impact** with respect to Valley Fever exposure for sensitive receptors and mitigation is required.

The project would implement **MM-AQ-12** (Operational Valley Fever Exposure Minimization – Feedstock Acquisition), which would require GSNR to implement additional dust control when operating in highly endemic counties (Madera, Merced, Fresno, and Tulare). **MM-AQ-12** would also require GSNR to implement a worker training program.

As a result, the impact of Valley Fever exposure would be **less than significant with mitigation**.

### Naturally Occurring Asbestos

Treatment activities implemented under the project could involve ground disturbing activities such as vehicle travel on unpaved roads and use of off-road equipment in areas where NOA is present, which may result in NOA becoming airborne. PDF-AQ-2 would limit exposure of people to fugitive dust emissions generated by treatment activities implemented under the project. PDF-AQ-3 (Naturally Occurring Asbestos Best Practices – Feedstock Acquisition) requires project proponents to avoid ground-disturbance in areas identified as likely to contain NOA as indicated on maps and guidance published by the California Geological Survey, unless an Asbestos Dust Control Plan (17 CCR Section 93105) is prepared and approved by the applicable local air district. PDF-AQ-3 also requires treatment crews to follow any NOA-related guidance provided by the applicable local air district, reducing the risk of encountering NOA or generating airborne NOA emissions. Additionally, PDF-AQ-2 (Fugitive Dust Control – Feedstock Acquisition) requires a 15-mph speed limit on unpaved surfaces and treatment crews to wet unpaved roads using water trucks or treat roads with a non-toxic chemical dust suppressant (e.g., emulsion polymers, organic material) during dry, dusty conditions, which would reduce the risk of airborne NOA emissions. Implementation of PDF-AQ-2

and PDF-AQ-3 would minimize the potential for people to be exposed to NOA. As a result, this impact would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

#### Toxic Air Contaminants

##### Construction Health Risk

As discussed in Section 3.2.4.1.2, the project would emit TAC's during construction. A HRA was performed to evaluate potential cancer and non-cancer health risk impacts to sensitive receptors proximate to the site. Table 3.2-71 shows the unmitigated HRA results during construction.

**Table 3.2-71. Lassen Facility Construction Health Risk Assessment Results – Unmitigated**

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 13.0 | 10 | **Potentially Significant** |
| Chronic Hazard Index – Residential | Index Value | 0.01 | 1.0 | Less than Significant |

**Source**: Lassen County APCD 2020.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-71, cancer risk during construction would exceed the Lassen County APCD threshold of 10 in 1 million. Chronic non-cancer health impacts would be less than significant. As such, mitigation is required.

**MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility) and **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce DPM by restricting idling times and implementing renewable diesel fuel, which are not quantified herein. **MM-AQ-5** (Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility) would reduce DPM by requiring the project to minimize construction off-road equipment exhaust with Tier 4 Final equipment, which is quantified.

Table 3.2-72 shows the cancer and non-cancer health risk impacts incorporating mitigation.

**Table 3.2-72. Lassen Facility Construction Health Risk Assessment Results – Mitigated**

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 6.0 | 10 | Less than Significant |
| Chronic Hazard Index – Residential | Index Value | 0.01 | 1.0 | Less than Significant |

**Source**: Lassen County APCD 2020.
**Note**: CEQA = California Environmental Quality Act.

See Appendix B4.
The values shown include quantification of **MM-AQ-5** (Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility).

As shown in Table 3.2-72, with mitigation, cancer and chronic non-cancer health risk impacts would be below Lassen County APCD significance thresholds. Impacts would be **less than significant** with mitigation.

### Operational Health Risk

As discussed in Section 3.2.4.1.2, the project would emit TAC's during operation from combustion sources. A HRA was performed to evaluate potential cancer and non-cancer health risk impacts to sensitive receptors proximate to the site. Table 3.2-73 shows the unmitigated HRA results during operation.

**Table 3.2-73. Lassen Facility Operation Health Risk Assessment Results – Unmitigated**

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 41.1 | 10 | **Potentially Significant** |
| Chronic Hazard Index – Residential | Index Value | 0.04 | 1.0 | Less than Significant |
| Acute Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Lassen County APCD 2020.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-73, cancer risk during operation would exceed the Lassen County APCD threshold of 10 in 1 million. Chronic non-cancer health impacts would be less than significant. As such, mitigation is required.

**MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility) and **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce DPM, which are not quantified herein. **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-9** (Operational Switcher Locomotive Exhaust Minimization – Lassen Facility) would reduce DPM emissions by requiring Tier 4 Final engines for the off-road equipment and on-site switcher locomotive at the Lassen Facility, which are quantified.

Table 3.2-74 shows the cancer and non-cancer health risk impacts incorporating mitigation.

**Table 3.2-74. Lassen Facility Operation Health Risk Assessment Results – Mitigated**

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 28.6 | 10 | **Significant and Unavoidable** |
| Chronic Hazard Index – Residential | Index Value | 0.03 | 1.0 | Less than Significant |
| Acute Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Lassen County APCD 2020.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-9** (Operational Switcher Locomotive Exhaust Minimization – Lassen Facility).

As shown in Table 3.2-74, with mitigation, cancer risk would still be above the Lassen County APCD significance thresholds. The acute and chronic non-cancer health risk impacts would be below Lassen County APCD significance thresholds. Impacts would be **significant and unavoidable** with mitigation.

### Combined Construction and Operational Health Risk

The sensitive receptors proximate to the site would be exposed to TACs during construction and operation as discussed above. As such, for disclosure purposes, the construction and operational health risk impacts were combined at the maximally exposed receptor. The unmitigated combined health risk impacts of the project are shown in Table 3.2-75 below.

## Table 3.2-75. Lassen Facility Combined Health Risk Assessment Results – Unmitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 50.7 | 10 | **Potentially Significant** |
| Chronic Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |
| Acute Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Lassen County APCD 2020.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-75, combined cancer risk would exceed the Lassen County APCD threshold of 10 in 1 million. Chronic and acute non-cancer health impacts would be less than significant. As such, mitigation is required.

Table 3.2-76 shows the cancer and non-cancer health risk impacts incorporating **MM-AQ-2** and **MM-AQ-3**, which are not quantified, and **MM-AQ-5**, **MM-AQ-8**, and **MM-AQ-9**, which are quantified.

## Table 3.2-76. Lassen Facility Combined Health Risk Assessment Results – Mitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 33.2 | 10 | **Significant and Unavoidable** |
| Chronic Hazard Index – Residential | Index Value | 0.04 | 1.0 | Less than Significant |
| Acute Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Lassen County APCD 2020.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.
The values shown include quantification of **MM-AQ-5** (Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility), **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton), and **MM-AQ-9** (Operational Switcher Locomotive Exhaust Minimization – Lassen Facility).

As shown in Table 3.2-76, with mitigation, combined cancer risk would still be above the Lassen County APCD significance thresholds. The acute and chronic non-cancer health risk impacts would be below Lassen County APCD significance thresholds. Combined impacts would be **significant and unavoidable** with mitigation.

## Carbon Monoxide Hotspots

Construction of the Lassen Facility would generate localized emissions of CO at the facility site, primarily from offroad equipment and construction worker vehicles, vendor trucks, and haul trucks. These impacts would be short-term in nature lasting only during the duration of construction. As indicated in Tables 3.2-34 and 3.2-37, these emissions would not exceed the Lassen County APCD threshold of significance for CO, and would not exceed any applicable ambient air quality standard for CO. During operations, the Lassen Facility would generate localized emissions of CO at the facility site from area sources, mobile sources, off-road equipment, and stationary sources, as described in Section 3.2.4.1.2. These emissions would exceed the Lassen County APCD threshold of significance for CO; however, they would not exceed the federal and California AAQS for CO under the Level 2 AAQA after application of feasible mitigation measures, (Tables 3.2-40 and 3.2-43.).

Beyond the facility site, construction of the Lassen Facility would have trip generation associated with construction worker vehicles, vendor trucks, and haul trucks. This traffic, and any localized emissions of CO occurring along the route, would be short-term in nature lasting only during the duration of construction. As indicated in the Lassen Traffic Impact Assessment, "[d]uring construction, the amount of vehicular traffic is estimated to be less than operational traffic." Regional access to the Lassen Facility would be from Lassen State Highway/SR-299, between Roosevelt Avenue and Adams Avenue, and Washington Avenue, east of 4th Street. The Lassen Transportation Impact Assessment indicates that the segment on SR-299 between Roosevelt Ave and Adams Ave may add the highest daily traffic volumes and has an existing ADT of 2,244, which is approximately 2% of the most congested intersection in the SCAB (Appendix I2). The additional trips anticipated with operation of the project on this road segment (896 ADT) could increase ADT at this intersection to 3,140 (with construction traffic being less, as noted above). This scenario assumes that each new daily trip generated by the project would travel through the SR-299 segment, which is unlikely in practice but provides an absolute worst-case scenario for conservative analysis. Even with this conservative assumption, project-generated trips would only represent 3% of the most congested intersection in the SCAB, which were determined to not experience a CO "hot spot" according to SCAQMD's 2003 analysis (see Carbon Monoxide Hotspots section within Feedstock Acquisition section above). Because emissions of CO would be lower than those used in the SCAQMD analysis, no traffic-related CO "hot spots" are anticipated as was concluded in the SCAQMD analysis. Given that the proposed Lassen Facility will not result in traffic that exceeds traffic volumes considered in the SCAQMD analysis, coupled with the considerably low level of CO concentrations in the project area, and continued improvements in vehicle emissions, the Lassen Facility is not anticipated to result in traffic-related CO "hot spots" outside the facility site.

Implementation of the project would not result in CO concentrations in excess of the health protective CAAQS or NAAQS at the Lassen Facility site, after application of feasible mitigation measures described under Impacts AQ-1 and AQ-2. Therefore, impacts related to sensitive receptor exposure to CO concentrations at this site are **less than significant.**

Traffic associated with construction and operation of the Lassen Facility would not result in CO concentrations in excess of these standards beyond the immediate vicinity of the facility site, and as such, would not expose sensitive receptors to significant pollutant concentrations or health effects. Therefore, impacts related to sensitive receptor exposure to substantial CO concentrations beyond the immediate vicinity of the facility site would be **less than significant**.

### Valley Fever Exposure

As described in Section 3.2.1.1.2, Valley Fever is not highly endemic to Lassen County, and within Lassen County, the incidence rate is below the statewide average. Construction of the Lassen Facility would implement SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton) to reduce fugitive dust during construction. SDF-AQ-2 implements a dust control plan that includes requirements of watering exposed areas 3 times per day, watering demolished areas twice daily, watering unpaved roads twice daily, and limiting vehicle speeds to 15 mph on unpaved roads. The nearest off-site sensitive receptor is located 184 feet away from the Lassen Facility. Based on the low incidence rate of Coccidioidomycosis in Lassen County, and with the project's implementation of SDF-AQ-2, it is not anticipated that earth-moving activities during construction would result in exposure of nearby sensitive receptors to Valley Fever. Therefore, the project would have a **less-than-significant** impact with respect to Valley Fever exposure for sensitive receptors.

### Naturally Occurring Asbestos

The Lassen Facility site is not underlain by ultramafic or serpentine rock. Therefore, it is not expected that the Lassen Facility would contain NOA. Furthermore, the project would implement SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton), which would reduce project-generated construction dust. Therefore, the impact of NOA on sensitive receptors would be **less than significant**.

## Tuolumne Facility

### Toxic Air Contaminants

#### Construction Health Risk

As discussed in Section 3.2.4.1.2, the project would emit TAC's during construction. A HRA was performed to evaluate potential cancer and non-cancer health risk impacts to sensitive receptors proximate to the site. Table 3.2-77 shows the unmitigated HRA results during construction.

**Table 3.2-77. Tuolumne Facility Construction Health Risk Assessment Results – Unmitigated**

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 53.4 | 10 | **Potentially Significant** |
| Chronic Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Tuolumne County APCD 2023.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-77, cancer risk during construction would exceed the Tuolumne County APCD threshold of 10 in 1 million. Chronic non-cancer health impacts would be less than significant. As such, mitigation is required.

**MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility) and **MM-AQ-3** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility) would reduce DPM by restricting idling times and incorporating renewable diesel, which are not quantified herein. **MM-AQ-10** (Construction Equipment Exhaust Minimization – Tier

4 Final – Tuolumne Facility) would reduce DPM emissions by requiring Tier 4 Final engines for the off-road equipment at the Tuolumne Facility, which is quantified.

Table 3.2-78 shows the cancer and non-cancer health risk impacts incorporating mitigation.

### Table 3.2-78. Tuolumne Facility Construction Health Risk Assessment Results – Mitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 16.5 | 10 | **Significant and Unavoidable** |
| Chronic Hazard Index – Residential | Index Value | 0.02 | 1.0 | Less than Significant |

**Source**: Tuolumne County APCD 2023.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.
The values shown include quantification of **MM-AQ-10** (Construction Equipment Exhaust Minimization – Tier 4 Final – Tuolumne Facility).

As shown in Table 3.2-78, with mitigation, cancer risk during construction would exceed the Tuolumne County APCD threshold of 10 in 1 million. Chronic non-cancer health impacts would be less than significant. Impacts would be **significant and unavoidable** with mitigation.

#### Operational Health Risk

As discussed in Section 3.2.4.1.2, the project would emit TAC's during operation from combustion sources. A HRA was performed to evaluate potential cancer and non-cancer health risk impacts to sensitive receptors proximate to the site. Table 3.2-79 shows the unmitigated HRA results during operation.

### Table 3.2-79. Tuolumne Facility Operation Health Risk Assessment Results – Unmitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 58.0 | 10 | **Potentially Significant** |
| Chronic Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |
| Acute Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Tuolumne County APCD 2023.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-79, cancer risk during operation would exceed the Tuolumne County APCD threshold of 10 in 1 million. Chronic and acute non-cancer health impacts would be less than significant. As such, mitigation is required.

**MM-AQ-2** (Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility) and **MM-AQ-3** (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce DPM by restricting idling times and

incorporating renewable diesel, which are not quantified herein. **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) would reduce DPM emissions by requiring Tier 4 Final engines for the off-road equipment at the Tuolumne Facility, which is quantified.

Table 3.2-80 shows the cancer and non-cancer health risk impacts incorporating **MM-AQ-8**.

### Table 3.2-80. Tuolumne Facility Operation Health Risk Assessment Results – Mitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 40.9 | 10 | **Significant and Unavoidable** |
| Chronic Hazard Index – Residential | Index Value | 0.04 | 1.0 | Less than Significant |
| Acute Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Tuolumne County APCD 2023.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.
The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockon).

As shown in Table 3.2-80, with mitigation, cancer risk would still be above the Tuolumne County APCD significance thresholds. The acute and chronic non-cancer health risk impacts would be below Tuolumne County APCD significance thresholds. Impacts would be **significant and unavoidable** with mitigation.

#### Combined Health Risk

The sensitive receptors proximate to the site would be exposed to TACs during construction and operation as discussed above. As such, for disclosure purposes, the construction and operational health risk impacts were combined at the maximally exposed receptor. The unmitigated combined health risk impacts of the project are shown in Table 3.2-81 below.

### Table 3.2-81. Tuolumne Facility Combined Health Risk Assessment Results – Unmitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 111.4 | 10 | **Potentially Significant** |
| Chronic Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |
| Acute Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Tuolumne County APCD 2023.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-81, combined cancer risk would exceed the Tuolumne County APCD threshold of 10 in 1 million. Chronic and acute non-cancer health impacts would be less than significant. As such, mitigation is required.

Table 3.2-82 shows the cancer and non-cancer health risk impacts incorporating **MM-AQ-2** and **MM-AQ-3**, which are not quantified, and **MM-AQ-8** and **MM-AQ-10**, which are quantified.

### Table 3.2-82. Tuolumne Facility Combined Health Risk Assessment Results – Mitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 57.4 | 10 | **Significant and Unavoidable** |
| Chronic Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |
| Acute Hazard Index – Residential | Index Value | 0.1 | 1.0 | Less than Significant |

**Source**: Tuolumne County APCD 2023.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.
The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockon) and **MM-AQ-10** (Construction Equipment Exhaust Minimization – Tier 4 Final – Tuolumne Facility).

As shown in Table 3.2-82, with mitigation, combined cancer risk would still be above the Tuolumne County APCD significance thresholds. The acute and chronic non-cancer health risk impacts would be below Tuolumne County APCD significance thresholds. Combined impacts would be **significant and unavoidable** with mitigation.

#### Carbon Monoxide Hotspots

Construction of the Tuolumne Facility would generate localized emissions of CO at the facility site, primarily from offroad equipment and construction worker vehicles, vendor trucks, and haul trucks. These impacts would be short-term in nature lasting only during the duration of construction. As indicated in Tables 3.2-44, 3.2-45, and 3.2-47, these emissions would not exceed the Tuolumne County APCD threshold of significance for CO, and would not exceed any applicable ambient air quality standard for CO. During operations, the Tuolumne Facility would generate localized emissions of CO at the facility site from area sources, mobile sources, off-road equipment, and stationary sources, as described in Section 3.2.4.1.2. These emissions would exceed the Tuolumne County APCD annual threshold of significance for CO; however, they would not exceed the federal and California AAQS for CO under the Level 2 AAQA, after application of feasible mitigation measures. (Tables 3.2-50 and 3.2-52.)

Beyond the facility site, construction of the Tuolumne Facility would have trip generation associated with construction worker vehicles, vendor trucks, and haul trucks. This traffic, and any localized emissions of CO occurring along the route, would be short-term in nature lasting only during the duration of construction. As indicated in the Tuolumne Traffic Impact Assessment, "[d]uring construction, the amount of vehicular traffic is estimated to be less than operational traffic." Regional access to the Tuolumne Facility would be from SR-120 - SR-108, west of La Grange Road - CR J59, and La Grange Road - CR J59, south of SR-120 - SR-108. The Tuolumne Transportation Impact Assessment indicates that the segment on La Grange Road - CR J59, south of SR-120 - SR-108 may add the highest daily traffic volumes and has an existing ADT of 4,212, which is approximately 4% of the most congested intersection in the SCAB (Appendix I3). The additional trips anticipated with operation of the project on this road segment (674 ADT) could increase ADT at this intersection to 4,886 (with construction traffic being less, as noted above). This scenario assumes that each new daily trip generated by the project would travel through the La Grange Rd segment, which is unlikely in practice but provides an absolute worst-case scenario for conservative analysis. Even with this conservative assumption, project-generated trips would only represent 4% of

the most congested intersection in the SCAB, which were determined to not experience a CO "hot spot" according to SCAQMD's 2003 analysis (see Carbon Monoxide Hotspots section within Feedstock Acquisition section above). Because emissions of CO would be lower than those used in the SCAQMD analysis, no traffic-related CO "hot spots" are anticipated as was concluded in the SCAQMD analysis. Given that the proposed Tuolumne Facility will not result in traffic that exceeds traffic volumes considered in the SCAQMD analysis, coupled with the considerably low level of CO concentrations in the project area, and continued improvements in vehicle emissions, the Tuolumne Facility is not anticipated to result in traffic-related CO "hot spots" outside the facility site.

Implementation of the project would not result in CO concentrations in excess of the health protective CAAQS or NAAQS at the Tuolumne Facility Site, after application of the mitigations measures described under Impact AQ-1 and AQ-2. Therefore, impacts related to sensitive receptor exposure to CO concentrations at this site are **less than significant**.

Traffic associated with construction and operation of the Tuolumne facility would not result in CO concentrations in excess of these standards beyond the immediate vicinity of the facility site, and as such, would not expose sensitive receptors to significant pollutant concentrations or health effects. Therefore, impacts related to sensitive receptor exposure to substantial CO concentrations beyond the immediate vicinity of the facility site would be **less than significant**.

### Valley Fever Exposure

As described in Section 3.2.1.1.2, Valley Fever is not highly endemic to Tuolumne County, and within Tuolumne County, the incidence rate is below the statewide average. The project would implement SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton) to reduce fugitive dust during construction of the Tuolumne Facility. SDF-AQ-2 implements a dust control plan that includes requirements of watering exposed areas 3 times per day, watering demolished areas twice daily, watering unpaved roads twice daily, and limiting vehicle speeds to 15 mph on unpaved roads. The nearest off-site sensitive receptor is located 174 feet away from the Tuolumne Facility. Based on the low incidence rate of Coccidioidomycosis in Tuolumne County, and with the project's implementation of SDF-AQ-2, it is not anticipated that earth-moving activities during construction would result in exposure of nearby sensitive receptors to Valley Fever. Therefore, the project would have a **less-than-significant** impact with respect to Valley Fever exposure for sensitive receptors.

### Naturally Occurring Asbestos

As described in Chapter 3.6, Geology and Soils, within this EIR, the Tuolumne Facility is underlain by serpentinized ultramafic rock. NOA is most commonly found where ultramafic rock or serpentinite rock is present. When construction activities occur in areas with naturally occurring asbestos in the soils or rock, the asbestos fibers can become airborne and may be inhaled, which can cause chronic local inflammation and disrupt orderly cell division, both of which can facilitate the development of asbestosis (a noncancerous lung disease involving fibrotic scarring of the lungs) and cancer (OEHHA 2000). NOA may therefore be present in the rock underlain by the Tuolumne Facility, and the project would consequently implement SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton) to reduce fugitive dust during construction of the Tuolumne Facility. However, the impact of NOA on sensitive receptors would be **potentially significant**.

The project would implement **MM-AQ-13** (Construction Asbestos, Serpentinite, and Ultramafic Rock Management Plan (ASUR Plan) – Tuolumne Facility), which incorporates measures designed to minimize the emissions of asbestos-containing dust from project activity. **MM-AQ-13** requires that, prior to any grading activities, a geologic

evaluation shall be conducted to determine if naturally occurring asbestos is present within the area that will be disturbed. If naturally occurring asbestos is found at the site, GSNR must comply with all requirements outlined in the Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (17 CCR 93105) and the Airborne Toxic Control Measure for (17 CCR 93106). These requirements shall include but are not limited to:

1. Development of an Asbestos Dust Mitigation Plan, which must be approved by the Tuolumne County Air Pollution Control District before operations begin; and
2. Development and approval of an Asbestos Health and Safety Program.

Implementation of **MM-AQ-13** (Construction Asbestos, Serpentinite, and Ultramafic Rock Management Plan (ASUR Plan) – Tuolumne Facility) would minimize any potential asbestos in dust. As a result, the project would not expose sensitive receptors to NOA and this impact would be **less than significant with mitigation**.

## Transport to Market

### Port of Stockton

#### Toxic Air Contaminants

##### Construction Health Risk

As discussed in Section 3.2.4.1.2, the project would emit TAC's during construction. An HRA was performed to evaluate potential cancer and non-cancer health risk impacts to sensitive receptors proximate to the site. Table 3.2-83 shows the unmitigated HRA results during construction.

**Table 3.2-83. Port of Stockton Construction Health Risk Assessment Results – Unmitigated**

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 5.0 | 20 | Less than Significant |
| Chronic Hazard Index – Residential | Index Value | 0.01 | 1.0 | Less than Significant |

**Source**: San Joaquin Valley APCD 2015.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-83, cancer and chronic risk during construction would not exceed the San Joaquin Valley APCD threshold.

##### Operational Health Risk

As discussed in Section 3.2.4.1.2, the project would emit TAC's during operation from combustion sources. An HRA was performed to evaluate potential cancer and non-cancer health risk impacts to sensitive receptors proximate to the site. Table 3.2-84 shows the unmitigated HRA results during operation.

### Table 3.2-84. Port of Stockton Operation Health Risk Assessment Results – Unmitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 10.4 | 20 | Less than Significant |
| Chronic Hazard Index – Residential | Index Value | 0.002 | 1.0 | Less than Significant |

**Source**: San Joaquin Valley APCD 2015.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-84, cancer and chronic risk during operation would not exceed the San Joaquin Valley APCD threshold. Impacts would be less than significant.

#### Combined Health Risk

The sensitive receptors proximate to the site would be exposed to TACs during construction and operation as discussed above. As such, for disclosure purposes, the construction and operational health risk impacts were combined at the maximally exposed receptor. The unmitigated combined health risk impacts of the project are shown in Table 3.2-85 below.

### Table 3.2-85. Port of Stockton Combined Health Risk Assessment Results – Unmitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 10.7 | 20 | Less than Significant |
| Chronic Hazard Index – Residential | Index Value | 0.01 | 1.0 | Less than Significant |

**Source**: San Joaquin Valley APCD 2015.
**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.

As shown in Table 3.2-85, combined cancer and chronic non-cancer risk would not exceed the San Joaquin Valley APCD thresholds. Impacts would be less than significant. While not required to reduce potential health risk impacts, **MM-AQ-8** and **MM-AQ-11** would reduce emissions of DPM during operation, which are quantified. **MM-AQ-3**, which is not quantified herein, would reduce DPM by incorporating renewable diesel. Table 3.2-86 shows the combined construction and operational HRA results including **MM-AQ-8** and **MM-AQ-11**.

### Table 3.2-86. Port of Stockton Combined Health Risk Assessment Results – Mitigated

| Impact Parameter | Units | Project Impact | CEQA Threshold | Level of Significance |
|---|---|---|---|---|
| Maximum Individual Cancer Risk – Residential | Per Million | 10.6 | 20 | Less than Significant |
| Chronic Hazard Index – Residential | Index Value | 0.01 | 1.0 | Less than Significant |

**Source**: San Joaquin Valley APCD 2015.

**Note**: CEQA = California Environmental Quality Act.
See Appendix B4.
The values shown include quantification of **MM-AQ-8** (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton) and **MM-AQ-11** (Operational Switcher Exhaust Minimization – Port of Stockton).

As shown in Table 3.2-86, combined cancer and chronic non-cancer risk would not exceed the San Joaquin Valley APCD thresholds with mitigation. Impacts would be less than significant.

### Carbon Monoxide Hotspots

Construction of the Port of Stockton Facility would generate localized emissions of CO at the facility site, primarily from offroad equipment and construction worker vehicles, vendor trucks, and haul trucks. These impacts would be short-term in nature lasting only during the duration of construction. During operations, the Port of Stockton Facility would generate localized emissions of CO at the facility site from area sources, mobile sources, off-road equipment, and stationary sources, as described in Section 3.2.4.1.3. As indicated in Tables 3.2-55, 3.2-60, and 3.2-63, these emissions would not exceed the San Joaquin Valley APCD threshold of significance for CO, and would not exceed any applicable ambient air quality standard for CO during either construction or operations.

With respect to traffic-related localized CO impacts, the San Joaquin Valley APCD *Guidance for Assessing and Mitigating Air Quality Impacts* states that a quantitative CO hotspots analysis be performed if either of the following two conditions exist: (1) a traffic study for the proposed project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the proposed project vicinity would be reduced to LOS E or F; or (2) a traffic study indicates that the proposed project would substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity.

Construction of the Port of Stockton facility would have trip generation associated with construction worker vehicles, vendor trucks, and haul trucks. This traffic, and any localized emissions of CO occurring along the route, would be short-term in nature lasting only during the duration of construction. As noted in the discussions of the Lassen and Tuolumne facilities above, traffic volumes associated with construction of a facility of this size are a small fraction of the amounts found not to generate traffic-related CO “hot spots in the SCAQMD analysis. With respect to operational vehicle trips, , As described in the Transportation Section, 3.14.4.2, the addition of the GSNR facility would add approximately eight (8) daily employees, four (4) in the day shift, and two (2) each in the swing shift and night shift, generating approximately 16 daily trips. (If stevedores are included, this number would increase slightly to 32 daily trips.) Due to the minimal number of daily trips that would not all occur concurrently with peak-hour traffic, the project would have a negligible impact to the transportation network. Furthermore, because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SJVAB is steadily decreasing. As such, construction and operation of the Port of Stockton facility would not result in a CO hotspot or the potential to result in CO emissions that when totalled with the ambient concentrations would exceed the CO CAAQS. This impact would be **less than significant.**

### Valley Fever Exposure

As described in Section 3.2.1.1.2, Valley Fever is not highly endemic to San Joaquin County, and within San Joaquin County, the incidence rate is below the statewide average. Construction of the Port of Stockton Facility would be required to comply with San Joaquin Valley APCD Regulation VIII Rule 8201, which would limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities. The rule outlines Dust Control Plan requirements for certain applicable construction activities. Furthermore, construction of the Port of Stockton facility would implement SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility,

Tuolumne Facility, and Port of Stockton) to reduce fugitive dust during construction. SDF-AQ-2 implements a dust control plan that includes requirements of watering exposed areas 3 times per day, watering demolished areas twice daily, watering unpaved roads twice daily, and limiting vehicle speeds to 15 mph on unpaved roads. The nearest off-site sensitive receptor is located 1,024 feet away from the Port. Based on the low incidence rate of Coccidioidomycosis in Tuolumne County, and with the project's implementation of SDF-AQ-2, it is not anticipated that earth-moving activities during construction would result in exposure of nearby sensitive receptors to Valley Fever. Therefore, the project would have a **less-than-significant** impact with respect to Valley Fever exposure for sensitive receptors.

### Naturally Occurring Asbestos

The Port of Stockton site is not underlain by ultramafic or serpentine rock. Therefore, it is not expected that the Port of Stockton would contain NOA. Furthermore, the project would implement SDF-AQ-2, which would reduce project-generated construction dust. Therefore, the impact of NOA on sensitive receptors would be **less than significant**.

### Stockton Community Emissions Reduction Program

As described in Section 3.2.2.3, the City of Stockton's CERP outlines strategies to reduce emissions in the community (San Joaquin Valley APCD 2021). The strategy applicable to the project is FD.1, Enhanced Enforcement of District Regulation VIII Fugitive Dust Requirements. The goal of this strategy is to limit the potential for localized air quality impacts associated with fugitive dust from construction and earthmoving activities and open areas subject to San Joaquin Valley APCD Regulation VIII. The project would be required to comply with San Joaquin Valley APCD Regulation VIII (Fugitive $PM_{10}$ Prohibition) by law, which specifies standard construction practices to reduce fugitive dust emissions. Pursuant to Regulation VIII, Rule 8021, Section 6.3, the project would be required to develop, prepare, submit, obtain approval of, and implement a dust control plan, which would reduce fugitive dust impacts to less than significant for proposed project construction. Project compliance with San Joaquin Valley APCD Regulation VIII and the Stockton CERP strategy FD.1 is further supported by implementation of SDF-AQ-1 (Air District Regulatory Compliance – Lassen Facility, Tuolumne Facility, and Port of Stockton), which would require the project to comply with air district regulations, and SDF-AQ-2 (Construction Fugitive Dust Control Plans – Lassen Facility, Tuolumne Facility, and Port of Stockton), which would reduce project-generated construction dust. Overall, the project would meet the applicable reduction measures outlined within the Stockton CERP to reduce emissions and potential health risk on sensitive groups.

### Conclusion

Because implementation of the project would result in exposure to TACs during certain construction (Tuolumne Facility) and operational (Lassen Facility and Tuolumne Facility) activities, impacts associated with the potential for the project to expose sensitive receptors to substantial pollutant concentrations are **significant and unavoidable.**

Impact AQ-4 The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Based on available information, the project is not anticipated to result in other emissions that have not been addressed under Thresholds AQ-1, AQ-2, and AQ-3. As such, this analysis focuses on the potential for the project to generate odors. The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each

contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be generated from vehicles and equipment exhaust emissions during construction of the project. Odors produced during construction would be attributable to architectural coatings, asphalt pavement application, and concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors would disperse rapidly from each project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Common sources of odors include manufacturing plants, rendering plants, coffee roasters, wastewater treatment plants, sanitary landfills, and solid waste transfer stations. The project includes pellet manufacturing plants at the Lassen and Tuolumne Facilities. SDF-AQ-3 (Operational Odor Control – Lassen Facility and Tuolumne Facility) which would require GSNR to implement an Odor Abatement Plan (OAP) at both facility sites. SDF-AQ-3 would include a contact person responsible for logging odor complaints, policy and procedure describing the actions to be taken when an odor compliant is received, description of potential odors and methods for reducing potential odors, and contingency measures to curtail emissions in the event of a complaint.

With incorporation of SDF-AQ-3, the project is not expected to create substantial objectionable odors affecting a substantial number of people. Furthermore, the project would be subject to the applicable Nuisance rules of the Lassen County APCD (Rule 4:2), Tuolumne County APCD (Rule 205), and San Joaquin Valley APCD (Rule 4102). Therefore, project operations would result in an odor impact that is **less than significant**.

### 3.2.4.3 Cumulative Impacts

The geographic scope of the area potentially affected by cumulative air quality impacts consists of the air basins the activities would occur in for impacts related to mass construction emissions and operational emissions, in particular mobile sources (i.e., vehicle trips). This geographic scope was selected because emissions from construction and operational activities can contribute to exceedances in criteria air pollutant concentrations, which are measured and regulated by air districts based on the air basin. The project and the related projects are all located within the air basins the activities would occur in. Regional growth in the applicable air basins, as established in general plans and regional plans produced by the applicable metropolitan planning organization would also contribute to cumulative air quality impacts in the categories of construction emissions and mobile source emissions.

Other aspects of air quality impacts are more localized (TAC emissions, impacts to sensitive receptors, and odor emissions). For these impacts, the geographic scope of the area potentially affected by cumulative impacts consists of the project's immediate vicinity. This geographic scope was selected because impacts in the categories of TACs, sensitive receptors, and odors dissipate quickly with distance and affect adjacent and nearby land uses. As such, the project could combine with related projects in the immediate vicinity (e.g., within 1,000 feet) to produce a cumulative impact.

Impact AQ-1 The project would potentially contribute to cumulative impacts causing a conflict with or obstructing implementation of the applicable air quality plan.

As discussed in Section 3.2.4.2, Impact AQ-1, as recommended by California air districts, there are two general ways to determine the potential for a project to conflict with the applicable air quality plan(s): (1) consistency with

the underlying land use designations (e.g., General Plan designation), and (2) potential to exceed numeric thresholds established to determine if a project would result in a significant air quality impact.

The project would not conflict with the underlying land use designations, and therefore, it would not conflict with the first criteria to conflict with the applicable air quality plans. The project's construction-source emissions would not exceed applicable regional thresholds after implementation of PDFs and mitigation measures. However, the project's operational-source emissions would result in exceedances of regional thresholds for emissions of VOCs, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$, even after implementation of PDFs and mitigation. As such, the project would conflict with the second criteria to conflict with the applicable air quality plans.

Because activities implemented under the project would generate levels of criteria air pollutants and precursors that are anticipated to exceed air district thresholds, these emissions could result in, or contribute to, exceedances of the NAAQS and CAAQS for criteria air pollutants (specifically VOC and $NO_x$ that contribute to ozone, $PM_{10}$, and $PM_{2.5}$) thereby also potentially conflicting with the air quality planning efforts of regional air districts (including but not limited to Lassen County APCD, Tuolumne County APCD, and San Joaquin Valley APCD), including those that comprise the SIP. As such, impacts associated with the potential for the project would conflict with or obstruct implementation of the applicable air quality plan are significant and unavoidable.

Based on the above considerations, the impact of the project would constitute a potentially significant cumulative impact related to air quality plan implementation with mitigation. Therefore, the Project would contribute to a **cumulatively considerable and significant** impact related to conflicting with the applicable air quality plans.

Impact AQ-2 The project would potentially result in a cumulatively considerable impact resulting in a net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Air pollution by nature is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the air districts develop and implement plans for future attainment of ambient air quality standards. The potential for the project to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable NAAQS and/or CAAQS, is addressed in Section 3.2.4.2, Project Impacts. As set forth therein, the project would exceed Lassen County APCD daily BACT construction thresholds for VOC and $NO_x$, before mitigation, but with mitigation incorporated would reduce impacts to a less than significant level. The project's construction emissions at the Port of Stockton would be less than significant compared to San Joaquin Valley APCD thresholds. However, the project would result in construction activities at the Tuolumne Facility that would exceed the AAQS for the 1-hour $NO_2$, 24-hour and annual $PM_{10}$ and $PM_{2.5}$ with application of mitigation. As such, the potential cumulative impact related to construction emissions of criteria pollutants would be **cumulatively considerable and significant**.

The project would exceed operational thresholds for VOC, $NO_x$, CO, $PM_{2.5}$ and $PM_{10}$ emissions in multiple air districts, and even with the incorporation of mitigation, would result in significant and unavoidable impacts. Furthermore, the Lassen Facility, Tuolumne Facility, and Port of Stockton would result in operational activities that would generate ambient concentrations of criteria pollutants above the applicable thresholds with mitigation. Thus, the project's cumulative impacts related to operational emissions with respect to the potential to result in a cumulatively considerable net increase in any nonattainment criteria air pollutant would be **cumulatively considerable and significant**.

Impact AQ-3 The project would potentially contribute to cumulative impacts that would expose sensitive receptors to substantial pollutant concentrations.

Construction and operational HRAs were performed to estimate the Maximum Individual Cancer Risk and the Chronic and Acute Hazard Indexes for proximate residential receptors from exposure to project-generated TACs. For disclosure purposes, the construction and operational health risk impacts were combined at each receptor to determine the maximally exposed combined receptor. The results found that the combined cancer risk would be significant and unavoidable at the Lassen Facility and the Tuolumne Facility with mitigation. The combined cancer risk would be less than significant at the Port of Stockton.

Operation of the project would not expose sensitive receptors to localized high concentrations of CO at the Lassen Facility, Tuolumne Facility, or Port of Stockton sites with implementation of feasible mitigation measures. As such, potential construction or operational CO hotspot impacts would be less than significant.

The pellet facilities and the Port of Stockton terminal are not located in highly endemic counties for Valley Fever, but they would also implement SDFs to comply with air district guidance and reduce fugitive dust emissions to minimize risk of airborne fungal spores, and the impact would be less than significant without mitigation. During feedstock acquisition, the project would also implement PDFs that would require compliance with air district guidance in order to reduce fugitive dust emissions and reduce the risk of airborne fungal spores. However, feedstock acquisition could take place in counties that are highly endemic for Valley Fever. Therefore, the project would have a potentially significant impact with respect to Valley Fever exposure for sensitive receptors prior to mitigation. The project would implement **MM-AQ-11** (Operational Valley Fever Exposure Minimization – Feedstock Acquisition), which would require GSNR to implement additional dust control when operating in highly endemic counties (Madera, Merced, Fresno, and Tulare) and a worker training program. As a result, the impact of Valley Fever exposure to sensitive receptors would be less than significant with mitigation.

The Lassen Facility and the Port of Stockton terminal are not located on sites with rocks that could include NOA, and the impact would be less than significant without mitigation. The Tuolumne Facility is underlain by serpentinized ultramafic rock, where NOA is most commonly found. While it is unknown if NOA is present in the rock underlain by the Tuolumne Facility, the project would implement SDF-AQ-2 to reduce fugitive dust during construction of the Tuolumne Facility. However, the impact of NOA on sensitive receptors would be potentially significant. The project would implement **MM-AQ-13** (Construction Asbestos, Serpentinite, and Ultramafic Rock Management Plan (ASUR Plan) – Tuolumne Facility), which incorporates measures designed to minimize the emissions of asbestos-containing dust from project activity, and the impact would be less than significant with mitigation. During feedstock acquisition, the project would also implement PDF-AQ-3 (), which would require treatment crews to avoid ground-disturbance in areas identified as likely to contain NOA and to follow any NOA-related guidance provided by the applicable local air district. As a result, the impact of naturally occurring asbestos exposure to sensitive receptors would be less than significant with mitigation.

As such, the potential cumulative impact related to exposure of sensitive receptors would be **cumulatively considerable and significant**.

Impact AQ-4 The project would not contribute to cumulative impacts that would result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Odor impacts are generally limited to the immediate areas surrounding the sources. During construction, odors would disperse rapidly from each project site during construction. During operation, the project would implement

SDF-AQ-3 (Operational Odor Control – Lassen Facility and Tuolumne Facility) which would require an OAP at the Lassen and Tuolumne Facilities. With incorporation of SDF-AQ-3, the project is not expected to create substantial objectionable odors affecting a substantial number of people. Furthermore, the project would be subject to the applicable Nuisance rules of the Lassen County APCD (Rule 4:2), Tuolumne County APCD (Rule 205), and San Joaquin Valley APCD (Rule 4102). Therefore, project impacts would **not be cumulatively considerable**.

### 3.2.4.4 Mitigation Measures

MM-AQ-1 Operational Equipment Exhaust Minimization – Tier 4 Final – Feedstock Acquisition. During operation of feedstock acquisition activities, California Air Resources Board (CARB)-certified Tier 4 Final engines shall be used for all diesel-powered equipment pieces that are 50 horsepower or greater.

In the event of changed circumstances (e.g., changes in the availability of specific types of equipment), GSNR may submit a request to the Executive Director of GSFA to apply an equivalent method that, at a minimum, would meet the anticipated criteria air pollutant emission levels after implementation of this mitigation measure (i.e., estimated criteria air pollutants assuming all diesel-powered equipment pieces that are 50 horsepower or greater equipped with CARB-certified Tier 4 Final engines). Documentation using industry-standard emission estimation methodologies supporting the alternative method request shall be furnished to the Executive Director of GSFA. The Executive Director of GSFA may approve the alternate method request at their discretion.

In addition, before an exemption may be granted, GSNR shall demonstrate that at least three vendors in County of activity were contacted and that those vendors confirmed Tier 4 Final equipment could not be located within the applicable County. Required equipment fleet and methodologies approved by the Executive Director of GSFA shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.

MM-AQ-1 is quantified in the analysis.

MM-AQ-2 Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility. During construction and operation, GSNR shall reduce idling time of heavy-duty trucks either by requiring them to be shut off when not in use or limiting the time of idling to no more than 3 minutes (thereby improving upon the 5-minute idling limit required by the state airborne toxics control measure, 13 CCR 2485). These requirements shall be included as enforceable terms in any contract or subcontract by GSNR for these activities and GSNR shall post clear signage reminding workers to limit idling of construction equipment and heavy-duty trucks.

MM-AQ-2 is not quantified in the analysis.

MM-AQ-3 Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton. During construction and operation, GSNR shall use renewable diesel fuel in diesel-powered off-road equipment and diesel trucks during construction and operation whenever commercially available. Renewable diesel fuel must meet the following criteria:

- Meet California's Low Carbon Fuel Standards and be certified by CARB Executive Officer;
- Be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100% biomass material (i.e., non-petroleum sources), such as animal fats and vegetables;
- Contain no fatty acids or functionalized fatty acid esters; and
- Have a chemical structure that is identical to petroleum-based diesel and complies with American Society for Testing and Materials D975 requirements for diesel fuels to ensure compatibility with all existing diesel engines.

Commercially available is herein defined as renewable diesel fuel sourced within 50 vehicle miles of the project/activity site and within 10% of the cost of the equivalent nonrenewable fuel. GSNR or its contractor or subcontractor performing these services must contact at least three vendors within the County of activity and submit to GSFA justification if the renewable diesel fuel is not commercially available. These requirements shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.

MM-AQ-3 is not quantified in the analysis.

MM-AQ-4 Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton. GSNR or its designee will provide educational materials to encourage workers to carpool to work sites and/or use public transportation for their commutes.

MM-AQ-4 is not quantified in the analysis.

Note that MM-TRF-1 includes providing employee sponsored vanpool for sustainable forest management projects and MM-TRF-4 includes providing electric vehicle charging infrastructure and employee sponsored vanpool for the Lassen Facility, Tuolumne Facility, and Port of Stockton, which would further reduce mobile source emissions and support MM-AQ-4, which focuses on providing educational materials to encourage carpool or use public transportation for all key project activities.

MM-AQ-5 Construction Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility. Prior to the commencement of construction activities for the Lassen Facility, GSNR shall require its construction contractor to use California Air Resources Board (CARB)-certified Tier 4 Final engines for all diesel-powered equipment pieces that are 50 horsepower or greater throughout all phases of construction.

In the event of changed circumstances (e.g., changes in the availability of specific types of construction equipment), GSNR may submit a request to the Executive Director of GSFA to apply an equivalent method of achieving project-generated construction emissions that fall below the numeric emissions standards established by the Lassen County Air Pollution Control District (Lassen County APCD) Rule 6:4 Best Available Control Technology (BACT) Requirements and the Lassen County APCD cancer risk threshold. Documentation using industry-standard emission estimation methodologies supporting the alternative method request shall be furnished to the Executive Director of GSFA. The Executive Director of GSFA may approve the alternate method request at their discretion.

In addition, before an exemption may be granted, the construction contractor shall demonstrate that at least three construction fleet owners/operators in Lassen County were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within Lassen County during the desired construction schedule. Required construction equipment fleet and methodologies approved by the Executive Director of GSFA shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.

MM-AQ-5 is quantified in the analysis.

MM-AQ-6 Construction Lower-VOC Paints – Lassen Facility. During construction, the project shall use lower volatile organic compound (VOC) paint, defined as 200 grams per liter VOC or less for the purposes of this mitigation measure, for all interior and exterior paint applications for nonresidential land uses. These requirements shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.

MM-AQ-6 is quantified in the analysis.

MM-AQ-7 Construction Activities Notification – Lassen Facility, Tuolumne Facility, and Port of Stockton. Prior to the commencement of any construction activities, GSNR or its designee shall designate a construction relations officer who will address community concerns regarding on-site construction activity. GSNR shall provide public notification in the form of a visible sign containing the contact information of the construction relations officer, who shall document complaints and concerns regarding on-site construction activity. The sign shall be placed in easily accessible locations along nearby roadways and noted on grading and improvement plans.

MM-AQ-7 is not quantified in the analysis.

MM-AQ-8 Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockon. California Air Resources Board (CARB)-certified Tier 4 Final engines shall be used for all diesel-powered equipment pieces that are 50 horsepower or greater.

In the event of changed circumstances (e.g., changes in the availability of specific types of equipment), GSNR may submit a request to the Executive Director of GSFA to apply an equivalent method that, at a minimum, would meet the anticipated criteria air pollutant emission levels, including exhaust coarse particulate matter ($PM_{10}$) used as a surrogate for diesel particulate matter, after implementation of this mitigation measure (i.e., estimated criteria air pollutants assuming all diesel-powered equipment pieces that are 50 horsepower or greater equipped with CARB-certified Tier 4 Final engines). Documentation using industry-standard emission estimation methodologies supporting the alternative method request shall be furnished to the Executive Director of GSFA. The Executive Director of GSFA may approve the alternate method request at their discretion.

In addition, before an exemption may be granted, GSNR shall demonstrate that at least three vendors in the county of activity (i.e., Lassen County for Lassen Facility, Tuolumne County for Tuolumne Facility, and San Joaquin County for the Port of Stockton) were contacted and that those vendors confirmed Tier 4 Final equipment could not be located within the county of activity. Required construction equipment fleet and methodologies approved by the Executive Director of

GSFA shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.

MM-AQ-8 is quantified in the analysis.

MM-AQ-9 Operational Switcher Locomotive Exhaust Minimization – Lassen Facility. During operation of the Lassen Facility, California Air Resources Board (CARB)-certified Tier 4-Final engine shall be used for the on-site switcher locomotive at the Lassen Facility.

This measure can also be achieved by using battery-electric locomotive as it becomes commercially available in Lassen County.

MM-AQ-9 is quantified in the analysis.

MM-AQ-10 Construction Equipment Exhaust Minimization – Tier 4 Final – Tuolumne Facility. Prior to the commencement of construction activities for the Tuolumne Facility, GSNR shall require its construction contractor to use California Air Resources Board (CARB)-certified Tier 4 Final engines for all diesel-powered equipment pieces that are 50 horsepower or greater throughout all phases of construction.

In the event of changed circumstances (e.g., changes in the availability of specific types of construction equipment), GSNR may submit a request to the Executive Director of GSFA to apply an equivalent method that, at a minimum, would meet the anticipated criteria air pollutant emission levels, including exhaust coarse particulate matter ($PM_{10}$) used as a surrogate for diesel particulate matter, after implementation of this mitigation measure (i.e., estimated criteria air pollutants assuming all diesel-powered equipment pieces that are 50 horsepower or greater equipped with CARB-certified Tier 4 Final engines). Documentation using industry-standard emission estimation methodologies supporting the alternative method request shall be furnished to the Executive Director of GSFA. The Executive Director of GSFA may approve the alternate method request at their discretion.

In addition, before an exemption may be granted, GSNR shall demonstrate that at least three fleet owners/operators in Tuolumne County were contacted and that those fleet owners/operators confirmed Tier 4 Final equipment could not be located within Tuolumne County during the desired construction schedule.

Required construction equipment fleet and methodologies approved by the Executive Director of GSFA shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.

MM-AQ-10 is quantified in the analysis.

MM-AQ-11 Operational Switcher Exhaust Minimization – Port of Stockton. If approved by the Port and its rail operator, GSNR will use a California Air Resources Board (CARB)-certified Tier 4-Final engine for the on-site switcher at the Port of Stockton.

This measure can also be achieved by using battery-electric switchers as it becomes available.

MM-AQ-11 is not quantified in the analysis.

MM-AQ-12 Operational Valley Fever Exposure Minimization – Feedstock Acquisition. Prior to any ground disturbance activities within Madera, Merced, Fresno, and Tulare Counties, which are counties of potential project activity where Valley Fever is highly endemic, GSNR shall implement the following Valley Fever Provisions:

1) Between June 1 and November 30, when Valley Fever rates of infection are the highest, additional dust suppression measures (such as additional water or the application of additional soil stabilizer) will be implemented prior to and immediately following ground disturbing activities if wind speeds exceed 15 mph or temperatures exceed 95°F for 3 consecutive days. The additional dust suppression will continue until winds are 10 mph or lower and outdoor air temperatures are below 90°F for at least 2 consecutive days. The additional dust suppression measures will be incorporated into the Dust Control Plan.
2) Prior to any project forest treatment activity, GSNR will prepare and implement a worker training program that describes potential health hazards associated with Valley Fever, common symptoms, proper safety procedures to minimize health hazards, and notification procedures if suspected work-related symptoms are identified during operation. The worker training program will identify safety measures to be implemented by GSNR or its contractor during operation. Safety measures will include the following:
    - Provide HEPA-filtered air-conditioned enclosed cabs on heavy equipment. Train workers on proper use of cabs, such as turning on air conditioning prior to using the equipment.
    - Provide communication methods, such as two-way radios, for use by workers in enclosed cabs.
    - Provide personal protective equipment (PPE), such as half-mask and/or full-mask respirators equipped with particulate filtration, to workers active in dusty work areas.
    - Provide separate, clean eating areas with hand-washing facilities for workers.
    - Clean equipment, vehicles, and other items before they are moved off site to other work locations.
    - Provide training for workers so they can recognize the symptoms of Valley Fever and promptly report suspected symptoms of work-related Valley Fever to a supervisor.
    - Direct workers that exhibit Valley Fever symptoms to immediately seek a medical evaluation.

MM-AQ-12 is not quantified in the analysis.

MM-AQ-13 Construction Asbestos, Serpentinite, and Ultramafic Rock Management Plan (ASUR Plan) – Tuolumne Facility. Prior to any grading activities, a geologic evaluation shall be conducted to determine if naturally occurring asbestos is present within the area that will be disturbed. If naturally occurring asbestos is not present, a notice of exemption must be filed with the Tuolumne County Air Pollution Control District. If naturally occurring asbestos is found at the site, GSNR must comply with all requirements outlined in the Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. These requirements shall include but are not limited to:

1) Development of an Asbestos Dust Mitigation Plan, which must be approved by the Tuolumne County Air Pollution Control District before operations begin; and
2) Development and approval of an Asbestos Health and Safety Program.

MM-AQ-13 is not quantified in the analysis.

### 3.2.4.5 Significance After Mitigation

Impact AQ-1 The project would conflict with or obstruct implementation of the applicable air quality plan.

Because activities implemented under the project would generate levels of criteria air pollutants and precursors that are anticipated to exceed air district thresholds, these emissions could result in, or contribute to, exceedances of the NAAQS and CAAQS for criteria air pollutants (specifically VOC and $NO_x$ that contribute to ozone, CO, $PM_{10}$, and $PM_{2.5}$) thereby also potentially conflicting with the air quality planning efforts of regional air districts (including but not limited to Lassen County APCD, Tuolumne County APCD, and San Joaquin Valley APCD), including those that comprise the SIP. Implementation of **MM-AQ-1** through **MM-AQ-10** would reduce impacts; however, impacts associated with the potential for the project would conflict with or obstruct implementation of the applicable air quality plan would remain **significant and unavoidable**.

Impact AQ-2 The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Construction of the Lassen Facility would exceed the criteria pollutant thresholds established by Lassen County APCD for VOC and $NO_x$ emissions. **MM-AQ-2** through **MM-AQ-7** would reduce criteria air pollutant emissions and impacts during construction. After implementation of mitigation, regional construction emissions would not exceed the applicable Lassen County APCD BACT thresholds of significance for any criteria pollutant, and impacts would be less than significant with mitigation. Construction of the Tuolumne Facility would generate ambient concentrations of criteria pollutants above the applicable thresholds. **MM-AQ-2** through **MM-AQ-4**, **MM-AQ-7**, and **MM-AQ-10** would reduce impacts; however, regional construction emissions would still exceed the AAQS for the 1-hour $NO_2$, 24-hour and annual $PM_{10}$ and $PM_{2.5}$ and would generate ambient concentrations of criteria pollutants above the thresholds, resulting in a significant and unavoidable impact with mitigation. Construction of the Port of Stockton would not exceed the criteria air pollutant thresholds established by the San Joaquin Valley APCD, and the impact would be less than significant.

During feedstock acquisition, the project would exceed the numerical thresholds of significance established by multiple air districts. With incorporation of **MM-AQ-1** through **MM-AQ-4**, the project would still exceed the numerical thresholds of significance established by Butte County AQMD, Calaveras County APCD, El Dorado APCD, Feather River AQMD, Lassen County AQMD, Northern Sierra AQMD, Placer County APCD, Sacramento Metropolitan AQMD, San Joaquin Valley APCD, Shasta County AQMD, and Tehama County APCD for $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$, resulting in a significant and unavoidable impact with mitigation.

Prior to mitigation, operation at the Lassen Facility would exceed the daily Lassen County APCD BACT thresholds for VOC, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$. Implementation of **MM-AQ-2** through **MM-AQ-4**, **MM-AQ-8**, and **MM-AQ-9** would reduce criteria air pollutants and impacts; however, the project would still exceed the daily Lassen County APCD thresholds for VOC, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$ and the AAQS for the 1-hour $NO_2$, 24-hour and annual $PM_{10}$ and $PM_{2.5}$ with mitigation. However, Lassen County is designated as attainment or unclassified for all criteria air pollutants,

including $NO_2$, $PM_{10}$, and $PM_{2.5}$, under both CAAQS and NAAQS. Lassen County is not nonattainment for any of these pollutants, or for $O_3$, and therefore the impact related to this portion of the project is less than significant.

Prior to mitigation, operation at the Tuolumne Facility would exceed the annual Tuolumne County APCD threshold for CO. Implementation of **MM-AQ-2** through **MM-AQ-4**, and **MM-AQ-8** would reduce criteria air pollutants and impacts; however, the project would still exceed the annual Tuolumne County APCD threshold for CO with mitigation and the AAQS for the 1-hour $NO_2$, 24-hour and annual $PM_{10}$, and $PM_{2.5}$, resulting in a significant and unavoidable impact with mitigation.

Prior to mitigation, operation at the Port of Stockton would exceed the annual San Joaquin Valley APCD threshold for $NO_x$. Implementation of **MM-AQ-3**, **MM-AQ-4**, **MM-AQ-8**, and **MM-AQ-11** would reduce criteria air pollutants and impacts; however, the project would still exceed the annual San Joaquin Valley APCD threshold for $NO_x$ with mitigation and the AAQS for the annual $PM_{2.5}$, resulting in a significant and unavoidable impact with mitigation.

Line haul rail transport emissions would exceed the Northern Sierra AQMD, Butte County AQMD, Feather River AQMD and Sacramento Metropolitan AQMD thresholds for $NO_X$. Ship transport would exceed the San Joaquin Valley APCD and BAAQMD thresholds for $NO_X$. These impacts would be significant and unavoidable and there are no feasible mitigation measures.

Overall, this impact would be **significant and unavoidable**.

Impact AQ-3 The project would potentially expose sensitive receptors to substantial pollutant concentrations.

Health risk during construction of the Lassen Facility would be less than significant with implementation of **MM-AQ-2** through **MM-AQ-5**. Health risk during operation of the Lassen Facility would be significant and unavoidable with application of **MM-AQ-2**, **MM-AQ-3**, **MM-AQ-8**, and **MM-AQ-9**. Similarly, the combined construction and operational health risk would be significant and unavoidable with mitigation.

Health risk during construction of the Tuolumne Facility would be significant and unavoidable with implementation of **MM-AQ-2**, **MM-AQ-3**, and **MM-AQ-10**. Health risk during operation of the Tuolumne Facility would be significant and unavoidable with application of **MM-AQ-2**, **MM-AQ-3**, and **MM-AQ-8**. Similarly, the combined construction and operational health risk would be significant and unavoidable with mitigation.

Potential health risk during feedstock acquisition and construction and operation of the Port of Stockton would be less than significant prior to mitigation.

Construction of the Lassen Facility, the Tuolumne Facility, and the Port of Stockton would result in a less than significant impact CO hotspot impact. Operation of the project would result in a less than significant impact to CO hotspots at the Lassen Facility, Tuolumne Facility, and Port of Stockton sites .

Impacts associated with valley fever exposure for sensitive receptors at the Lassen Facility, Tuolumne Facility, and the Port of Stockton without mitigation. During feedstock acquisition, the project would implement **MM-AQ-12**; therefore, the impact of Valley Fever exposure would be less than significant with mitigation.

Feedstock acquisition, the Lassen Facility, and the Port of Stockton project components would result in a less than significant impact on NOA without mitigation. The Tuolumne Facility would implement **MM-AQ-13**, which would result in a less than significant impact on NOA with mitigation.

This impact would be less than significant, with the exception of a **significant and unavoidable** impact for the construction phase of the Lassen and Tuolumne facilities.

Impact AQ-4 The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impacts would be **less than significant** without mitigation.

## 3.2.5 Additional Air Quality Considerations

### 3.2.5.1 Lifecycle Criteria Air Pollutant Analysis

#### Purpose

CEQA is intended to inform government decisionmakers and the public about the potential environmental effects of proposed activities and to prevent significant, avoidable environmental damage. An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure. (CEQA Guidelines, § 15151).

The extent of an evaluation and analysis of environmental impacts in an EIR is guided by a rule of reason (Save Round Valley Alliance v. County of Inyo (2007) 157 Cal.App 4th 1437, 1467). The level of specificity required is likewise determined by the nature of the project and the rule of reason (Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners (1993) 18 Cal.App.4th 729, 741–742). Further, an EIR is not required to engage in speculative analysis. (CEQA Guidelines, § 15145.) "Common sense" applies, and "is an important consideration at all levels of CEQA review." (*Save the Plastic Bag Coalition v. City of Manhattan Beach* 2011).

Applying these principles, there is a "distinction between local impacts and impacts in areas outside the public agency's geographical boundaries. CEQA specifies that a public agency must consider any significant effect on the environment in the area affected by the project. Although…public agencies must consider effects a project will have beyond the boundaries of the project area…CEQA does not require an exhaustive analysis of all conceivable impacts a project may have in areas outside its geographical boundaries…broader environmental impacts without direct impact on the local agency's geographical area may be evaluated at a higher level of generality (Save the Plastic Bag Coalition v. County of Marin (2014) 218 Cal.App.4th 209, 221-223). "That the effects will be felt outside of the project area is one of the factors that determines the amount of detail required in any discussion. Less detail, for example, would be required where those effects are more indirect than effects felt within the project area, or where it [would] be difficult to predict them with any accuracy" (*Save the Plastic Bag Coalition v. City of Manhattan Beach* 2011).

For these reasons, both the California Natural Resources Agency (CNRA) and the courts have been somewhat skeptical of "life cycle" studies that purport to assess the global impact of particular activities or products. CNRA has twice declined to include a requirement for lifecycle analysis in the CEQA Guidelines. In 2009, CNRA amended Appendix F of the Guidelines (pertaining to analysis of energy conservation) to remove the term “lifecycle” because "[n]o existing regulatory definition of 'lifecycle' exists. In fact, comments received…indicate a wide variety of

interpretations of that term" and "[m]oreover, even if a standard definition of the term 'lifecycle' existed, requiring such an analysis may not be consistent with CEQA. As a general matter, the term could refer to emissions beyond those that could be considered "indirect effects" of a project as that term is defined in section 15358 of the State CEQA Guidelines" (CNRA 2009). Similarly, in 2018, CNRA amended Section 15126.2 of the Guidelines (also pertaining to energy impacts) to caution that such impact analysis "is subject to the rule of reason, and must focus on energy demand caused by the project. This sentence is necessary to place reasonable limits on the analysis. Specifically, it signals that a full 'lifecycle' analysis that would account for energy used in building materials and consumer products will generally not be required." (CNRA 2018) Similarly, the California Supreme Court has specifically cautioned against "overreliance on generic studies of 'life cycle' impacts associated with a particular product." (*Save the Plastic Bag Coalition v. City of Manhattan Beach* 2011)

Nonetheless, these authorities have also noted that some evaluation of a product's lifecycle "may well be a useful guide for the decision maker when a project entails substantial production or consumption of the product." (Manhattan Beach) "[P]rojects may spur the manufacture of certain materials, and in such cases, consideration of the indirect effects of a project resulting from the manufacture of its components may be appropriate" (CNRA 2009). As such, this section will provide such analysis as is reasonably feasible regarding the GHG emissions generated by those aspects of the wood pellet "life cycle" occurring outside of California, in an effort to show good-faith analysis and comply with CEQA's information disclosure requirements. (For an informational evaluation of the project's criteria air pollutant lifecycle, see Section 3.7.5 within the GHG Emissions section.)

Specifically, this section will consider the following three aspects of the larger life cycle of the wood pellets produced by the proposed project:

- Transport to market outside of California's geographic jurisdiction;
- End-use combustion of wood pellets for energy generation; and
- Replacement of pre-existing fossil fuel energy sources with wood pellets.

As will appear, these three aspects are interconnected, and attempting to reach any specific impact conclusion regarding any or all of this "lifecycle" would be speculative. The location(s) to which the wood pellets will be exported are presently unknown, and therefore the distance they will be transported outside of California cannot be determined.[34] Similarly, whether these pellets will all be combusted at one energy generation facility, or at multiple facilities on different continents, and in what quantities, are unknown, as are the preexisting ambient air quality conditions at those locations (or the applicable regulatory standards or thresholds, if any, in those regions). Perhaps most importantly, the baseline conditions for this transport and combustion cannot be determined at this time, as it is unknown whether any or all of the wood pellets generated by this project will be used to replace other forms of power generation, with existing emissions that would be offset. Given the substantial national and international incentives that exist in many countries to transition energy generation from existing fossil fuel sources (i.e., coal) to other sources such as wood pellets (USITC 2022), it is reasonably likely that at least some portion of the pellets

[34] The project proponent, GSNR, has entered into an exploratory "memorandum of understanding" with DRAX US BECCS Development, LLC to support the planning and review of the proposed project and evaluate potential investment, offtake, and/or other forms of engagement by DRAX in GSNR's Project. (Golden State Natural Resources, Ratification of Memorandum of Understanding between GSNR and Drax US BECCS Development, LLC Regarding Exploration of Sustainable Biomass Development Opportunities (February 20, 2024), available at https://www.rcrcnet.org/sites/default/files/useruploads/Meetings/Misc/2024/2.28.2024_GSNR_BOD_Packet.pdf). However, this memorandum is explicitly non-binding, and does not commit Drax (or any other party) to purchase or use any quantity of wood pellets or otherwise to "become involved in GSNR's Project." Therefore, while an energy generation facility operated by Drax (in the United Kingdom) is used below to model one potential emissions scenario example, for informational purposes, the prospect that any particular quantity of wood pellets produced by the project will actually be exported to this location remains entirely speculative.

produced by this project would be used to replace coal – but the amount(s) and location(s) in which this could occur are unknown at this time.

The analysis in this section is therefore intended to provide "a useful guide" to decision-makers and the public regarding these "lifecycle" aspects, subject to the above-mentioned "common sense" limitations.

### Transport to Market Outside of California Geographic Jurisdiction

Transport of the wood pellets from their manufacturing point of origin to their consumer destination outside of the California jurisdictional boundary is anticipated to include ship travel across the ocean to Europe or Asia, potential ship travel in a river, and then on-land transport to the end-user. As an example, from the Port of Stockton to Immingham, United Kingdom (location of the Drax generating station), it would be 8,228 nautical miles via the Panama Canal through the Pacific and Atlantic Oceans.

To estimated potential emissions from ship travel outside of California, it was assumed that 29 Handymax vessels would make the trip per year, approximately 8,228 nautical miles one-way. Emissions were estimated assuming 24 hours per day and 46 days per trip (23 days one-way). It was assumed the ships would travel at 15 knots. Table 3.2-87 presents the estimated emissions from ship transport outside of California geographic jurisdiction.

**Table 3.2-87. Estimated Annual Criteria Air Pollutant Emissions – Ship Transport Outside of California Geographic Jurisdiction**

| Action | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons Per Year | | | | | |
| Ship Transport | 1,209.05 | 6,796.59 | 1,294.83 | 117.97 | 129.19 | 118.67 |

**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.

It is acknowledged that there may be additional emissions associated with on-land transport such as truck travel and potentially off-road equipment use between delivery of the wood pellet ship and the end user, such as a power plant. However, the type of emission sources as well as the activity data is too speculative to be evaluated herein.

### End Use Combustion of Wood Pellets

As explained in Section 3.7, GHG Emissions, "fuel in use," or the combustion of wood pellets at the end user, and the associated emissions are not included in the conventional analyses of emissions attributed to biomass projects, utilizing the methodology developed by the European Union and commonly accepted by regulators and the industry. Nonetheless, potential criteria air pollutant emissions were estimated for informational purposes based on EPA's AP-42 Section 1.6 Wood Residue Combustion In Boilers. This method uses the wood pellet throughput in US tons per year, a wood pellet energy content of 17 GJ per U.S. ton, wood pellet density, wood pellet heating value, and AP-42 emission factors for the various pollutants identified (e.g., VOC, $NO_x$, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$). Table 3.2-88 presents the estimated criteria air pollutant emissions from combustion of wood pellets.

**Table 3.2-88. Estimated Criteria Air Pollutant Emissions from Combustion of Wood Pellets**

| Fuel | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons Per Year | | | | | |
| Wood Pellets | 141.78 | 1,834.76 | 6,254.85 | 208.50 | 2,251.75 | 1,334.37 |

**Source:** EPA AP-42 Section 1.6 Wood Residue Combustion In Boilers
**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value is less than 0.005.

As noted, whether these emissions will occur in one location or many, the existing ambient air quality, and any applicable regulatory standards in these locations, are all unknown, making it impossible to reach any impact conclusion. Further the foregoing calculations treat all the project's criteria air pollutant emissions as additive, without taking into account the likelihood that at least some portion of the pellets produced by this project would be used to replace coal, thus reducing the project's net lifecycle emissions. That baseline matter is discussed in the next section.

### 3.2.5.2 Replacement of Pre-Existing Fossil Fuel Energy Sources with Wood Pellets

#### Wood Pellets vs. Fuel Energy Sources - Lifecycle

As discussed above, biomass-derived wood pellets are often viewed as a renewable energy source with a substantially lower environmental impact when compared to coal, a non-renewable fossil fuel. Compared to fossil fuels, whose carbon contents are only replaced naturally after eons, many stakeholders treat wood pellets as a more sustainable source of fuel. The lifecycle of the wood pellets is typically considered to be renewable, and has been described by many policymakers and scholars as a carbon neutral process because the amount of carbon emitted during pellet combustion is almost entirely offset by the carbon sequestered through the trees' growth. However, this has been a topic of contention among environmental groups (Brack 2017).

As a source of fuel, biomass is often criticized for its comparatively low energy density. However, wood pellets, through the process of pulverization, drying, and compression, have a higher calorific value than other forms of biomass and are therefore a more favorable source of energy (Hamzah, et. al 2018).

Given the widespread view of biomass as environmentally superior to coal as a fuel source, substantial national and international incentives exist in many countries to transition energy generation from existing fossil fuel sources (i.e., coal) to biomass, including wood pellets (USITC 2022).

Efforts to compare the lifecycle criteria pollutant emissions of wood pellets to coal are inherently speculative, as the respective sources, destinations, and conditions under which each fuel source would be used are unknown. However, one study analyzing the efficacy of wood pellets as a fuel source found that wood pellet combustion generates less ash and fewer pollutants compared to coal. In fact, criteria air pollutants $SO_2$, $NO_x$, and PM, could be reduced by approximately 86%, 56%, and 33%, respectively (Wang, et.al 2016).

This study was used to estimate and compare the criteria air pollutant emissions associated with the entire lifecycle of wood pellets and coal, encompassing the different stages of fuel production, fuel transportation, and fuel combustion for heat generation (Wang et al. 2016). This research is based on a case study from China, and thus

influenced by specific environmental and geographical factors such as resource availability and transportation logistics, it may not fully represent conditions for the project. Nevertheless, this analysis aims to underscore the differences in lifecycle emissions between wood pellets and coal on a broader scale. Table 3.2-89 shows the total estimated criteria air pollutant emissions from the lifecycle of GSNR's 100% throughput of wood pellets (1 million metric tons) and the equivalent throughput of coal, which includes emissions from production, transportation, and heat generation.

### Table 3.2-89. Estimated Criteria Air Pollutant Emissions from the Lifecycle of Wood Pellets vs. Coal

| Lifecycle Phase | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|
| | Tons Per Year | | | | |
| **Wood Pellets Lifecycle** | | | | | |
| Production | 841 | 248 | 972 | 299 | 135 |
| Transportation | 7 | 22 | 10 | 4 | 4 |
| Heat Generation | 107 | 146 | 4 | 86 | 40 |
| **Total** | **955** | **416** | **985** | **389** | **179** |
| **Coal Lifecycle** | | | | | |
| Production | 566 | 151 | 4,664 | 1,326 | 813 |
| Transportation | 682 | 242 | 171 | 78 | 17 |
| Heat Generation | 260 | 88 | 175 | 59 | 38 |
| **Total** | **1,508** | **482** | **5,010** | **1,463** | **869** |
| **Net Change (Transitioning Coal to Wood)** | **-533** | **-66** | **-4,025** | **-1,074** | **-690** |
| *Percent Change (Transitioning Coal to Wood)* | *-37%* | *-14%* | *-80%* | *-73%* | *-79%* |

**Source:** Wang et al. 2016
**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
VOCs were not analyzed in this study.
This analysis assumes a wood pellet energy content of 17 GJ/ton and a coal energy content of 19 GJ/ton.

As shown in Table 3.2-89, using methodology from the study noted above, transitioning from coal to wood pellets would result in reductions in VOC, $NO_x$, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$ when considering their entire lifecycles.

As noted, this comparative analysis is speculative, and estimates of the net air quality benefit – or detriment – from conversion of coal energy to project-generated wood pellets are inherently uncertain. The study noted above, like all such studies, include many assumptions that may or may not represent actual conditions under which this conversion may occur in the future, (For example, the study noted above included assumptions regarding the relative transportation distances and combustion conditions of coal and pellets that cannot presently be either refuted or validated, since where and how any conversion will occur is unknowable at this time.) This supports, rather than detracts from, the ultimate conclusion reached here, i.e., that analysis of the lifecycle of wood pellets produced by the project is too speculative to reach a useful impact conclusion.

## Wood Pellets vs. Fuel Energy Sources – Combustion Only

The preceding section endeavored to compare the relative criteria air pollutant impacts of wood pellets versus coal over the entire lifecycle of those fuel sources – which, as noted, involves a great many speculative variables. In order to maximize the value of this analysis as a "useful guide" for decision-makers, this section will further compare the respective criteria pollutant impacts of wood pellets and coal at one discrete point in the lifecycle – combustion by the end-user (i.e., "fuel in use").

To estimate and solely compare the criteria air pollutant emissions associated with end use burning of wood pellets vs. coal, two different methodologies were used. The first method used uncontrolled AP-42 emission factors as shown in Table 3.2-90, and the second method used controlled Washington State Department of Natural Resources emission factors (WSDNR 2010). The purpose of showing both methodologies is to present available data and analysis as there is no industry-standard approach, which subsequently highlights the difficulty and speculative nature of estimating and comparing emissions of wood pellet and coal combustion.

Based on the estimated annual throughput of wood pellets from GSNR and the estimated annual throughput of coal equivalent, potential criteria air pollutant emissions were calculated using the uncontrolled emission factors from the EPA's AP-42 Section 1.6 Wood Residue Combustion in Boilers for wood pellets (EPA 2022), and Section 1.2 for Anthracite Coal Combustion for coal (EPA 1996b). This method uses the wood pellet throughput in US tons per year, a wood pellet energy content of 17 GJ per U.S. ton, wood pellet density, wood pellet heating value, and AP-42 emission factors for the various pollutants identified (e.g., VOC, $NO_x$, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$). Table 3.2-90 compares the criteria air pollutant emissions for wood pellets and coal assuming 10% replacement, 50% replacement, and 100% replacement.

### Table 3.2-90. Estimated Criteria Air Pollutant Emissions from Combustion of Wood Pellets vs. Coal – EPA AP-42

| Fuel | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons Per Year | | | | | |
| **10% Replacement** | | | | | | |
| Wood Pellets | 14.18 | 183.48 | 625.49 | 20.85 | 225.17 | 133.44 |
| Coal | 14.79 | 443.83 | 29.59 | 1,153.95 | 394.51 | 394.51 |
| **Net Difference (Transitioning Coal to Wood)** | **-0.62** | **-260.35** | **595.90** | **-1,133.10** | **-169.34** | **-261.07** |
| **50% Replacement** | | | | | | |
| Wood Pellets | 70.89 | 917.38 | 3,127.43 | 104.25 | 1,125.87 | 667.18 |
| Coal | 73.97 | 2,219.13 | 147.94 | 5,769.73 | 1,972.56 | 1,972.56 |
| **Net Difference (Transitioning Coal to Wood)** | **-3.08** | **-1,301.75** | **2,979.48** | **-5,665.48** | **-846.68** | **-1305.37** |
| **100% Replacement** | | | | | | |
| Wood Pellets | 141.78 | 1,834.76 | 6,254.85 | 208.50 | 2,251.75 | 1,334.37 |
| Coal | 147.94 | 4,438.25 | 295.88 | 11,539.46[a] | 3,945.11[b] | 3,945.11[b] |

## Table 3.2-90. Estimated Criteria Air Pollutant Emissions from Combustion of Wood Pellets vs. Coal – EPA AP-42

| Fuel | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons Per Year | | | | | |
| **Net Difference (Transitioning Coal to Wood)** | **-6.17** | **-2,603.50** | **5,958.97** | **-11,330.96** | **-1,693.37** | **-2,610.74** |
| *Percent Change (Transitioning Coal to Wood)* | *-4%* | *-142%* | *+95%* | *-5,435%* | *-75%* | *-195%* |

**Source:** EPA 1996b ; EPA 2022
**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
[a] A sulfur content of 0.6% was assumed which could vary.
[b] An ash content of 10% was assumed for this analysis which could vary. AP-42 has no differentiation between $PM_{10}$ and $PM_{2.5}$ emission factors.
This analysis assumes a wood pellet energy content of 17 GJ/ton and a coal energy content of 19 GJ/ton.

As shown in Table 3.2-90, using AP-42 methodology, combustion of wood pellets (considered by itself) would result in higher emissions of CO compared to coal. For all other criteria air pollutants, including VOC, $NO_x$, $SO_2$, $PM_{10}$, and $PM_{2.5}$, combustion of wood pellets would result in a reduction of emissions compared to coal.

Based on the estimated annual throughput of wood pellets from GSNR and the estimated annual throughput of coal equivalent, potential criteria air pollutant emissions were also calculated using the controlled emission factors from the Washington State Department of Natural Resources (WSDNR 2010). Table 3.2-91 compares the criteria air pollutant emissions for wood pellets and coal assuming 10% replacement, 50% replacement, and 100% replacement.

## Table 3.2-91. Estimated Criteria Air Pollutant Emissions from Combustion of Wood Pellets vs. Coal – Washington State Department of Natural Resources

| Fuel | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons Per Year | | | | | |
| **10% Replacement** | | | | | | |
| Wood Pellets | 4.34 | 83.40 | 291.89 | 20.85 | 8.34 - 16.68 | 8.34 - 16.68 |
| Coal | 2.97 | 69.20 – 375.65 | 24.71 | 43.50 – 177.94 | 0.89 – 19.77 | 0.89 – 19.77 |
| **Net Difference (Transitioning Coal to Wood)** | **1.37** | **14.2 – (-292.25)** | **267.18** | **-22.65 – (-157.09)** | **15.79 – (-11.43)** | **15.79 – (-11.43)** |
| **50% Replacement** | | | | | | |
| Wood Pellets | 21.68 | 416.99 | 1,459.47 | 104.25 | 41.70 - 83.40 | 41.70 - 83.40 |
| Coal | 14.83 | 345.99 – 1,878.24 | 123.57 | 217.48 – 889.69 | 4.45 – 98.85 | 4.45 – 98.85 |
| **Net Difference (Transitioning Coal to Wood)** | **6.86** | **71.00 – (-1,461.25)** | **1,335.90** | **-113.23 – (-785.44)** | **78.95 – (-57.15)** | **78.95 – (-57.15)** |

**Table 3.2-91. Estimated Criteria Air Pollutant Emissions from Combustion of Wood Pellets vs. Coal – Washington State Department of Natural Resources**

| Fuel | VOC | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| | Tons Per Year | | | | | |
| 100% Replacement | | | | | | |
| Wood Pellets | 43.37 | 833.98 | 2,918.93 | 208.50 | 83.40 - 166.80[a] | 83.40 - 166.80[a] |
| Coal | 29.66 | 691.98 - 3,756.49[a] | 247.14 | 434.96 - 1,779.39[a] | 8.90 - 197.71[a] | 8.90 - 197.71[a] |
| **Net Difference (Transitioning Coal to Wood)** | **13.71** | **142.00 – (-2,922.51)** | **2,671.79** | **-226.47 – (1,570.89)** | **157.90 – (-114.31)** | **157.90 – (-114.31)** |
| *Percent Change (Transitioning Coal to Wood)* | *+32%* | *+17% - (-350%)* | *+92%* | *-109% - (-753%)* | *+95% - (-137%)* | *+95% - (-137%)* |

**Source:** WSDNR 2010
**Notes:** VOC = volatile organic compound; $NO_x$ = oxides of nitrogen; CO = carbon monoxide; $SO_x$ = sulfur oxides; $PM_{10}$ = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ND = no data.
[a] Represents a range of emissions.
This analysis assumes a wood pellet energy content of 17 GJ/ton and a coal energy content of 19 GJ/ton.

As shown in Table 3.2-91, using Washington State Department of Natural Resources data, combustion of wood pellets (considered by itself) would result in higher emissions of CO and VOC and emissions reductions of $SO_2$, and could potentially result in higher emissions of $NO_X$, $PM_{10}$, and $PM_{2.5}$. However, due to high variability in emission factors, wood pellets could also potentially result in emissions reductions for $NO_X$, $PM_{10}$, and $PM_{2.5}$.

### Conclusion

As noted, this comparative analysis is speculative, and estimates of the net air quality benefit – or detriment – from conversion of coal energy to project-generated wood pellets are inherently uncertain. The sources noted above include many assumptions that may or may not represent actual conditions under which this conversion may occur in the future, (For example, the AP-42 methodologies do not have controlled emission factors for all pollutants). This uncertainty regarding the real world baseline conditions under which wood pellets produced by the project will likely be used supports, rather than detracts from, the ultimate conclusion reached here, i.e., that analyses of wood pellet lifecycle emissions (whether considered alone, or by comparison to fossil fuels) are too speculative to reach a useful impact conclusion. This information is nonetheless provided here to outline the major issues and provide a useful guide for decisionmakers and the public when considering these larger air quality issues.

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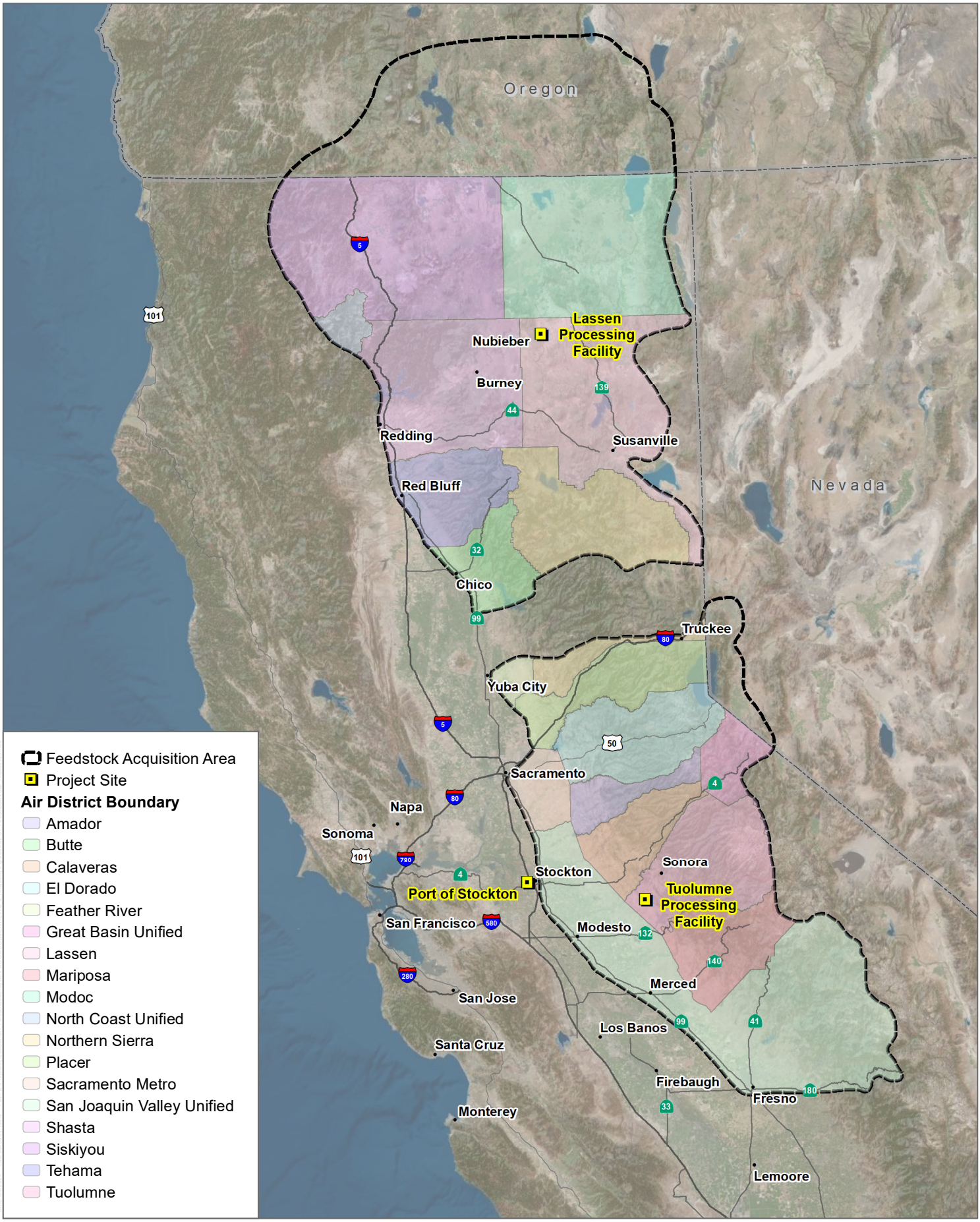


SOURCE: Bing Maps 2022, NHD 2022, CARI

DUDEK

0 25 50 Miles

**FIGURE 3.2-1**

Feedstock Areas - California Air Districts

Golden State Natural Resources Forest Resiliency Demonstration Project

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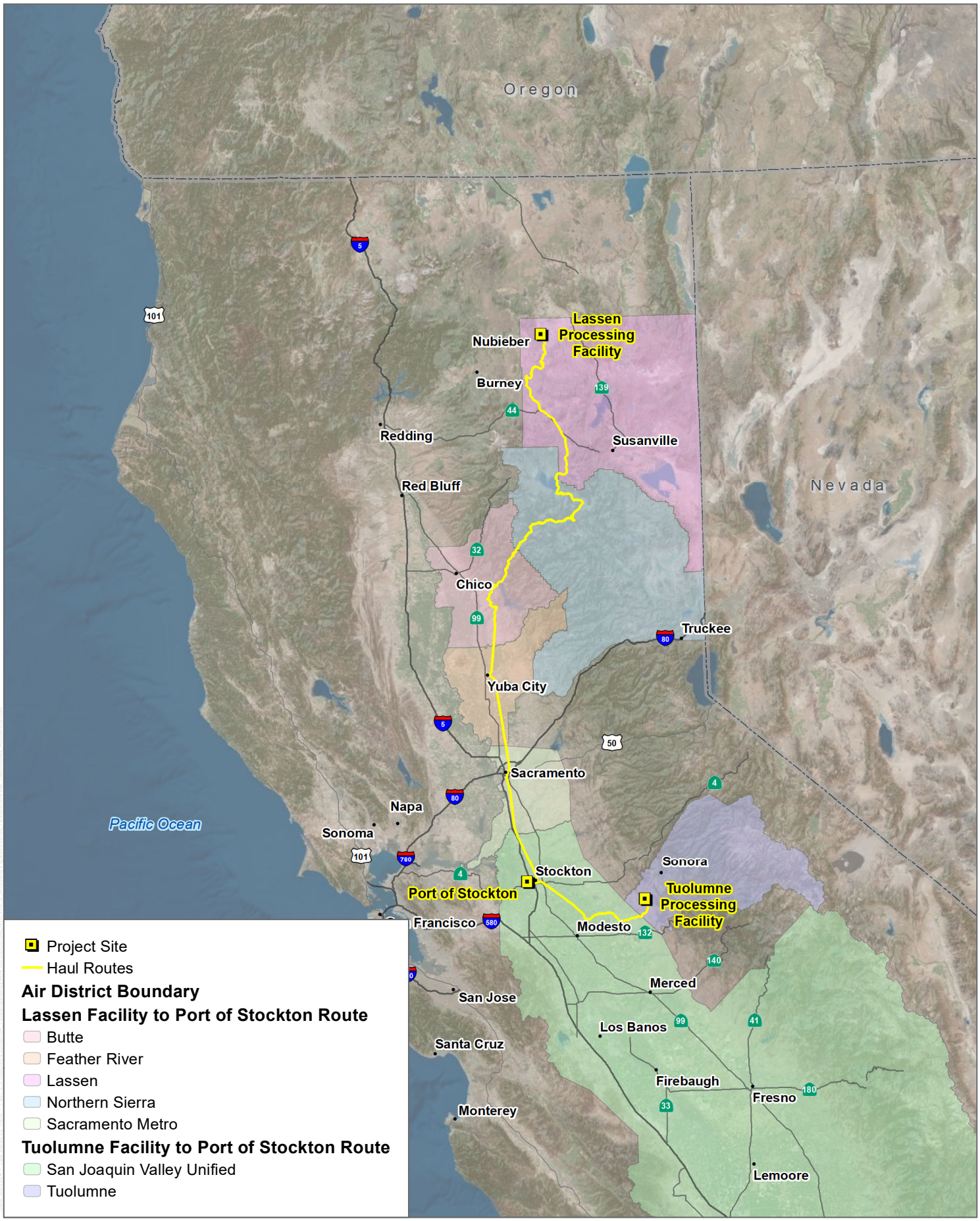


SOURCE: Bing Maps 2022, NHD 2022, CARI

DUDEK

0 25 50 Miles

**FIGURE 3.2-2**

Haul Routes - California Air Districts

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 3.3 Biological Resources

This section of the Draft EIR evaluates potential impacts to biological resources associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing biological resources conditions at feedstock source locations, proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export facility at the Port of Stockton, California (Port); and evaluates the potential for project-related biological resource impacts, considering proposed project design features (PDFs) and mitigation measures that could reduce or eliminate associated impacts. Ten scoping letters were received that included comments regarding biological resources in response to the Notice of Preparation (NOP) (see Appendix A). These comments generally related to potential impacts to special-status species and their habitat; impacts to native trees and sensitive natural communities; and impacts to biodiversity.

## 3.3.1 Environmental Setting

### 3.3.1.1 Sustainable Forest Management Projects (Feedstock Acquisition in the Working Area)

As described in Section 2.4, Feedstock Acquisition, of Chapter 2, Project Description, feedstock for manufacturing of wood pellets will be sourced from Sustainable Forest Management Projects on private, state, tribal, and federal timberlands. GSNR will enter into agreements with Licensed Timber Operators (LTOs) and other supply chain industry participants to procure feedstock from qualified Sustainable Forest Management Projects. These activities will occur primarily within federal and state forests, and private lands where the zoning permits timber production and harvest of forest materials.

The Working Area for Sustainable Forest Management Projects (feedstock acquisition) is shown in Figure 2-1, Working Area (Lassen), and Figure 2-2, Working Area (Tuolumne). The Working Area consists of forested land within roughly 100 miles of the pellet processing sites (Lassen Facility and Tuolumne Facility), excluding areas limited by environmental factors, roadway access, or lack of adequate forest land. The Working Area includes parts of California, southern Oregon, and western Nevada.

In 2019, the Golden State Finance Authority (GSFA) and the U.S. Forest Service (USFS) signed a 20-year Master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within USFS Region 5, which includes all of the 18 national forests located in California. Stewardship agreements (SA) are a tool that the USFS can use to engage non-federal partners when there is mutual interest and mutual benefit presented in a proposed project to be implemented on National Forest System lands. The project(s) under the agreement must meet one of the seven land management goals specified in policy under the Stewardship Authority. SA can be entered into for up to 20 years. This MSA forms the backbone of the Forest Resiliency Initiative (GSFA 2024). Feedstock for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects, including GSNR biomass only thinning projects and harvest or mill residuals from third-party hazardous fuel reduction projects. While the MSA applies to the entirety of Region 5, only Sustainable Forest Management Projects within the Working Area described in Section 2.4 are contemplated under the proposed project. In addition, the Working Area includes public and private forested lands in Nevada and Oregon, including parts of Regions 4 and 6 of the USFS in western Nevada and southern Oregon, respectively.

## Desktop Biological Resources Assessment

In order to better understand the existing biological resources associated with the proposed Working Area for Northern California (Lassen Facility) and Central Sierra Nevada (Tuolumne Facility) (see Figures 2-1 and 2-2), Dudek performed a review of pertinent online databases and literature sources to identify and characterize vegetation communities and the potential for special-status plant and wildlife species, sensitive natural communities, and aquatic features to occur within the Working Area. This primarily consisted of performing a spatial overlay of publicly available GIS datasets over the Working Area and evaluating the results of this overlay. Information and GIS datasets were acquired from the following sources:

- BLM California Plant Special Status Species List (BLM 2023a)
- BLM Nevada Special Status Species List (BLM 2023b)
- BLM Special Status Animals in California, Including BLM Designated Sensitive Species (BLM 2019)
- CDFW California Natural Diversity Database (CNDDB) (CDFW 2024a)
- CDFW Spotted Owl Observations Database (CDFW 2024b)
- CDFW Special Animals List; State and Federally Listed Endangered and Threatened Animals of California; Special Vascular Plants, Bryophytes, and Lichens List; State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2024e, 2024f, 2024g, 2024h)
- EPA Level III and Level IV Ecoregions of California, Nevada, and Oregon (EPA 2024)
- National Oceanic and Atmospheric Administration (NOAA) Fisheries Critical Habitat (NOAA 2024)
- Nevada Department of Agriculture Noxious Weed List (NVDA 2024)
- Nevada Division of Forestry Threatened & Endangered Species (NVDF 2024)
- Nevada Division of Natural Heritage Data and Resources (NVNH 2024)
- Nevada Greater Sage-grouse Conservation Plan (State of NV 2019)
- Oregon Conservation Strategy (ODFW 2016)
- Oregon Department of Fish and Wildlife Oregon Fish Habitat Distribution and Barriers (ODFW 2024a)
- Oregon Spatial Data Library (OSU&SO 2009)
- Soil Survey Geographic Database (SSURGO) (USDA 2024a)
- State of Oregon GEOHub. Oregon Framework Program (State of OR 2000)
- USFS Intermountain Region 4; Humboldt and Toiyabe Forests Special Status Species List (USDA 2016)
- USFS Pacific Northwest Region 6; Fremont-Winema National Forest Special Status Species List (USDA 2021)
- Nevada Department of Wildlife Data Request Form (NVNH 2024)
- USFS Pacific Southwest Region 5 Sensitive Animal Species by Forest (USDA 2013a)
- USFS Region 5 Sensitive Plant Species List (USDA 2013b)
- U.S. Fish and Wildlife Service (USFWS) Critical Habitat for Threatened and Endangered Species (USFWS 2022)
- USFWS National Wetlands Inventory Dataset (USFWS 2024a)
- USFWS Information for Planning and Consultation (IPaC) Trust Resource Report (USFWS 2024b)
- USGS National Hydrography Dataset (USGS 2024a)
- USGS Watershed Boundary Dataset (USGS 2024b)

The USFWS IPaC report was based on a query of the Working Area as shown in Figures 2-1 and 2-2. The CNDDB database was queried for the Working Area as shown on Figures 2-1 and 2-2 plus a 5-mile buffer around the Working Area. Following the database and literature review, Dudek biologists determined the potential for various special-status plant and wildlife species habitat to occur within the Working Area. Determinations were initially based on the known geographic range and nearest occurrence records of species identified in various database searches listed above, and further refined based upon a review of presence, potential presence, and absence of vegetation communities, soil types, suitable habitat, and elevation requirements for these species. No biological field surveys were conducted (e.g., focused surveys for special-status plants or wildlife species, aquatic resources delineation) at this time, since specific treatment areas for feedstock acquisition have yet to be identified and the analysis of this portion of the project is being conducted at the programmatic level. Biological field and technical studies would be completed for specific Sustainable Forest Management Projects as set forth in Section 2.4.

## Regional Context

### Location

The proposed Working Area consists of primarily federal, state, and private forest lands, within approximately 100 miles of the proposed wood pellet processing facilities in Northern California (Lassen Facility) and Central Sierra Nevada (Tuolumne Facility). The Working Area intersects 863 USGS topographic quads across California, Oregon, and Nevada (USGS 2024c). The Working Area is visually depicted on Figures 2-1 and 2-2 and discussed in further detail below.

### Land Ownership

The Working Area in Northern California (Lassen Facility) intersects eight California counties and three Oregon counties (Table 3.3-1). Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties comprise a majority of the total area. Land ownership in this portion of the Working Area includes (but is not limited to) the following: private lands, Modoc National Forest, Shasta-Trinity National Forest, Plumas National Forest, and Lassen National Forest. Other land ownership within the Working Area includes (but is not limited to) BLM, BOR, tribal, state, and private lands.

**Table 3.3-1. States and Counties in the Northern California Working Area (Lassen Site)**

| Working Area (Feedstock Acquisition) | State | County |
|---|---|---|
| Northern California (Lassen Site) | California | Butte County |
| | | Lassen County |
| | | Modoc County |
| | | Plumas County |
| | | Shasta County |
| | | Siskiyou County |
| | | Tehama County |
| | | Trinity County |
| | Oregon | Jackson County |
| | | Klamath County |
| | | Lake County |

The Working Area in Central Sierra Nevada (Tuolumne Facility) intersects 19 California counties and 3 Nevada counties (Table 3.3-2). Alpine, El Dorado, Fresno, Madera, Mariposa, Mono, Placer, and Tuolumne counties comprise a majority of the total area. Land ownership within this portion of the Working Area includes (but is not limited to) the following: Sierra National Forest, Stanislaus National Forest, private land, Toiyabe National Forest, Eldorado National Forest, and Inyo National Forest. Other land ownership within the Working Area includes (but is not limited to) BLM, BOR, county, state, and tribal lands.

**Table 3.3-2. States and Counties in the Central Sierra Nevada Working Area (Tuolumne Site)**

| Working Area (Feedstock Acquisition) | State | County |
|---|---|---|
| Central Sierra Nevada (Tuolumne Site) | California | Alpine County |
| | | Amador County |
| | | Calaveras County |
| | | El Dorado County |
| | | Fresno County |
| | | Madera County |
| | | Mariposa County |
| | | Merced County |
| | | Mono County |
| | | Nevada County |
| | | Placer County |
| | | Sacramento County |
| | | San Joaquin County |
| | | Sierra County |
| | | Stanislaus County |
| | | Sutter County |
| | | Tulare County |
| | | Tuolumne County |
| | | Yuba County |
| | Nevada | Carson City |
| | | Douglas County |
| | | Washoe County |

## Ecoregions

The Working Area extends across a significant portion of California, as well as parts of southern Oregon and western Nevada, comprising a variety of habitats, sensitive natural communities, and special-status species that may be unique to a specific ecoregion. An ecoregion typically refers to a specific geographical area characterized by consistent patterns of physical and biological features, such as geology, soils, landform, hydrology, climate, natural community assemblages, terrestrial and aquatic fauna, and land use. Incorporating ecoregions in this section enhances specificity when describing baseline conditions within the expansive Working Area. The ecoregions described below were identified from the EPA's Level III and IV Ecoregions of California, Nevada, and Oregon (EPA 2024).

The Working Area for the pellet processing facility in Northern California/Southern Oregon (Lassen Facility) overlaps eight ecoregions: Cascades, Central Basin and Range, Central California Foothills and Coastal Mountains, Central California Valley, Eastern Cascades Slopes and Foothills, Klamath Mountains/California High North Coast Range, Northern Basin and Range, and Sierra Nevada. The Working Area for the pellet processing facility in Central Sierra Nevada/Western Nevada (Tuolumne Facility) overlaps four ecoregions: Central Basin and Range, Central California Foothills and Coastal Mountains, Central California Valley, and Sierra Nevada. Working Area Ecoregions in the Working Area are summarized in Table 3.3-3, visually depicted on Figure 3.3-1, Working Area - Northern California – Ecoregions, and Figure 3.3-2, Working Area - Central Sierra Nevada – Ecoregions, and described in further detail below.

## Table 3.3-3. Proportion of Ecoregions, States, and Counties in the Working Area

| Ecoregion/Subregion | Working Area | |
|---|---|---|
| | Lassen | Tuolumne |
| **Cascades** | | |
| California Cascades Eastside Conifer Forest | 5.9% | — |
| Cascade Subalpine/Alpine | 0.3% | — |
| High Southern Cascades Montane Forest | 4.3% | — |
| Low Southern Cascades Mixed Conifer Forest | 10.0% | — |
| Southern Cascades Foothills | 2.2% | — |
| *Subtotal:* | *22.8%* | — |
| **Central Basin and Range** | | |
| Lahontan and Tonopah Playas | 0.1% | — |
| Sierra Nevada-Influenced High Elevation Mountains | — | <0.1% |
| Sierra Nevada-Influenced Ranges | <0.1% | 0.7% |
| Sierra Nevada-Influenced Semiarid Hills and Basins | 0.7% | 1.9% |
| Sierra Valley | 0.2% | — |
| *Subtotal:* | *1.0%* | *2.6%* |
| **Central California Foothills and Coastal Mountains** | | |
| Camanche Terraces | — | 3.1% |
| Foothill Ridges and Valleys | 0.3% | — |
| Northern Sierran Foothills | 0.4% | 15.6% |
| Southern Sierran Foothills | — | 6.9% |
| Tehama Terraces | 1.0% | — |
| Tuscan Flows | 3.8% | — |
| Upper Sacramento River Alluvium | 0.3% | — |
| *Subtotal:* | *5.8%* | *25.6%* |
| **Central California Valley** | | |
| Butte Sink/Sutter and Colusa Basins | 0.1% | — |
| Delta | — | <0.1% |
| Granitic Alluvial Fans and Terraces | — | 0.9% |
| Lodi Alluvium | — | 0.7% |
| Manteca/Merced Alluvium | — | 3.8% |
| North Valley Alluvium | 0.4% | — |

## Table 3.3-3. Proportion of Ecoregions, States, and Counties in the Working Area

| Ecoregion/Subregion | Working Area | |
|---|---|---|
| | Lassen | Tuolumne |
| Northern Terraces | 0.7% | 6.2% |
| Sacramento/Feather Riverine Alluvium | 0.3% | 0.2% |
| Southern Hardpan Terraces | — | 6.3% |
| Stockton Basin | — | 0.7% |
| *Subtotal:* | *1.4%* | *18.9%* |
| **Eastern Cascades Slopes and Foothills** | | |
| Adin/Dixie Low Hills | 1.2% | — |
| Adin/Horsehead Mountains Forest and Woodland | 1.9% | — |
| Fremont Pine/Fir Forest | 6.6% | — |
| High Elevation Warner Mountains | 0.2% | — |
| Klamath Juniper Woodland/Devils Garden | 7.0% | — |
| Klamath/Goose Lake Basins | 6.0% | — |
| Likely Tableland | 0.4% | — |
| Modoc Lava Flows and Buttes | 3.9% | — |
| Modoc/Lassen Juniper-Shrub Hills and Mountains | 3.7% | — |
| Old Cascades | 1.0% | — |
| Pit River Valleys | 2.4% | — |
| Pumice Plateau | 4.6% | — |
| Pumice Plateau Basins | <0.1% | — |
| Shasta Valley | 1.4% | — |
| Southern Cascades Slope | 1.9% | — |
| Warner Mountains | 2.1% | — |
| *Subtotal:* | *44.5%* | — |
| **Klamath Mountains/California High North Coast Range** | | |
| Border High-Siskiyous | 0.8% | — |
| Duzel Rock | 1.0% | — |
| Eastern Klamath Low Elevation Forests | 3.7% | — |
| Eastern Klamath Montane Forests | 0.7% | — |
| Inland Siskiyous | 0.4% | — |
| Klamath River Ridges | 2.1% | — |
| Klamath Subalpine | 0.4% | — |
| Marble/Salmon Mountains-Trinity Alps | 0.8% | — |
| Oak Savanna Foothills | 0.4% | — |
| Rogue/Illinois/Scott Valleys | 0.4% | — |
| Scott Mountains | 1.8% | — |
| Serpentine Siskiyous | 0.2% | — |
| Western Klamath Low Elevation Forests | 0.2% | — |
| *Subtotal:* | *12.8%* | — |
| **Northern Basin and Range** | | |
| Barren Playas | 0.1% | — |

## Table 3.3-3. Proportion of Ecoregions, States, and Counties in the Working Area

| Ecoregion/Subregion | Working Area | |
|---|---|---|
| | Lassen | Tuolumne |
| High Desert Wetlands | 0.4% | — |
| High Lava Plains | 0.8% | — |
| Pluvial Lake Basins | 0.7% | — |
| Semiarid Uplands | 0.3% | — |
| *Subtotal:* | *2.3%* | — |
| **Sierra Nevada** | | |
| Central Sierra Lower Montane Forests | — | 11.5% |
| Central Sierra Mid-Montane Forests | — | 4.8% |
| Northeastern Sierra Mixed Conifer-Pine Forests | 3.6% | 3.4% |
| Northern Sierra Lower Montane Forests | 1.7% | 0.5% |
| Northern Sierra Mid-Montane Forests | 2.8% | 2.4% |
| Northern Sierra Subalpine Forests | — | 3.3% |
| Northern Sierra Upper Montane Forests | 1.3% | 9.1% |
| Sierran Alpine | — | 0.7% |
| Southern Sierra Lower Montane Forest and Woodland | — | 4.5% |
| Southern Sierra Mid-Montane Forests | — | 4.5% |
| Southern Sierra Subalpine Forests | — | 3.1% |
| Southern Sierra Upper Montane Forests | — | 5.1% |
| *Subtotal:* | *9.4%* | *52.9%* |
| **Total:** | **100%** | **100%** |

**Notes:** EPA 2024

**Cascades.** Contains the southernmost, disjunct portion of a mountain range underlain by volcanics that stretches from west-central Washington through Oregon and into northern California. Much of the region has been affected by alpine glaciation. The ecoregion has a moist, temperate climate that supports an extensive and highly productive coniferous forest. Vegetation includes incense cedar, white fir, and Shasta red fir, and other Sierran species. Jeffrey and ponderosa pines occur at mid-elevation, and subalpine meadows, conifers of whitebark pine and mountain hemlock, and rocky alpine zones occur at high elevations (McNab et al. 2007; Griffith et al. 2016).

Within the Working Area, five Level IV ecoregions are present in the Cascades Level III ecoregion: California Cascades Eastside Conifer Forest; Cascade Subalpine/Alpine; High Southern Cascades Montane Forest; Low Southern Cascades Mixed Conifer Forest; and Southern Cascades Foothills (Table 3.3-3) (EPA 2024).

**Central Basin and Range.** This internally drained region features north-aligned fault-block ranges separated by drier basins in eastern California and western Nevada. Soils transition from mesic Aridisols at lower elevations to frigid Mollisols higher up. High-elevation mountains contain woodlands, mountain brush, and sporadic open forests, while lower elevations support shrubs, grasses, or are barren. Vegetation includes scattered western spruce-fir forest, juniper woodland, Great Basin sagebrush, and saltbush-greasewood. The ecoregion is generally warmer and drier, with a high proportion of valleys near water sources being used for grazing and irrigated crops (McNab et al. 2007; Griffith et al. 2016).

Within the Working Area, five Level IV ecoregions are present in the Central Basin and Range Level III ecoregion: Lahontan and Tonopah Playas; Sierra Nevada-Influenced High Elevation Mountains; Sierra Nevada-Influenced Ranges; Sierra Nevada-Influenced Semiarid Hills and Basins; and Sierra Valley (Table 3.3-3) (EPA 2024).

**Central California Foothills and Coastal Mountains.** Contains the foothills and coastal mountains of central California. Most of the region consists of open low mountains or foothills, with some areas of irregular plains and narrow valleys. Bedrock typically originates from sedimentary, granitic, and ultramafic formations. This ecoregion experiences a Mediterranean climate of hot dry summers and cool moist winters. Vegetation primarily includes chaparral and coast live oak woodlands, while some grasslands are found in low elevations and patches of pine at higher elevations. Includes large swaths of ranchland grazed by domestic livestock. Relatively little cultivated land, with the exception of major agricultural centers in some valleys (McNab et al. 2007; Griffith et al. 2016).

Within the Working Area, seven Level IV ecoregions are present in the Central California Foothills and Coastal Mountains Level III ecoregion: Camanche Terraces; Foothill Ridges and Valleys; Northern Sierran Foothills; Southern Sierran Foothills; Tehama Terraces; Tuscan Flows; and Upper Sacramento River Alluvium (Table 3.3-3) (EPA 2024).

**Central California Valley.** Consists of a low-elevation fluvial plain formed on nonmarine sedimentary rocks in central California. This ecoregion typically experiences a Mediterranean climate with long, hot, dry summers and mild winters. Includes flat valley basins adjacent to the Sacramento and San Joaquin Rivers and fans and terraces surrounding the valley. The two major rivers flow into the Sacramento–San Joaquin River Delta and San Pablo Bay. Historically, vegetation used to be herbaceous, but now more than one-half of the region is cropland, most of which is irrigated (McNab et al. 2007; Griffith et al. 2016).

Within the Working Area, 10 Level IV ecoregions are present in the Central California Valley Level III ecoregion: Butte Sink/Sutter and Colusa Basins; Delta; Granitic Alluvial Fans and Terraces; Lodi Alluvium; Manteca/Merced Alluvium; North Valley Alluvium; Northern Terraces; Sacramento/Feather Riverine Alluvium; Southern Hardpan Terraces; and Stockton Basin (Table 3.3-3) (EPA 2024).

**Eastern Cascades Slopes and Foothills.** Situated in the rain shadow of the Cascade Range in northeastern California and southern Oregon. This ecoregion experiences a more continental climate characterized by larger temperature fluctuations, reduced rainfall, and frequent fire. Soils are mostly of volcanic origin. Vegetation includes open forests of ponderosa pine, western juniper, and occasional Jeffrey pine at mid-elevations, lodgepole pine and western white pine forest or mountain hemlock and fir forest at higher elevations, and xeric shrubs and grasslands at lower elevations. The landscape is dotted with volcanic cones, plateaus, and buttes. Some areas of farmland and grazing land are found in the lake basins or larger river valleys, which also serve as habitats for migrating waterfowl (McNab et al. 2007; Griffith et al. 2016).

Within the Working Area, 16 Level IV ecoregions are present in the Eastern Cascades Slopes and Foothills Level III ecoregion: Adin/Dixie Low Hills; Adin/Horsehead Mountains Forest and Woodland; Fremont Pine/Fir Forest; High Elevation Warner Mountains; Klamath Juniper Woodland/Devils Garden; Klamath/Goose Lake Basins; Likely Tableland; Modoc Lava Flows and Buttes; Modoc/Lassen Juniper-Shrub Hills and Mountains; Old Cascades; Pit River Valleys; Pumice Plateau; Pumice Plateau Basins; Shasta Valley; Southern Cascades Slope; and Warner Mountains (Table 3.3-3) (EPA 2024).

**Klamath Mountains/California High North Coast Range.** Encompasses uplifted and dissected ridges, foothills, and valleys of the Klamath and Siskiyou Mountains in California. This area includes rock formations from sedimentary and volcanic origins. Serpentinite and intrusive rocks composed of gabbroic to granodiorite are common. Climate

is characterized by moderately cold winters with heavy snowfall and warm, dry summers with limited rainfall. Vegetation includes mixed Douglas-fir, ponderosa pine, western hardwood and chaparral-mountain shrub (McNab et al. 2007; Griffith et al. 2016).

Within the Working Area, 13 Level IV ecoregions are present in the Klamath Mountains/California High North Coast Range Level III ecoregion: Border High-Siskiyous; Duzel Rock; Eastern Klamath Low Elevation Forests; Eastern Klamath Montane Forests; Inland Siskiyous; Klamath River Ridges; Klamath Subalpine; Marble/Salmon Mountains-Trinity Alps; Oak Savanna Foothills; Rogue/Illinois/Scott Valleys; Scott Mountains; Serpentine Siskiyous; and Western Klamath Low Elevation Forests (Table 3.3-3) (EPA 2024).

**Northern Basin and Range.** Consists of dissected lava plains, rocky uplands, and alluvial fans amongst scattered mountain ranges in northeastern California and northwestern Nevada. Continental climate with warm to hot, dry summers and cold, dry winters, and little or no precipitation during summer or fall. Vegetation includes juniper woodlands on rugged uplands, and mountain brush, grasses, aspen groves on mountain ranges, and subalpine fir forests at high elevations in Nevada. Most of this ecoregion is used as rangeland (McNab et al. 2007; Griffith et al. 2016).

Within the Working Area, five Level IV ecoregions are present in the Northern Basin and Range Level III ecoregion: Barren Playas; High Desert Wetlands; High Lava Plains; Pluvial Lake Basins; and Semiarid Uplands (Table 3.3-3) (EPA 2024).

**Sierra Nevada.** Contains mountainous, deeply dissected, and westerly tilting fault block in California and western Nevada. The central and southern part of the region is largely composed of granitic rocks. Due to its varied topography and elevation range, this ecoregion hosts diverse microclimates. Vegetation is mostly ponderosa pine and Douglas-fir at low elevations on the western side, pines and Sierra juniper on the eastern side, and fir and other conifers at higher elevations. Alpine conditions exist at the highest elevations. This ecoregion includes large swaths of publicly owned land (McNab et al. 2007; Griffith et al. 2016).

Within the Working Area, 12 Level IV ecoregions are present in the Sierra Nevada Level III ecoregion: Central Sierra Lower Montane Forests; Central Sierra Mid-Montane Forests; Northeastern Sierra Mixed Conifer-Pine Forests; Northern Sierra Lower Montane Forests; Northern Sierra Mid-Montane Forests; Northern Sierra Subalpine Forests; Northern Sierra Upper Montane Forests; Sierran Alpine; Southern Sierra Lower Montane Forest and Woodland; Southern Sierra Mid-Montane Forests; Southern Sierra Subalpine Forests; and Southern Sierra Upper Montane Forests (Table 3.3-3) (EPA 2024).

## Soils and Topography

Elevations in the Working Area for the pellet processing facility in Northern California (Lassen Facility) range from 112 to 14,159 feet above mean sea level (USGS 2024d). Specialty soils present in the Working Area include serpentine and volcanic (Ludington et al. 2005). Loamy-skeletal, fine-loamy, and medial-skeletal are the most prevalent soil textures within this Working Area, and hydric soils[1] comprise a small portion of the total area (USDA 2024a). A majority of soil types in the Northern California/Southern Oregon Working Area are well-drained (USDA 2024a).

[1] Hydric soils are typically associated with wetlands and exhibit characteristic resulting from repeated periods of saturation or inundation for more than a few days. These soils have a hydric rating according to the Natural Resources Conservation Service Soil Survey Geographic Database (SSURGO) (USDA 2024a).

Elevations in the Working Area for the pellet processing facility in Central Sierra Nevada (Tuolumne Facility) range from 0 to 13,152 feet above mean sea level (USGS 2024d). Specialty soils present in the Working Area include serpentine and volcanic (Ludington et al. 2005). Fine-loamy, loamy-skeletal, coarse-loamy, and sandy-skeletal are the most prevalent soil textures within this Working Area, and hydric soils comprise a small portion of the total area (USDA 2024a). A majority of soil types in the Central Sierra Nevada Working Area are well-drained to excessively well-drained (USDA 2024a).

Additional soil and geology information within the Working Area is presented in Section 3.6, Geology and Soils.

## Hydrology and Aquatic Resources

According to the USGS National Hydrography Dataset (NHD), the Working Area for the pellet processing facility in Northern California/Southern Oregon (Lassen Facility) intersects 193 watersheds and 69,778 linear miles of streams, rivers, canals, and ditches (USGS 2024a). Watersheds and named streams are presented in Table 1 in Appendix C1. The National Wetland Inventory identifies five types of wetlands or non-wetland waters in this portion of the Working Area: freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, lake, and riverine (USFWS 2024a).

According to the USGS NHD, the Working Area for the pellet processing facility in Central Sierra Nevada/Western Nevada (Tuolumne Facility) intersects 153 watersheds and 74,856 linear miles of streams, rivers, canals, and ditches (USGS 2024a). Watersheds and named streams are presented in Table 1 in Appendix C1. The National Wetland Inventory identifies five types of wetlands or non-wetland waters in this portion of the Working Area: freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, lake, and riverine (USFWS 2024a).

## Vegetation Communities and Land Cover Types

The USGS National Land Cover Database (NLCD) land cover layer was utilized to ascertain the habitat and vegetation categories present in the treatable landscape of each ecoregion and, in turn, within the Working Area. Theis NLCD in coordination with the Multi-Resolution Land Characteristics (MRLC) Consortium created the updated land cover database. The MRLC is a consortium of federal agencies who coordinate and generate land cover information at a national scale to provide reliable land cover information. The data from these diverse sources are compiled and consolidated into a unified land cover layer. Standard land cover types were created based on a modified Anderson Level II classification system. The NLCD vegetation layer stands as the most extensive and comprehensive dataset for vegetation mapping within the state.

Land cover within the Working Area consist of a combination of terrestrial non-vegetative land covers, natural vegetation communities[2], and non-natural cover types. There are 16 vegetation communities and land cover types present in the Working Area (Table 3.3-4).

[2] A *plant community* (aka. “community” or “vegetation community”) is a group of plant species living together and linked together by their effects on one another and their responses to the environment they share (CNPS 2023a).

**Table 3.3-4. Vegetation Communities and Land Cover Types in the Working Area**

| Vegetation Communities and Land Cover Types | Estimated Percent Cover in Working Area[1] | |
|---|---|---|
| | Northern California | Central Sierra Nevada |
| **Natural** | **91.9%** | **80.1%** |
| Deciduous Forest | 0.2% | 1.0% |
| Emergent Herbaceous Wetlands | 2.6% | 0.5% |
| Evergreen Forest | 43.8% | 33.2% |
| Herbaceous | 12.9% | <1% |
| Mixed Forest | 0.3% | 1.0% |
| Open Water | 1.3% | 2.3% |
| Perennial Snow/Ice | <1% | <1% |
| Shrub/Scrub | 30.1% | 21.8% |
| Woody Wetlands | 0.7% | 0.3% |
| **Non-Natural** | **8.1%** | **18.7%** |
| Barren Land | 0.7% | 0.7% |
| Cultivated Crops | 2.8% | 9.5% |
| Developed, High Intensity | 0.1% | 0.8% |
| Developed, Low Intensity | 0.5% | 1.8% |
| Developed, Medium Intensity | 0.3% | 2.1% |
| Developed, Open Space | 1.5% | 3.1% |
| Hay/Pasture | 2.2% | 0.7% |
| **Not Defined** | **<1%** | **1.2%** |
| Not defined | <1% | 1.2% |

**Source:** USGS 2024e.
**Note:**
1 The Working Area is divided into two subareas based on its proximity to the two proposed processing facilities in Northern California/Southern Oregon and Central Sierra Nevada/Western Nevada.

Sustainable Forest Management Projects (feedstock acquisition) within the Working Area would primarily occur within natural vegetation communities dominated by conifer (commercial timber) species, and generally exclude shrubland, herbaceous, and non-natural land cover types. These excluded cover types generally occur in lower abundance within the Working Area. Table 3.3-4 provides a summary of the vegetation communities and land cover types, including the estimated percentage of vegetative cover, present in the Working Area.

## Special-Status Species

Plants and animals may be considered special-status species due to declining populations, vulnerability to habitat change, or restricted distributions. For the purposes of this analysis, special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, state, or local resource conservation agencies. These species fall into one or more of the following categories:

### Federal

- Species listed or proposed for listing as threatened or endangered under ESA (50 CFR 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the Federal Register for proposed species) or candidates for possible future listing as threatened or endangered under ESA (75 CFR 69222)

- Species considered sensitive by USFS (as defined by Forest Service Manual [FSM] 2670.31–2670.32)
- Species designated as sensitive by the BLM Nevada State Director (BLM Manual 6840)

### State (California)

- Species listed or candidates for listing by the State of California as threatened or endangered under CESA (14 Cal. Code Regs., Section 670.5)
- Animals fully protected under the California Fish and Game Code (FGC) (Section 3511 for birds, Section 4700 for mammals, Section 5050 for reptiles and amphibians, and Section 5515 for fish)
- Plants listed as rare under the California Native Plant Protection Act (FGC Section 1900 et seq.)
- Plants considered by CDFW to be "rare, threatened or endangered in California" (California Rare Plant Ranks of 1A, presumed extinct in California and either rare or extinct elsewhere; 1B, considered rare or endangered in California and elsewhere; 2A, presumed extinct in California but common elsewhere; and 2B, considered rare or endangered in California but more common elsewhere). Note, that while these rankings do not afford the same type of legal protection as ESA or CESA, the uniqueness of these species requires special consideration under Section 15380 of the CEQA Guidelines
- Animals identified by CDFW as species of special concern
- Species considered locally significant, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA Section 15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G)
- Species that otherwise meets the definition of rare or endangered under CEQA Section 15380

Plant taxa considered to be "rare, threatened, or endangered in California" as defined by the California Department of Fish and Wildlife (CDFW) and assigned a California Rare Plant Rank (CRPR). The CDFW system includes six rarity and endangerment ranks for categorizing plant species of concern, as follows:

- **CRPR 1A –** Plants presumed to be extinct in California
- **CRPR 1B –** Plants that are rare, threatened, or endangered in California and elsewhere
- **CRPR 2A –** Plants presumed to be extinct in California, but more common elsewhere
- **CRPR 2B –** Plants that are rare, threatened, or endangered in California, but more common elsewhere
- **CRPR 3 –** Plants about which more information is needed (a review list)
- **CRPR 4 –** Plants of limited distribution (a watch list)

Plants ranked as CRPR 1A, 1B, 2A, or 2B may qualify as endangered, rare, or threatened species within the definition of California Environmental Quality Act (CEQA) Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA review documents. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to CEQA Guidelines Section 15380, but these species may be evaluated on a case-by-case basis.

### State (Oregon)

- Fish and wildlife species listed or candidates for listing by the State of Oregon as threatened or endangered (pursuant to ORS 496.171–496.192)

- Plant species listed or candidates for listing by the State of Oregon as threatened or endangered (pursuant to ORS 564.100–564.135)
- Species of greatest conservation concern identified in the Oregon Conservation Strategy

### State (Nevada)

- Plant species protected under Title 47, Chapter 527 of the Nevada State Code
- Critically endangered plant species, as well as cacti, under Nevada Revised Statute 527
- Wildlife species protected under Nevada Revised Statute 501
- At-risk taxa in the State of Nevada tracked by the Nevada National Heritage Program (NNHP)
- Nevada Division of Forestry's list of fully protected plant species (a subset of the NNHP data)

### Special-Status Plants and Fungi

There are 648 special-status plant or fungus species documented as occurring inside or within 5 miles of the Working Area (CDFW 2024a; USDA 2013b; BLM 2023a; USFWS 2022, 2024b). Of these 648 species, habitat for 5 species is considered absent from the Working Area; these species are identified in Appendix C1, Table 2, but not analyzed further in this Draft EIR. Thus, a total of 643 special-status plant or fungus species have potential to occur within the Working Area based on the presence of suitable habitat associated with the natural vegetation communities identified in Table 3.3-4 (Appendix C1, Table 2). A breakdown of critical habitat for federally listed plant species intersecting the Working Area is presented in Table 3.3-5 below.

### Special-Status Wildlife

There are 230 special-status wildlife species documented as occurring inside or within 5 miles of the Working Area (CDFW 2024a; USDA 2013a; USFWS 2022, 2024b). Of these 230 species, habitat for 30 species is considered absent from the Working Area; these species are identified in Appendix C1, Table 3, but not analyzed further. Thus, a total of 200 special-status wildlife species have potential to occur within the Working Area based on the presence of potentially suitable habitat identified in Table 3.3-4 (Appendix C1, Table 3). A breakdown of critical habitat for federally listed wildlife species intersecting the Working Area is presented in Table 3.3-5 below.

### Critical Habitat

The Federal Endangered Species Act (FESA) enables USFWS and the National Marines Fisheries Service (NMFS) to designate critical habitat for plant and wildlife species federally listed under FESA as threatened or endangered. Critical habitat is defined as specific geographic areas within the listed species' known range, whether occupied by or not by such species, that contain "physical or biological features (primary constituent elements) essential to the conservation of the species" and that "may require special management considerations or protection" (50 CFR 424.12). Potential adverse effects on designate critical habitat are subject to FESA consultation and analysis that may result in the need for specific permits.

Designated critical habitat for federally-listed plant and species that intersects the Working Area is presented in Table 3.3-5 below.

## Table 3.3-5. Designated Critical Habitat for Federally Listed Species in the Working Area

| Critical Habitat | Working Area | | County(ies) |
|---|---|---|---|
| | Northern California | Central Sierra Nevada | |
| **Plants** | | | |
| Butte County meadowfoam | X | | Butte, Tehama |
| Colusa grass | | X | Mariposa, Merced, Stanislaus, Tuolumne |
| Fleshy owl's clover | | X | Fresno, Madera, Mariposa, Merced, Sacramento, San Joaquin, Stanislaus, Tuolumne |
| Greene's tuctoria | X | X | Butte, Calaveras, Madera, Mariposa, Merced, Shasta, Stanislaus, Tehama, Tuolumne |
| Hairy orcutt grass | X | X | Butte, Madera, Mariposa, Merced, Stanislaus, Tehama |
| Hoover's spurge | X | X | Butte, Merced, Stanislaus, Tehama, Tuolumne |
| Keck's checker-mallow | | X | Fresno |
| Sacramento Orcutt grass | | X | Amador, Sacramento |
| San Joaquin Orcutt grass | | X | Fresno, Madera, Mariposa, Merced |
| Slender Orcutt grass | X | | Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou, Tehama |
| **Wildlife** | | | |
| Bull trout | X | | Klamath, Lake |
| California red-legged frog | X | X | Butte, Calaveras, El Dorado, Nevada, Placer |
| California tiger salamander | | X | Amador, Calaveras, Fresno, Madera, Mariposa, Merced, Sacramento, San Joaquin, Stanislaus |
| Conservancy fairy shrimp | X | X | Butte, Mariposa, Merced, Tehama |
| Chinook salmon | X | | Butte, Nevada, Sacramento, Shasta, Tehama, Yuba |
| Green sturgeon | X | X | Butte, Shasta, Tehama, Yuba |
| Lost River sucker | X | | Klamath, Modoc |
| Northern spotted owl | X | | Jackson, Klamath, Shasta, Siskiyou, Trinity |
| Oregon spotted frog | X | | Jackson, Klamath |
| Owens tui chub | | X | Mono |
| Shortnose sucker | X | | Klamath, Modoc |
| Sierra Nevada bighorn sheep | | X | Fresno, Madera |

## Table 3.3-5. Designated Critical Habitat for Federally Listed Species in the Working Area

| Critical Habitat | Working Area | | County(ies) |
|---|---|---|---|
| | Northern California | Central Sierra Nevada | |
| Sierra Nevada yellow-legged frog | X | X | Alpine, Amador, Calaveras, El Dorado, Fresno, Lassen, Madera, Mariposa, Mono, Nevada, Placer, Plumas, Tuolumne |
| Steelhead | X | X | Butte, Calaveras, Merced, Nevada, Placer, Sacramento, San Joaquin, Shasta, Stanislaus, Sutter, Tehama, Tuolumne, Yuba |
| Valley elderberry longhorn beetle | | X | Sacramento |
| Vernal pool fairy shrimp | X | X | Amador, Butte, Fresno, Madera, Mariposa, Merced, Placer, Sacramento, San Joaquin, Shasta, Stanislaus, Tehama, Yuba |
| Vernal pool tadpole shrimp | X | X | Amadro, Butte, Fresno, Madera, Mariposa, Merced, Sacramento, Shasta, Stanislaus, Tehama, Yuba |
| Webber's ivesia | X | X | Douglas, Lassen, Plumas, Washoe |
| Yellow-billed cuckoo | X | | Butte, Tehama |
| Yosemite toad | | X | Alpine, Fresno, Madera, Mariposa, Mono, Tuolumne |

**Source:** USFWS 2022.

## Sensitive Natural Communities

Sensitive natural communities may be of special importance to federal and state agencies and local conservation organizations for a variety of reasons, including their rarity or regionally declining status, or because they provide important habitat to common and special-status plant and wildlife species.

Sensitive natural communities in California are natural communities (of vegetation) or vegetation types that have been evaluated by CDFW using NatureServe's Heritage Methodology (Master et al. 2012) and vegetation community classifications from A Manual of California Vegetation Online, and that are ranked as imperiled or vulnerable. Evaluation is done at both the global (i.e., full natural range within and outside of California) and state (i.e., within California) levels resulting in a "G" (global) and "S" (state) rank ranging from 1 (i.e., very rare and threatened) to 5 (i.e., demonstrably secure). The three levels of S-ranks are considered "sensitive" by CDFW and defined as follows:

- S1 = Critically Imperiled. Critically imperiled in California because of extreme rarity (often 5 or fewer populations) or because of factors such as very steep declines making it especially vulnerable to extirpation.
- S2 = Imperiled. Imperiled in California because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation.
- S3 = Vulnerable. Vulnerable in California due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

CDFW sensitive natural communities identified in the Working Area are presented in Table 4 in Appendix C1.

Within Oregon, sensitive natural communities are areas identified by the Oregon Department of Fish and Wildlife (ODFW) Oregon Conservation Strategy (OCS) as "strategy habitats." Strategy habitats are habitats prioritized within the OCS as areas of greatest conservation concern. There are 11 types of strategy habitats, including aspen woodland, flowing water and riparian habitat, natural lakes, oak woodlands, sagebrush habitats, and wetlands (ODFW 2024b).

Within western Nevada, sensitive natural communities are considered areas of unprotected biodiversity importance (AUBIs). AUBIs are critical for imperiled species throughout the continental U.S., including federally listed species protected by the Endangered Species Act. AUBIs were developed as part of the Map of Biodiversity Importance (MoBI) data collection and delineated by NatureServe using a comprehensive set of habitat models for species considered Critically Imperiled (categorized by NatureServe as "G1"), Imperiled ("G2"), and ESA-listed (i.e., full species listed as Endangered or Threatened under the Endangered Species Act) species in the following four groups: vertebrates (birds, mammals, amphibians, reptiles, freshwater fishes), freshwater invertebrates (mussels and crayfishes), pollinators (bumblebees, butterflies, and skippers), and vascular plants (NatureServe 2024).

## Jurisdictional Aquatic Resources

Potentially jurisdictional aquatic resources, including federal and state jurisdictional wetlands and non-wetland waters, occur throughout the Working Area. Aquatic resource types anticipated or known to be present in the Working Area include (but are not limited to): perennial, intermittent, and ephemeral streams or rivers, lakes and ponds, reservoirs and impoundments, freshwater emergent wetlands, seasonal wetlands, and wetland swales. Jurisdictional aquatic resources may be regulated under the federal Clean Water Act, California Fish and Game Code, the state of California Porter-Cologne Water Quality Act, and/or relevant state of Oregon statutes (ORS

196.800–196.990) and water quality standards (see Section 3.3.2, Regulatory Setting, for additional information about the related laws and regulations).

### Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration and movement of animals. Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, providing access to adjacent habitat areas for foraging and mating, and providing routes for recolonization of habitat after local extirpation or ecological catastrophes, such as landslides and fires.

Habitat linkages are patches of native habitat that function to join two larger patches of habitat. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as "steppingstones" for dispersal.

As such, wildlife corridors and habitat linkages are considered sensitive by resource and conservation agencies. The California Essential Habitat Connectivity Project, developed by CDFW and the California Department of Transportation, intends to describe and depict a functional network of connected wildlands that is essential to the continued support of California's diverse natural communities in the face of human development and climate change (Spencer et al. 2010). The Essential Habitat Connectivity Project identifies large, relatively natural habitat blocks within the state that support native biodiversity and depicts the relative permeability of areas to provide some level of ecological connectivity between these habitat blocks.

Wildlife movement corridors in the Working Area are used by a variety of wildlife including small mammals, larger predators such as bobcat, mountain lion, and wolves, ungulates such as deer, big-horn sheep, and elk, and birds. There are 70 designated movement corridors (natural landscape blocks) partially located with forested land where feedstock activities could occur. Refer to Figure 3.3-8, Working Area - Wildlife Connectivity, for a visual depiction of these corridors in the Working Area. The 70 designated natural landscape blocks in the Working Area are presented in Table 6 in Appendix C1.

## 3.3.1.2 Northern California (Lassen Facility) Site

### Biological Resources Technical Studies

Dudek and WRA biologists conducted desktop and field studies of the Lassen Facility site (Table 3.3-6). Dudek biologists surveyed: APN 001-270-86 (about 62 acres) in September 2021; APN 001-270-86 (about 62 acres) and the northern portion of APN 001-270-26 (about 48 acres) in May 2023; and a total of 167 acres in March 2024 (southern portion of APN 001-270-26 and APNs 001-270-29 and 013-040-13). WRA biologists surveyed a total of 260 acres in April 2024 (APNs 001-270-86, 001-270-26, 001-270-29 and 013-040-13). The four APN boundaries at the Lassen Facility site are visually depicted on Figure 2-3, Project Location (Lassen), in Chapter 2. The findings of these studies are summarized in the sections below; refer to Appendices C2, C3, and C4 for additional information such as site location, soils, and hydrology.

## Table 3.3-6. Prior Biological Field Surveys and Technical Studies at the Lassen Facility Site

| Survey Dates | Consultant | Field Survey Area | Survey Type(s) | Relevant Report(s) |
|---|---|---|---|---|
| 9/21/2021<br>9/22/2021 | Dudek | APN 001-270-86 (northern parcel area) | Biological Field Survey, Vegetation Mapping, Aquatic Resources Delineation | Biological Resources Assessment (Appendix C2) |
| 5/25/2023<br>5/26/2023 | Dudek | APN 001-270-26 (northern portion) | Aquatic Resources Delineation | Aquatic Resources Delineation Report (Appendix C3) |
| 3/14/2024<br>3/15/2024 | Dudek | APNs 001-270-26 (southern portion), 001-270-29 and 013-040-13 | Aquatic Resources Delineation | N/A[1] |
| 4/29/2024<br>4/30/2024 | WRA | APNs 001-270-86, 001-270-26, 001-270-29, and 013-040-13 | Aquatic Resources Delineation | Aquatic Resources Delineation Report (Appendix C4) |

Note:
[1] N/A: not applicable. Dudek field notes/data from March 14–15, 2024, were used by WRA to complete the field delineation of Assessor's Parcel Numbers 001-270-86, 001-270-26, 001-270-29, and 013-040-13 on April 29-30, 2024 (see Appendix C4).

### Vegetation Communities and Land Covers

Two vegetation communities and one land cover type were documented within the Lassen Facility site: Ashy ryegrass - Creeping wildrye turfs, Kentucky bluegrass - Redtop - Creeping bentgrass meadows, and disturbed habitat (Table 3.3-7). Refer to the Biological Resources Assessment in Appendix C2 for additional information regarding the on-site vegetation communities. In addition, Figure 3.3-3, Lassen Facility - Vegetation Communities and Land Cover Types, visually depicts vegetation communities and land cover types at the Lassen Facility site.

## Table 3.3-7. Vegetation Communities and Land Cover Types at the Lassen Facility Site

| Vegetation Community and Land Cover Type | Vegetation Alliance and CDFW Alliance Code or FRAP Cover Type | Rarity Rank | Acreage | | | | |
|---|---|---|---|---|---|---|---|
| | | | 001-270-86 | 001-270-26 | 001-270-29 | 013-040-13 | Total |
| **Vegetation Communities** | | | | | | | |
| Great Basin Grassland | Ashy ryegrass - Creeping wildrye turfs *(Leymus cinereus - Leymus triticoides* Herbaceous Alliance; 41.081.00 | S3, G3 | 26.41 | 102.80 | 3.59 | 88.81 | 221.61 |
| Seasonal Wetland | Kentucky bluegrass - Redtop - Creeping bentgrass meadows (*Poa pratensis - Agrostis gigantea - Agrostis stolonifera*); Herbaceous Semi-Natural Alliance; 45.107.00 | NA, NA | 24.79 | 21.34 | 0.04 | 1.22 | 47.39 |
| **Other Land Cover Types** | | | | | | | |
| Disturbed Habitat | NA | NA, NA | 10.90 | — | — | — | 10.90 |
| | | **Total:** | **62.11** | **124.14** | **3.62** | **90.03** | **279.91** |

**Notes:** NA: not applicable. State (S) ranks of 1-3 are considered highly imperiled by CDFW (2024d). G3 – vulnerable.

## Special-Status Species

### Special-Status Plants

Based on a review of relevant literature and agency databases, 17 special-status plant species are known to occur in the general region of the Lassen Facility site. However, based on a field assessment of the suitability of on-site vegetation communities to support these species, the potential of any of these species to occur on site were determined to either be low, due to the poor quality of available habitat on the site, or not expected to occur due to the lack of suitable habitat, the lack of documented occurrences near the site, and/or the site being outside of the species' known geographic or elevation range. Additional information on special-status plant species life history and the potential occurrence is provided in Appendix C2.

### Special-Status Wildlife

Based on a review of relevant literature and agency databases, 15 special-status wildlife species are known to occur in the general region of the Lassen Facility site. However, based on a field assessment of the suitability of on-site vegetation communities to support these species, the potential of any of these species to occur on site were determined to either be low, due to the poor quality of available habitat on the site, or not expected to occur due to the lack of suitable habitat, the lack of documented occurrences near the site, or due to the site being outside of the species' known geographic or elevation range.

The site does provide some habitat for nesting birds protected by the federal MBTA and the California Fish and Game Code (CFGC). Additional information on special-status wildlife species life history and the potential occurrence is provided in Appendix C2.

### Critical Habitat

There is no designated or proposed critical habitat for federally listed plant or wildlife species mapped within the Lassen Facility site.

## Sensitive Natural Communities

Great Basin grassland is identified as a sensitive vegetation community considered highly imperiled by CDFW (CDFW 2024d; CNPS 2023a). Refer to the Biological Resources Assessment in Appendix C2 for more details.

## Jurisdictional Aquatic Resources

Dudek and WRA conducted field delineations of the site in 2021, 2023, and 2024 (refer to Table 3.3-6 above for specific field dates and survey areas), to identify and characterized on-site aquatic resources and their potential subject to be regulated under Sections 401 and 404 of the Clean Water Act, Porter–Cologne Water Quality Control Act, and Section 1602 of the California Fish and Game Code.

Dudek and WRA biologists delineated approximately 2.13 acres (5,833 linear feet) of non-wetland waters and 40.65 acres of wetlands potentially subject to USACE, RWQCB, and/or CDFW jurisdiction (Table 3.3-8). Findings with regard to federal jurisdiction are preliminary until verified by the Sacramento District of the USACE. Refer to the Aquatic Resources Delineation Report in Appendix C3 for additional information regarding aquatic resources present on the site. In addition, Figures 3.3-4A and 3.3-4B, Lassen Facility - Aquatic Resources, visually depicts aquatic resources delineated at the Lassen Facility site.

**Table 3.3-8. Potential Jurisdictional Aquatic Resources at the Lassen Facility Site**

| Aquatic Resource | Acres by APN | | | | Total |
|---|---|---|---|---|---|
| | 001-270-26 | 001-270-29 | 001-270-86 | 013-040-13 | |
| **Non-Wetland Waters** | | | | | |
| Drainage ditch | 0.27 | — | 1.86 | — | **2.13** |
| **Wetlands** | | | | | |
| Seasonal Wetland | 12.32 | 0.04 | 26.47 | 1.22 | **40.06** |
| Seasonal Wetland Swale | 0.16 | — | 0.10 | 0.33 | **0.59** |
| **Total[1]** | **12.76** | **0.04** | **28.43** | **1.55** | **42.78** |

**Source:** Dudek 2023 (Appendix C3) and WRA 2024a (Appendix C4).
**Notes:**
1 Acreages extend to the ordinary high-water mark or top of bank, whichever is greater. OHWM and TOB were determined to be equivalent for non-wetland waters at this site.
2 Minor discrepancies in totals are the result of rounding differences between Excel and ArcMap.

### Wildlife Corridors and Habitat Linkages

The southern half of the Lassen Facility site is within the outside edge of the Beaver Creek Rim/Indian Mountain – Little Hot Spring Valley essential connectivity area, as defined by the California Essential Habitat Connectivity (CEHC) project (Spencer et al. 2010). This site was formerly part of a wood processing sawmill. The buildings from the prior use are located north of the site. The BNSF Railroad forms the eastern boundary of the site. An agricultural chemical company (Helena Agri-Business) and two residences are located west of the site. Agricultural land is located to the east and south. Most of the lands adjacent to the site are under Williamson Act contracts.

## 3.3.1.3 Central Sierra Nevada (Tuolumne Facility) Site

### Biological Resources Technical Studies

Dudek biologists conducted desktop and field studies for the Tuolumne Facility site (Table 3.3-9). The findings of these studies are summarized in the sections below; refer to Appendices C5 and C6 for additional information such as site location, soils, and hydrology.

**Table 3.3-9. Prior Biological Technical Studies at the Tuolumne Facility Site**

| Date | Consultant | Survey Type(s) | Relevant Report(s) |
|---|---|---|---|
| 12/10/2020 | Dudek | Biological Field Survey, Vegetation Mapping, Aquatic Resources Delineation | Biological Resources Assessment (Appendix C5)<br>Aquatic Resources Delineation Report (Appendix C6) |
| 5/17/2021 | Dudek | Rare Plant Survey, Bat Roost Assessment, CRLF Site Assessment | |
| 3/31/2023 | Dudek | Aquatic Resources Delineation, Vegetation Mapping, CRLF Site Assessment | |

## Vegetation Communities and Land Covers

Six vegetation communities and two land cover types were documented within the Tuolumne Facility site (Table 3.3-10). Refer to the Biological Resources Assessment in Appendix C5 for additional information regarding the on-site vegetation communities. In addition, Figure 3.3-5, Tuolumne Facility - Vegetation Communities and Land Cover Types, visually depicts vegetation communities and land cover types at the Tuolumne Facility site.

### Table 3.3-10. Vegetation Communities and Land Cover Types at the Tuolumne Facility Site

| Vegetation Community and Land Cover Type | Vegetation Alliance and CDFW Alliance Code | Rarity Rank | Acreage |
|---|---|---|---|
| **Vegetation Communities** | | | |
| Annual Grassland | Annual brome grasslands *(Avena* spp. - *Bromus* spp.*)* Herbaceous Semi-Natural Alliance; 42.027.00 | NA, NA | 42.70 |
| Blue Oak Woodland | Blue oak (*Quercus douglasii*) Forest and Woodland Alliance; 71.020.00 | S4, G4 | 0.86 |
| Riparian Woodland | Fremont cottonwood (*Populus fremontii – Salix laevigata, lasiolepis, lucida* ssp. *lasiandra*) Forest and Woodland Alliance; 61.130.00 | S3, G4 | 0.25 |
| Spikerush Marsh | Common spikerush - beaked spikerush marshes (*Eleocharis* (*palustris*, *rostellata*)) Alkaline-Saline Alliance; 45.260.03 | S3, G3 | 0.69 |
| Riparian Scrub | Himalayan blackberry - rattlebox - edible fig riparian scrub (*Rubus armeniacus - Sesbania punicea - Ficus carica*) Semi-Natural Alliance; 63.906.00 | NA, NA | 0.02 |
| Cattail Marsh | Cattail marshes (*Typha* (*angustifolia*, *domingensis*, *latifolia*)) Alliance; 52.050.04 | S5, G5 | 0.08 |
| **Other Land Cover Types** | | | |
| Disturbed | NA | NA, NA | 12.44 |
| Open Water | NA | NA, NA | 0.13 |
| | | **Total:** | **57.19** |

**Notes:** NA: not applicable. State (S) ranks of 1-3 are considered highly imperiled by CDFW (2024d). G3 – vulnerable; G4 – apparently secure; G5 – secure.

## Special-Status Species

### Special-Status Plants

Based on a review of relevant literature and agency databases, 35 special-status plant species are known to occur in the general region of the Tuolumne Facility site. However, based on a field assessment of the suitability of on-site vegetation communities to support these species, 28 of these species are not expected to occur on the site due to the lack of suitable habitat, the lack of documented occurrences near the site, and/or the site being outside of the species' known geographic or elevation range. The remaining seven special-status plant species have a varied potential to occur on the site: Beaked clarkia (*Clarkia rostrate),* Tuolumne button-celery (*Eryngium pinnatisectum*), spiny-sepaled button-celery (*Eryngium spinosepalum*), Stanislaus monkeyflower (*Erythranthe marmorata*), forked hare-leaf (*Lagophylla dichotoma),* veiny monardella (*Monardella venosa),* and Patterson's navarretia (*Navarretia paradoxiclara*). Of these, three species are considered to have a low potential to occur and thus, no impacts to

these species are anticipated. Three of the remaining special-status plant species (Tuolumne button-celery, spiny-sepaled button-celery, and Patterson's navarretia) have a moderate to high potential to occur in the vernal pool on-site; however, none of these species were identified during the May 2021 rare plant survey, conducted when these species would be evident and identifiable. Three populations of Stanislaus monkeyflower (CRPR 1B.1 species) were mapped growing in spikerush marsh and cattail marsh the northern portion of the site. Additional information on special-status plant species is provided in Appendix C5.

### Special-Status Wildlife

Based on a review of relevant literature and agency databases, 27 special-status wildlife species are known to occur in the general region of the Tuolumne Facility site. However, based on a field assessment of the suitability of on-site vegetation communities to support these species, 20 of these species are not expected to occur on the site due to the lack of suitable habitat, the lack of documented occurrences near the site, and/or the site being outside of the species' known geographic or elevation range. The remaining seven special-status wildlife species have a varied potential to occur on the site: California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), northwestern pond turtle (*Emys marmorata*), tricolored blackbird (*Agelaius tricolor*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western red bat (*Lasiurus blossevillii*). Northwestern pond turtles were observed basking in the northern portion of the site during the field surveys in 2021 and 2023. In addition, the site provides habitat for nesting birds protected by the federal MBTA and the California Fish and Game Code (CFGC), as well as other roosting bat species protected by the CFGC. Additional information on special-status wildlife species is provided in Appendix C5.

### Critical Habitat

There is no designated or proposed critical habitat for federally-listed plant or wildlife species mapped within the Tuolumne Facility site.

## Sensitive Natural Communities

Spikerush marsh and riparian woodland are identified as sensitive vegetation communities considered highly imperiled by CDFW (CDFW 2024d; CNPS 2023a). In addition, riparian vegetation communities associated with aquatic resources are assumed to be under the jurisdiction of CDFW pursuant to Section 1602 of the California Fish and Game Code. Refer to the Biological Resources Assessment in Appendix C5 for the occurrence and description of riparian habitat within the Tuolumne Facility site.

The Red Hills Recreation Management Area is a BLM-designated Area of Critical Environmental Concern (ACEC) located approximately 0.5 to 1 mile north of the Tuolumne Facility site. This ACEC is situated in a geologically distinct area dominated by serpentine soils that supports a unique assemblage of plant species. Several rare and endemic plant and wildlife species are known to occur in aquatic resources or upland areas within the ACEC, including Red Hills roach (*Lavinia symmetricus*), Red Hills ragwort (*Senecio clevelandii* var. *heterophyllus*), and Red Hills vervain (*Verbena californica*). Additionally, this area provides important overwintering habitat for bald eagles.

## Jurisdictional Aquatic Resources

Dudek conducted a field delineation on December 10, 2020 and March 31, 2023, to identify aquatic resources within the Tuolumne Facility site potentially subject to regulations in Sections 401 and 404 of the Clean Water Act, Porter–Cologne Water Quality Control Act, and Section 1602 of the California Fish and Game Code.

Dudek biologists delineated 7.614 acres (2,221 linear feet) of non-wetland waters and 1.855 acres of wetlands potentially subject to USACE, RWQCB, and/or CDFW jurisdiction (Table 3.3-11). In addition, approximately 1 acre of riparian woodland was mapped as a CDFW-only aquatic resource. Because CDFW regulates from bank to bank, certain portions of the review area where the top of bank extended beyond the OHWM are subject to regulation by CDFW as lake or streambed. Findings with regard to federal jurisdiction are preliminary until verified by the Sacramento District of the USACE. Refer to the Aquatic Resources Delineation Report in Appendix C6 for additional information regarding aquatic resources present on the site. In addition, Figures 3.3-6A and 3.3-6B, Tuolumne Facility - Aquatic Resources, visually depicts aquatic resources delineated at the Tuolumne Facility site.

## Table 3.3-11. Potential Jurisdictional Aquatic Resources at the Tuolumne Facility Site

| Aquatic Resource | Acres[1] | Linear Feet |
|---|---|---|
| **Non-Wetland Waters** | | |
| Channel – Natural, Ephemeral 1 | 0.030 | 271 |
| Channel – Natural, Ephemeral 2 | 0.023 | 97 |
| Channel – Natural, Ephemeral 3 | 0.018 | 176 |
| Channel – Natural, Intermittent 1 | 0.369 | 1056 |
| Channel – Natural, Intermittent 2 | 0.031 | 143 |
| Ditch – Drainage 1 | 0.010 | 124 |
| Ditch – Drainage 2 | 0.052 | 220 |
| Ditch – Drainage 3 | 0.041 | 40 |
| Pond – Perennial | 2.191 | — |
| Detention Basin 1 | 1.810 | — |
| Detention Basin 2 | 2.204 | — |
| Detention Basin 3 | 0.706 | — |
| Detention Basin 4 | 0.127 | — |
| *Subtotal* | *7.614* | *2,221* |
| **Wetlands** | | |
| Freshwater Emergent Wetland 1 | 0.246 | — |
| Freshwater Emergent Wetland 2 | 1.363 | — |
| Seasonal Wetland 1 | 0.082 | — |
| Seasonal Wetland 2 | 0.019 | — |
| Seasonal Wetland 3 | 0.031 | — |
| Seasonal Wetland 4 | 0.009 | — |
| Seasonal Wetland 5 | 0.012 | — |
| Vernal Pool | 0.093 | — |
| *Subtotal* | *1.855* | — |
| **Riparian** | | |
| Riparian Woodland | 0.999 | — |
| **Total** | **10.470** | **2,221** |

Notes:
1 Acreages extend to top of bank.
2 Minor discrepancies in totals are the result of rounding differences between Excel and ArcMap.

### Wildlife Corridors and Habitat Linkages

The Tuolumne Facility site is not within an essential connectivity area, natural landscape block, or natural area, as defined by the CEHC project (Spencer et al. 2010). This site is partially developed with existing structures and other features generally concentrated within the center of the site The Red Hills Recreation Management Area located approximately 0.60 miles east of the site is designated as a natural Landscape Block connecting the unique soils and habitats of the region to the aquatic habitat of the Don Pedro Reservoir to the south. The riparian and wetland habitat and associated wetland and drainage at the northern portion of the Tuolumne Facility site provide a movement corridor and safe undercrossing of La Grange Road for local wildlife such as deer, racoon, skunk, opossum, fox, coyote, and mountain lion.

## 3.3.1.4 Port of Stockton

### Biological Resources Assessment

To better understand the biological resources associated with the dedicated, purpose-built export terminal at the Port of Stockton Dudek conducted a biological resources assessment of the area at the Port where wood pellets would be transported and stored prior to overseas shipment. The assessment included a review of pertinent online and literature sources as well as a field survey of the project area. The literature review consisted of compiling and reviewing the following online databases and reports: the USFWS IPaC Trust Resource Report (USFWS 2024b), CDFW California Natural Diversity Database (CNDDB) (CDFW 2024a), the CNPS online Inventory of Rare and Endangered Vascular Plants (CNPS 2023b), San Joaquin County Multi-Species Habitat Conservation Plan (SJMSCP) species lists (SJCOG 2000) and draft incidental take minimization measures (ITMMs) (SJCOG 2016), the Draft and Final Environmental Impact Reports for the West Complex Development Plan (Port of Stockton 2003, 2004), and the Addendum to the West Complex Development Plan Environmental Impact Report (Port of Stockton 2021a). The IPaC report was based on a query for the Port site boundary as shown on Figure 3.3-7, Port of Stockton - Biological Resources. The CNDDB and CNPS databases were queried for the nine USGS 7.5-minute quadrangles containing and immediately surrounding the Port site (Manteca, Lathrop, Stockton West, Stockton East, Lodi South, Waterloo, Union Island, Terminous, Holt). Following a review of these resources, Dudek biologists determined whether habitat for special-status plant and wildlife species was present in the vicinity (within 1 mile of the Port site). Initial determinations were based on a review of habitat types, soils, and elevation preferences, as well as the known geographic range and nearest occurrence records of each species.

The field assessment involved biologists conducting a field survey of the Port site on August 31, 2023. The study area for the field survey consisted of approximately 19 acres within the 123-acre Port site as determined by the May 2023 site layout. The boundary of the Port site and study area are visually depicted on Figure 3.3-7. The purpose of the field survey was to identify and characterize the study area, with particular focus on existing vegetation communities that could serve as potential habitat for special-status species. The field survey also included a preliminary aquatic resources delineation to identify aquatic resources potentially subject to regulations in Sections 401 and 404 of the Clean Water Act, Porter–Cologne Water Quality Control Act, and Section 1602 of the California Fish and Game Code. No focused or protocol-level surveys for special-status plants or wildlife species were conducted. A general habitat assessment for giant gartersnake (*Thamnophis gigas*) was conducted, but no other focused or protocol-level surveys for conducted for special-status wildlife. The results of the biological resources assessment are summarized in the sections below.

## Site Description

### Location

The Port site is located on Rough and Ready Island (APN 16203007) in the Delta and the City of Stockton, California within the northern San Joaquin Valley. Topography within the site is generally flat with elevations ranging from mean sea level to approximately 15 feet above mean sea level. The site is generally bounded by warehouses and roads, including Boone Drive, Davis Avenue, and Edwards Avenue. A portion of the Stockton Deepwater Channel (i.e., San Joaquin River) flows through the northern extent of the site. The site is located at approximately 37° 57.0532' north latitude and 121° 21.2769' west longitude.

### Soils

Based on a review of appropriate soils maps, two soil mapping units were identified within the Port site study area: Egbert-Urban land complex, partially drained, 0 to 2 percent slopes and urban land (USDA 2024b). Surficial topsoil is characterized by deep, poorly-drained, and fine textured soils that contain a high percentage of organic materials and formed in floodplains. Additional soil and geology details within the Port site are presented in Section 3.6.

### Hydrology

The Port site is located within the San Joaquin Delta watershed (Hydrologic Unit Code 18040003), which drains approximately 1,230 square miles of land in San Joaquin County. The USFWS NWI classifies the adjacent Stockton Deepwater Channel as an excavated, permanently flooded-tidal river with an unconsolidated bottom (R1UBVx) (USFWS 2024a). There are no aquatic resources mapped by the NWI within the Port site (USFWS 2024a; USGS 2024a). The NWI dataset is based on coarse aerial mapping without ground-truthing and is unlikely to identify less apparent, small, and/or seasonal features.

### Vegetation Communities and Land Covers

Based on publicly accessible mapping data for the region (FRAP 2015; California Gap Analysis 2002), and on the biological field survey that was conducted, there are three vegetation communities or land covers occurring at the Port site: disturbed, riparian woodland, and urban/developed. These communities/cover types are adapted from CDFW's Vegetation by Wildlife Habitat Relationship Type (CDFW 2024c), visually depicted on Figure 3.3-7, and discussed below.

**Disturbed.** Disturbed areas at the Port site are associated with two undeveloped lots. Dominant species include ripgut brome (*Bromus diandrus*), mouse barley (*Hordeum murinum*), fiddleneck (*Amsinckia* sp.), and field bindweed (*Convolvulus arvensis*), with intermittent patches of johnsongrass (*Sorghum halepense*) growing along adjacent roadsides. There are planted Holm oak (*Quercus ilex*) trees present along the north side of Davis Avenue. Regular disking in this land cover is apparent in aerial photos since the early 2000s based on the presence of distinct, uniform vertical ruts throughout the site in most years (Google Earth Pro 2023). There is one seasonal wetland within this land cover on the west side of Lipes Drive.

**Riparian Woodland.** There are two patches of riparian woodland present at the Port site. This vegetation community is associated with a culvert/drainage crossing below Lipes Drive. The woodland contains a dense tree canopy composed of Pecan (*Carya illinoinensis*) and Holm oak (*Quercus ilex*) and moderately dense to dense understory of

Himalayan blackberry (*Rubus armeniacus*) and Siberian pea shrub (*Caragana arborescens*). This vegetation community is dominated by non-native and invasive species indicative of disturbance.

**Urban.** Urban land cover at the Port site consists of developed hardscape such as existing warehouses, paved roads and parking lots, and material storage yards.

## Special-Status Species

### Special-Status Plants

Based on a review of relevant literature and agency databases, 22 special-status plant species are known to occur in the region of the Port site. However, based on a field assessment of the suitability of on-site vegetation communities to support these species, the potential of any of these species to occur on site were determined to either be low, due to the poor quality of available habitat on the site, or not expected to occur due to the lack of suitable habitat, the lack of documented occurrences near the site, and/or the site being outside of the species' known geographic or elevation range. These species are identified in Table 5 in Appendix C1 but not analyzed further.

### Special-Status Wildlife

Based on a review of relevant literature and agency databases, 35 special-status wildlife species are known to occur in the region of the Port site. However, based on a field assessment of the suitability of on-site vegetation communities to support these species, the potential of 27 of these species to occur on site were determined to either be low, due to the poor quality of available habitat on the site, or not expected to occur due to the lack of suitable habitat, the lack of documented occurrences near the site, or due to the site being outside of the species' known geographic or elevation range. These species are identified in Table 6 in Appendix C1 but not analyzed further. There is potential habitat for the remaining 8 special-status wildlife species. These species are listed in Table 3.3-12 and addressed in more detail following this table.

**Table 3.3-12. Special-Status Wildlife Species With Some Potential to Occur Within or Adjacent to the Port Site**

| Scientific Name | Common Name | Status (Fed/State/Other) |
|---|---|---|
| *Acipenser medirostris* pop. 1 | green sturgeon - southern DPS | FT/None/SJCOG |
| *Athene cunicularia* | burrowing owl | BCC/SSC/SJCOG |
| *Buteo swainsoni* | Swainson's hawk | None/ST/SJCOG |
| *Elanus leucurus* | white-tailed kite | None/FP/SJCOG |
| *Hypomesus transpacificus* | Delta smelt | FT/SE/SJCOG |
| *Lanius ludovicianus* | loggerhead shrike | None/SSC/SJCOG |
| *Oncorhynchus mykiss irideus* pop. 10 | steelhead – Central Valley DPS | FE/None/None |
| *Oncorhynchus tshawytscha* pop. 13 | chinook salmon - Central Valley fall/late fall-run ESU | None/SSC/None |

**Status Abbreviations**
FE: Federally listed as endangered
FT: Federally listed as threatened
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
SSC: California Species of Special Concern
FP: California Fully Protected Species

SE: State listed as endangered
SJCOG: Species is covered by the San Joaquin County Multi-Species Habitat Conservation Plan
ST: State listed as threatened

**Green Sturgeon - Southern DPS.** Green sturgeon is a federally threatened species and SJCOG covered species that could occur in the Stockton Deepwater Channel (San Joaquin River) adjacent to the Port site. Green sturgeon could use the Stockton Deepwater Channel to migrate through the region but would not be expected to remain for prolonged periods as there are no suitable spawning or rearing habitat present. There are 2 CNDDB occurrences of this species within 5 miles of the Port site (CDFW 2024a). The Stockton Deepwater Channel adjacent to the Port site is mapped as critical habitat for green sturgeon (refer to Figure 3.3-7).

**Burrowing Owl.** Burrowing owl is a state species of special concern and SJCOG covered species that could occur at the Port site. Although no active burrow complexes were identified on site during the field survey, this species is known to occupy highly disturbed sites and may nest in constructed features such as downspouts, storm drains, or similar. There are 12 CNDDB occurrences of this species within 5 miles of the Port site (CDFW 2024a).

**Swainson's Hawk.** Swainson's hawk is a state threatened species and SJCOG covered species that could nest in trees adjacent to the Port site. Although Holm oak trees on the Port site provide low quality nesting habitat for Swainson's hawk, large trees along the Stockton Deepwater Channel and the vicinity could support nesting. The site lacks suitable foraging habitat for Swainson's hawk due to the general lack of rodent activity and limited undisturbed grassland or agricultural habitat surrounding the site. There are 38 CNDDB occurrences of this species within 5 miles of the Port site (CDFW 2024a).

**White-tailed Kite.** White-tailed kite is a state species of special concern and SJCOG covered species that could nest in trees adjacent to the Port site. Although Holm oak trees on the Port site provide low quality nesting habitat for white-tailed kite, riparian trees along the Stockton Deepwater Channel could support nesting. There are no CNDDB occurrences of this species within 5 miles of the Port site (CDFW 2024a).

**Delta Smelt.** Delta smelt is a federally and state listed species and SJCOG covered species that could occur in the Stockton Deepwater Channel (San Joaquin River) adjacent to the Port site. Delta smelt could use the Stockton Deepwater Channel to migrate through the region but would not be expected to remain for prolonged periods as there are no suitable spawning or rearing habitat present. There is 1 CNDDB occurrence of this species within 5 miles of the Port site (CDFW 2024a). The Stockton Deepwater Channel is mapped as critical habitat for Delta smelt (refer to Figure 3.3-7).

**Loggerhead Shrike.** Loggerhead shrike is a state species of special concern that could occur in the vicinity of the Port site. Trees and riparian vegetation on or adjacent to the Port site could provide nesting habitat for loggerhead shrike. There are no CNDDB occurrences of this species within 5 miles of the Port site (CDFW 2024a).

**Steelhead – Central Valley DPS.** Central Valley steelhead is a federally endangered species that could occur in the Stockton Deepwater Channel (San Joaquin River) adjacent to the Port site. Steelhead could use the Stockton Deepwater Channel to migrate through the region but would not be expected to remain for prolonged periods as there are no suitable spawning or rearing habitat present. There are 2 CNDDB occurrences of this species within 5 miles of the Port site (CDFW 2024a). The Stockton Deepwater Channel adjacent to the Port site is mapped as critical habitat for steelhead (refer to Figure 3.3-7).

**Chinook Salmon – Central Valley fall/late fall-run ESU.** Central Valley Chinook salmon is a state species of special concern that could occur in the Stockton Deepwater Channel (San Joaquin River) adjacent to the Port site. Chinook

salmon could use the Stockton Deepwater Channel to migrate through the region but would not be expected to remain for prolonged periods as there are no suitable spawning or rearing habitat present. There are no CNDDB occurrences of this species within 5 miles of the Port site (CDFW 2024a).

### Other Protected Species

In addition to the 8 special-status wildlife species described above, the Port site and adjacent areas contain habitat for native bats protected by CFGC, common and migratory bird species protected by MBTA and FCG, and marine mammals.

**Native Bats.** Bat species that are naturally occurring in the state are protected by Section 4150 of the California Fish and Game Code (CFGC). Bats may use a variety of features for roosting, including trees with sufficient foliage, pealing bark, and cavities, and bridges, buildings, and other structures. No roosting features with bat sign (e.g., urine staining, guano, insect droppings) were identified during the field survey; however, a focused survey for bats was not conducted. Bats could potentially roost in riparian trees or buildings in the vicinity of the Port site and forage along the Stockton Deepwater Channel (San Joaquin River) adjacent to the site.

**Nesting Birds.** The Port site provides suitable nesting habitat for numerous local and migratory bird or raptor species protected by the federal MBTA and CFGC. Specifically, trees, shrubs, and human-made structures and buildings on the site provide suitable nesting habitat. No active bird nests were observed during the biological field survey, but a focused survey for nests was not conducted.

**Harbor Seal (*Phoca vitulina*).** Harbor seals, protected by the Marine Mammal Protection Act, are known to occur in the Stockton Deepwater Channel (San Joaquin River) adjacent to the Port site. Their presence in the region of the Port site is transitory as there are no haul-out sites near the Port site. Habitat adjacent to the site is relatively low quality for harbor seals due to high vessel traffic and disturbed conditions in the Stockton Deepwater Channel.

### Critical Habitat

The Stockton Deepwater Channel (San Joaquin River) adjacent to the Port site is mapped as designated critical habitat for steelhead (Central Valley DPS), Delta smelt, and green sturgeon (southern DPS) (Figure 3.3-7).

## Sensitive Natural Communities

There are no natural communities identified as sensitive by CDFW within the Port site.

## Jurisdictional Aquatic Resources

There is one seasonal wetland and two drainage ditches at the Port site (see Figure 3.3-7). The seasonal wetland contains vegetation distinct from the surrounding land, and evidence of seasonal inundation or saturation is apparent in winter/spring aerial photos (Google Earth Pro 2023). This feature had been mowed at the time of the August biological field survey. Where identifiable, plant species identified in the feature included (*Festuca perennis*), seaside barley (*Hordeum marinum*), mouse barley (*Hordeum murinum*), tall flatsedge (*Cyperus eragrostis*), and curly dock (*Rumex crispus*). The two drainage ditches convey run-off from adjacent development and roadways, including Boone Drive and Lipes Drive. Riparian vegetation grows along the drainage ditch that flows below Lipes Drive.

### Wildlife Corridors and Habitat Linkages

The Port of Stockton site is not within an essential connectivity area, natural landscape block, or natural area, as defined by the CEHC (Spencer et al. 2010). The Stockton Deepwater Channel (San Joaquin River) is located adjacent to the Port site. The San Joaquin River is a migratory corridor for native fish and wildlife, such as salmonids and harbor seals. The Port of Stockton site is also within the Pacific flyway, an established air route of waterfowl and other birds migrating between wintering grounds in Central and South America and nesting grounds in Pacific Coasts states and provinces of North America.

## 3.3.2 Regulatory Setting

### 3.3.2.1 Federal

### Federal Endangered Species Act

FESA (16 USC 1531 et seq.), as amended, is administered by USFWS, National Oceanic and Atmospheric Administration, and National Marine Fisheries Service (NMFS). This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. As part of this regulatory act, FESA provides for designation of Critical Habitat, defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical Habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species." Under provisions of Section 9(a)(1)(B) of FESA, it is unlawful to "take" any FESA-listed species. "Take" is defined in Section 3(19) of FESA as, harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct. Federal regulations found in 50 Code of Federal Regulations Section 17.3 further defines the term " harm" to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation.

Section 7(a)(2) of FESA directs federal agencies to consult with USFWS for any actions they authorize, fund, or carry out that may jeopardize the continued existence of any listed species or result in the destruction or adverse modification of federally designated Critical Habitat. Consultation begins when the federal agency submits a written request for initiation to USFWS or NMFS, along with the agency's Biological Assessment of its proposed action (if necessary), and USFWS or NMFS accepts that sufficient information has been provided to initiate consultation. If USFWS or NMFS concludes that the action is not likely to adversely affect a listed species, the action may be conducted without further review under FESA. Otherwise, USFWS or NMFS must prepare a written Biological Opinion describing how the agency's action will affect the listed species and its Critical Habitat.

### Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972 (MMPA), as amended, establishes a federal responsibility for the protection and conservation of marine mammal species by prohibiting the "take" of any marine mammal. The MMPA defines "take" as the act of hunting, killing, capture, and/or harassment of any marine mammal, or the attempt at such. The MMPA also imposes a moratorium on the import, export, or sale of any marine mammals, parts, or products within the United States. USFWS and NOAA Fisheries are jointly responsible for implementation of the MMPA; USFWS is responsible for the protection of sea otters, and NOAA Fisheries is responsible for protecting pinnipeds (seals and sea lions) and cetaceans (whales and dolphins).

Under Section 101(a)(5)(D) of the MMPA, an incidental harassment permit may be issued for activities other than commercial fishing that may impact small numbers of marine mammals. An incidental harassment permit covers activities that extend for periods of not more than 1 year, and that will have a negligible impact on the impacted species. Amendments to the MMPA in 1994 statutorily defined two levels of harassment. Level A harassment is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal in the wild. Level B harassment is defined as harassment having potential to disturb marine mammals by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

### Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50, Section 10.13 of the Code of Federal Regulations. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country and is enforced in the United States by the U.S. Fish and Wildlife Service. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50, Section 20 of the Code of Federal Regulations. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors). In 2017, the Department of Interior issued Memorandum M-37041 expressing the legal opinion that the MBTA prohibits both intentional and incidental take (take incidental to a lawful activity) of bird species.

### Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668 et seq.) provides for the protection of both bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Specifically, the act prohibits take of eagles, which is defined as any action that would "pursue, destroy, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" bald and golden eagles, including parts, nests, or eggs. The term "disturb" is further defined by regulation as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, injury to an eagle, a decrease in productivity, or nest abandonment" (50 CFR 22.3). Under the Bald and Golden Eagle Protection Act, it is also illegal to "sell, purchase, barter, trade, import, or export, or offer for sale, purchase, barter, or trade, at any time or in any manner, any bald eagle or any golden eagle, or the parts, nests, or eggs" of these birds. Pursuant to 50 CFR 22.26, and as of the latest amendment to the act in December 2016, a permit may be obtained that authorizes take of bald eagles and golden eagles where the take is "compatible with the preservation of the bald eagle and the golden eagle; is necessary to protect an interest in a particular locality; is associated with, but not the purpose of, the activity; and cannot practicably be avoided."

### Clean Water Act

The Federal Water Pollution Control Act of 1972 (Clean Water Act) (33 USC 1251 et seq.), as amended by the Water Quality Act of 1987 (PL 100-4), is the major federal legislation governing water quality. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The definition of what constitutes "waters of the United States" (provided in 33 CFR Section 328.3(a)) has changed multiple times over the past 36 years starting with the United States v. Riverside Bayview Homes, Inc. court ruling in 1985. Subsequent court proceedings, rule makings, and congressional acts in 2001 (Solid Waste Agency of North Cook County v. United States Army Corps of Engineers), 2006 (Rapanos v. United States), 2015 (Waters of the United States [WOTUS] Rule), 2018 (suspension of the WOTUS Rule), and 2019 (formal repeal of the WOTUS Rule) have attempted to provide greater clarity to the term and its regulatory implementation. The most recent Navigable Waters Protection Rule (NWPR), issued by the U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE) in January 2020, defined "waters of the United States" to include the following four

categories: (1) the territorial seas and traditional navigable waters; (2) tributaries of such waters; (3) certain lakes, ponds, and impoundments of jurisdictional waters; and (4) wetlands adjacent to other jurisdictional waters (other than waters that are themselves wetlands). However, this rule was remanded and vacated with the August 2021 decision in Pasqua Tribe et al v United States Environmental Protection Agency. As a result, the current administration is evaluating a new rulemaking process. In the meantime, the EPA and USACE have halted implementation of the NWPR nationwide and will revert to and apply the CWA 1986 definition and the 2008 Rapanos guidance, informally referred to as "the pre-2015 regulatory regime", until further notice. The term "wetlands" (a subset of waters) is defined in 33 CFR Section 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." Discharges into waters of the United States and wetlands are regulated under Section 404 by the USACE.

Important applicable sections of the Clean Water Act are as follows:

- Section 401 requires an applicant for any federal permit for an activity that may result in a discharge of pollutants into waters of the United States to obtain certification from the state that the activity complies with all applicable water quality standards, limitations, and restrictions. Section 401 water quality certification is provided by the RWQCB and typically include conditions to minimize impacts on water quality.
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for municipal and industrial discharges of any pollutant (except for dredge or fill material) into waters of the United States. The National Pollutant Discharge Elimination System program establishes limits on allowable concentrations and mass emissions of pollutants contained in point source and non-point source discharges. This program is administered by the RWQCB. Conformance with Section 402 is typically addressed in conjunction with water quality certification under Section 401.
- Section 404 provides for issuance of permits for the discharge of dredge or fill material into waters of the United States, including wetlands, by USACE. Two types of permits are issued by the USACE under Section 404: General Permits and Individual Permits. General Permits, which authorize groups activities with minimal impacts to an aquatic environment, can include Nationwide Permits, Regional General Permits, and Programmatic General Permits. Individual Permits are issued for projects that could cause significant impacts to an aquatic environment and require a lengthier public review process.

## Federal Land Policy and Management Act of 1976

The Federal Land Policy and Management Act of 1976 (FLPMA), as amended, serves as the legal framework for the management of public lands by the Bureau of Land Management (BLM). According to Section 102 (a) (7) and (8) of the act, the United States establishes policies regarding the management of public lands, emphasizing multiple use and sustained yield unless otherwise specified by law.

FLPMA requires the establishment of goals and objectives as guidelines for public land use planning, and mandates that management follows the principles of multiple use and sustained yield, unless stated otherwise by law (Section 102[7]). Section 103(c) defines "multiple use" as the responsible management of public lands and their diverse resources in a way that optimally meets the current and future needs of the American people. This involves making efficient use of the land for one or more of these resources or related services, allowing flexibility for adjustments as needs and conditions change. It includes utilizing some land for specific resources while ensuring a balanced and diverse range of uses that consider the long-term requirements of future generations for renewable

and nonrenewable resources. These resources encompass recreation, grazing, timber, minerals, water sources, fish and wildlife, as well as natural scenic, scientific, and historical values. The regulation emphasizes the importance of coordinating and harmonizing the management of these resources without permanently damaging the land's productivity or environmental quality. It further emphasizes the need to consider the relative values of the resources, rather than solely focusing on the combination of uses that yield the highest economic return or output per unit.

Both Section 202(f) and Section 309(e) emphasize the importance of providing adequate notice and opportunities for federal, state, and local governments, as well as the public, to comment on the development of standards and criteria, as well as to participate in the formulation and execution of plans and programs for public land management.

### Bureau of Land Management Directive System

The Bureau of Land Management Directive System serves as a guiding tool for the administration and management of BLM-administered land. The system is regularly updated to reflect new policies, procedures, and technological advancements. The system includes permanent directives, temporary directives, and emergency notifications, each serving a specific purpose with its own set of guidelines. BLM manuals contain policy and procedures for managing programs, defining the basic authority for tasks, and identifying responsibilities. BLM manuals relevant to biological resources include (but are not limited to) the following:

- Forest Management Manuals, 5000 Series
- Specially Designated Conservation Area and Wildlife Manuals, 6000 Series
- Soil, Water, and Air Management Manuals, 7000 Series

### National Forest Management Act

The National Forest Management Act of 1976 and its implementing regulations (CFR 219) state that: "fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area (Sec 219.19)." Sec 219.19 also calls for the use of management indicator species to indicate the effects of management activities. In addition, the Secretary of Agriculture's policy on fish and wildlife (Department Regulation 9500-4) directs the USFS to avoid actions "which may cause a species to become threatened or endangered."

### U.S. Forest Service Directive System

The Forest Service Directive System, comprising a collection of manuals and handbooks, serves as a guiding tool for the administration and management of national forests and grasslands. The Forest Service Manual (FSM) is a comprehensive document that contains the legal authorities, objectives, policies, responsibilities, instructions, and guidance to plan and execute USFS assigned programs and activities. The purpose of the FSM is to guide the agency and manage national forests and grasslands. Forest Service Handbooks serve as the main resource for detailed guidance and instructions to implement the directives given in the manual. Relevant sections of the FSM are presented below.

### Wildlife Management

USFS policy for wildlife management across all USFS land is contained in FSM 2670 (USFS 2005). Current management direction for sensitive species and threatened or endangered species is outlined in the FSM. FSM 2670 directs USFS to prepare and implement management practices that maintain viable populations of sensitive and desired non-native species; do not cause a sensitive species to become threatened or endangered; do not cause adverse effects on threatened or endangered species; and establish interagency objectives for habitat management and/or recovery of populations.

FSM 2670.22 and 2670.32 ensure that species habitat is well distributed, potential species effects from USFS actions are avoided or minimized, and USFS actions do not result in a loss of viability or create significant trends toward federal listing. All programs and activities must be reviewed under the National Environmental Policy Act (NEPA) to assess potential effects on USFS sensitive species, and monitoring and inventory of these species must be conducted during project planning.

### Fisheries Management

USFS policy for fisheries management across all USFS land is contained in FSM 2600 (USFS 1994). Current management direction for sensitive species and threatened or endangered species is outlined in the FSM. FSM 2600 directs USFS to prepare and implement management practices that maintain viable populations of sensitive and desired non-native species, do not cause a sensitive species to become threatened or endangered, do not cause adverse effects on threatened or endangered species, and establish interagency objectives for habitat management and/or recovery of populations.

### Sensitive Plant Management

USFS policy for sensitive plant management across all forest service land is contained in FSM 2609 and 2670 (USFS 1994). Current management direction for sensitive species and threatened or endangered species is outlined in the FSM. FSM 2609 includes direction regarding sensitive plant surveys, population records, plant collections, and conservation assessments and strategies for sensitive plant resources. FSM 2670 provides management guidance for threatened, endangered, and sensitive plants on USFS land that complies with relevant federal laws and regulations.

### Noxious Weed Management

USFS policy for noxious/invasive weed management across all forest service land is contained in FSM 2900 (USFS 2011). Goals for noxious weed management are to manage weeds using an integrated weed management approach according to the objectives set forth in FSM 2902, which consist of prevention, early detection and rapid response, control and management, restoration, and organizational collaboration.

## Forest Service Stewardship Contracting

The USFS has been granted authority to implement stewardship contracting through several key statutes and regulations:

- **Section 604 (16 USC 6591c) of Public Law 108-148:** This law, as amended by Section 8205 of Public Law 113-79 (the Agricultural Act of 2014) and Section 207(a) of Public Law 115-141 (Consolidated Appropriations Act, 2018), grants the USFS and the BLM permanent authority to enter into stewardship

contracts or agreements. The goal is to achieve land management objectives for the National Forests or public lands that meet local and rural community needs. This authority supersedes the temporary authority granted to the Forest Service in Section 347 of Public Law 105-277, the Omnibus Consolidated and Emergency Appropriations Act, 1999.

- **36 CFR § 223 Subpart I Stewardship End Result Contracting Projects:** This federal regulation was established to implement the stewardship authority in 16 USC 6591c.
- **Tribal Forest Protection Act of 2004:** This act authorizes the Secretaries of Agriculture and Interior to give special consideration to tribally proposed stewardship contracting projects on agency lands bordering or adjacent to trust land.

These statutes and regulations guide the USFS in their stewardship contracting efforts, which include activities to improve, maintain, or restore forest or rangeland health; restore or maintain water quality; improve fish and wildlife habitat; and reduce hazardous fuels that pose risks to communities and ecosystem values.

### 3.3.2.2 State – California

#### California Endangered Species Act

CDFW administers the California Endangered Species Act (CESA) (California Fish and Game Code [CFGC], Section 2050 et seq.), which prohibits the take of plant and animal species designated by the California Fish and Game Commission as endangered, candidate, or threatened in the State of California. Under CESA Section 86, take is defined as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA Sections 2080 through 2085 address the taking of threatened, endangered, or candidate species by stating, "no person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (CFGC Sections 1900–1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001)."

Sections 2081(b) and (c) of the CFGC authorize take of endangered, threatened, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. In certain circumstances, Section 2080.1 of CESA allows CDFW to adopt a federal incidental take statement or a 10(a) permit as its own, based on its findings that the federal permit adequately protects the species and is consistent with state law. A Section 2081(b) permit may not authorize the take of "Fully Protected" species, "specially protected mammal" species, and "specified birds" (CFGC Sections 3505, 3511, 4700, 4800, 5050, 5515, and 5517). If activities are planned in an area where a Fully Protected species, specially protected mammal, or a specified bird occurs, CDFA and WS-California must take precautions to avoid take.

#### California Fish and Game Code

##### Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the CFGC outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances, such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. On July 10, 2023, Senate Bill 147 (SB147) was signed

into law and amends the Fish and Game Code to allow a 10-year permitting mechanism for a defined set of projects within the renewable energy, transportation, and water infrastructure sectors. Furthermore, it is the responsibility of the CDFW to maintain viable populations of all native species. Toward that end, the CDFW has designated certain vertebrate species as Species of Special Concern, because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

### Lake and Streambed Alteration Program

Under Sections 1602-1616 of the CFGC, CDFW regulates activities that would substantially divert or obstruct the natural flow of or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. CDFW also regulates work that would deposit or dispose of debris, water, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. In practice, CDFW marks its jurisdictional limit at the top of the stream or lake bank or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by Clean Water Act Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under 1602-1616 may encompass a greater area than those regulated under Clean Water Act Section 404; CDFW does not have jurisdiction over ocean or shoreline resources.

### Resident and Migratory Birds

Section 3503 of the CFGC prohibits the needless destruction of nests or eggs of native bird species, and Section 3503.5 of the CFGC states that no birds in the orders of Falconiformes or Strigiformes (birds of prey) can be taken, possessed, or destroyed. For the purposes of these state regulations, CDFW currently considers an active nest as one that is under construction or in use and includes existing nests that are being modified. For example, if a hawk is adding to or maintaining an existing stick nest in a transmission tower, then it would be considered to be active and covered under these CFGC Sections. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

### Non-Game Mammals

Section 4150 of the CFGC states a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a non-game mammal. A non-game mammal may not be taken or possessed under this code. All bat species occurring naturally in California are considered non-game mammals and are therefore prohibited from take.

### California Native Plant Protection Act

The Native Plant Protection Act of 1977 (CFGC Sections 1900–1913) directed CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the Fish and Game Commission the power to designate native plants as "endangered" or "rare," and prohibited take, with some exceptions, of endangered and rare plants. When CESA was amended in 1984, it expanded on the original Native Plant Protection Act, enhanced legal protection for plants, and created the categories of "threatened" and "endangered" species to parallel FESA. The 1984 amendments to CESA also made the exceptions to the take prohibition set forth in Section 1913 of the Native Plant Protection Act applicable to plant

species listed as threatened or endangered under CESA. CESA categorized all rare animals as threatened species under CESA, but did not do so for rare plants, which resulted in three listing categories for plants in California: rare, threatened, and endangered. The Native Plant Protection Act remains part of the California Fish and Game Code, and mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and project proponents.

### Sensitive Natural Communities

Section 1940 of the California Fish and Game Code requires CDFW to develop and maintain a vegetation mapping standard for the state. More than half of the vegetation communities in the state have been mapped through the Vegetation Classification and Mapping Program. Natural communities with ranks of S1–S3 are considered by CDFW as sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents. Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats.

## Porter-Cologne Water Quality Control Act

The intent of the Porter–Cologne Water Quality Control Act is to protect water quality and the beneficial uses of water, and it applies to both surface water and groundwater. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. All waters of the state are regulated under the Porter–Cologne Water Quality Control Act, including isolated waters that are no longer regulated by USACE. Recent changes in state procedures require increased analysis and mitigation. Developments with impact to jurisdictional waters of the state must demonstrate compliance with the goals of the act by developing stormwater pollution prevention plans, standard urban stormwater mitigation plans, and other measures to obtain a Clean Water Act, Section 401 certification and/or Waste Discharge Requirement.

## California's Marine Invasive Species Act

According to California's Marine Invasive Species Act, initially established in 1999 and later amended in September 2003, vessels operating within the state's waters must adhere to specific measures to minimize the release of nonindigenous species from their ballast water, anchors, anchor chains, and hulls. Many vessels are obligated to either perform ballast water exchange at sea, retain their ballast water onboard, or employ alternative methods for the treatment and management of their ballast water. By 2005, regulations will be implemented to govern the management of ballast water for vessels arriving from the Pacific Coast Region. Moreover, regulations will be introduced for experimental on-board ballast water treatment systems, followed by the establishment of performance standards for the discharge of ballast water into the state's waters. The Act currently mandates ballast water reporting, and the State Lands Commission is tasked with sampling ballast water and sediment from 25 percent of incoming vessels subject to the Act. The Act outlines the procedures for data collection, stipulates associated fees, and prescribes civil and criminal penalties. Up until January 1, 2010, state entities are prohibited from imposing requirements that deviate from those specified in the Act, unless federal law necessitates such action.

### California Federal Bay Delta Program

The Sacramento San Joaquin Delta holds a pivotal position within California, serving as the linchpin of the state's water supply system. It is also a region of immense ecological significance, particularly for salmon, migratory waterfowl, and a diverse array of plants and animals.

The CALFED program, a collaboration between state and federal entities concerning water usage, was officially established in June 1994 when a Framework Agreement was signed by the relevant state and federal agencies overseeing the Bay-Delta Estuary. This agreement committed these agencies to working together in formulating water quality standards, coordinating operations of the State Water Project and Central Valley Project, and devising long-term solutions to address issues in the Bay-Delta Estuary.

The CALFED program has laid out a series of ecosystem restoration objectives that pertain to the Sacramento San Joaquin Delta, as outlined below:

- Aid in the recovery of endangered native species or contribute to their restoration.
- Restore natural processes in a manner that favors native species.
- Sustain and enhance key populations critical for economic, recreational, and sporting purposes.
- Safeguard and rehabilitate functional habitats, encompassing aquatic, upland, and riparian areas, to promote the flourishing of species.
- Mitigate the adverse impacts of invasive species and prevent further introductions that compete with and harm native species.
- Enhance and maintain water and sediment quality to better support the health of the ecosystem and facilitate the prosperity of species.

### Z'berg-Nejedly Forest Practice Act

While the proposed project does not involve commercial timber removal, the Z'berg-Nejedly Forest Practice Act (Forest Practice Act) could still be relevant for identifying methods and procedures that protect fish, wildlife, forests, and streams in areas where treatment activities in the Working Area might take place. The Forest Practice Act aims to achieve sustained timber production while considering values such as recreation, watershed protection, wildlife, and economic vitality (PRC Section 4513[b]). The regulations under this act specify factors like harvest area size and location, measures to protect remaining trees, and safeguards for riparian areas, water courses, lakes, wildlife, and habitat areas.

## 3.3.2.3 State – Oregon

### Oregon State Listed Species

**Oregon Revised Statutes (ORS):** Consultation with the Oregon Department of Fish and Wildlife (ODFW) and/or Oregon Department of Agriculture is required when species that are state listed as threatened or endangered are determined to occur on a project site. State-listed fish and wildlife species are regulated by the ODFW in ORS 496.171 to 496.192. State-listed plants are regulated by the Oregon Department of Agriculture in ORS 564.100 to 564.135. Wildlife "take" is defined under state law as to kill or obtain possession or control of. Plant "take" is defined under state law as to collect, cut, damage, destroy, dig, kill, pick, remove or otherwise disturb. The Oregon

Department of Agriculture has responsibility for the conservation of non-threatened and endangered plant species through the Native Plant Conservation Program.

**Oregon Conservation Strategy:** Through the development of the Oregon Conservation Strategy, the ODFW has identified key issues for conserving fish and wildlife species (ODFW 2016). As a part of this strategy, species of greatest conservation concern were identified along with the habitats that are essential to those species. Conservation Opportunity Areas were identified to help focus future conservation efforts. Identification of these areas is provided to help land managers and decision makers with information to make decisions on where to focus development and conservation efforts.

### Oregon Removal/Fill Law

The Oregon Department of State Lands (ODSL) regulates wetlands and waters under the Removal-Fill Law (Oregon Revised Statutes [ORS] 196.800–196.990). Generally, removal for fill within wetlands over 50 cubic yards requires a Removal-Fill Permit, applied through a Joint Permit Application which reaches ODSL, USACE, and Oregon Department of Environmental Quality (ODEQ). The jurisdictional limits of DSL-regulated resources extends either to the ordinary high water line or to the edge of the wetland/upland boundary, whichever is higher, on non-tidal streams. The mapping of the jurisdictional extent of DSL wetlands absent an ordinary high water line follow the USACE three-parameter wetlands definition. However, it should be noted that the extents of USACE and DSL jurisdiction on certain features do not always coincide.

### Oregon Water Quality Standards

Under Section 401 of the CWA (described in Section 3.3.2.1, Federal, above), ODEQ has the authority to manage aquatic resources and water quality, including stormwater and groundwater. Oregon's water quality standards are outlined in the Oregon Administrative Rules (OAR) Chapter 340, Division 41. A WQC includes conditions that require the applicant to follow certain best management practices (BMPs) and perform monitoring to ensure that water quality standards are met. If there are unavoidable impacts to waterways and/or wetlands as a result of a project, the applicant is required to provide mitigation for the loss of water quality functions. Applicants may either submit a mitigation plan or purchase mitigation credits from an approved mitigation bank. In addition, the ODEQ has adopted a 50-foot buffer requirement around waters of the state. Impacts within the 50-foot buffer require compensation such as buffer enhancement.

Projects affecting waters of the state that do not fall under federal jurisdiction are not subject to the CWA Section 401 WQC. However, they are still subject to other applicable state water quality and environmental protection laws.

## 3.3.2.4 State – Nevada

### Nevada Revised Statutes (NRS) and Nevada Administrative Code (NAC)

**Water Controls and Quality Standards:** NRS 445A.118 to 445A.2234 define and describe requirements for "waters of the state" and "water quality standards."

**Protection of Lake Tahoe Watershed:** NRS 445A.170 states that it is unlawful for any person, firm, association or corporation to: (a) Construct a pier, breakwater or marina in or to alter the shoreline of Lake Tahoe; (b) Remove gravel, sand or similar material from Lake Tahoe; or (c) Deposit any fill or deleterious material in Lake Tahoe,

without first having secured written permission from the State Department of Conservation and Natural Resources. NRS 445A.175 prohibits discharge of waste

**Title 45 – Wildlife: Chapter 501** NRS 501.001 – 501.395 defines general provisions and details the roles and regulations of the Board of Wildlife Commissioners, county advisory board to manage wildlife, Department of Wildlife, and enforcement and penalties of those statutes.

**Chapter 503 Hunting, Fishing, and Trapping; Miscellaneous Protective Measures –** NAC 503.0001 -503.820 detail general provisions; classification and taking of wildlife; possession, transportation, importation, exportation and release of wildlife; hunting and trapping; raptors; fishing, competitive field trials; wildlife depredation; and dredging permits. For example, NAC 503.050 protects migratory birds and their nests (with eggs or young). Most sections of this chapter will not be applicable to project activities but may provide pertinent definitions and lists to be considered.

**Title 47 – Forestry; Forest Products and Flora: Chapter 527** NRS 527.010 - 527.330 stipulates protection and preservation of timbered lands, trees and flora. The Nevada list of Critically Endangered Native Flora Species NRS 527.260 – 527.300 provides for the conservation, protection, restoration and propagation of selected species of flora and for the perpetuation of habitats of such species

**Chapter 555 –** Control of Insects, Pests, and Noxious weeds. NAC 555.005 - 555.810 define and describe requirements for noxious weed and pest control.

### The Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195; 43 CFR Section 4700)

Through The Wild Free-Roaming Horses and Burros Act has been amended by Congress since 1971 and reproduced by BLM in 2006. The act represents Congress' declaration that:

> wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; that they contribute to the diversity of life forms within the Nation and enrich the lives of the American people; and that these horses and burros are fast disappearing from the American scene. It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found, as an integral part of the natural system of the public lands.

The purpose of Part 4700 – Protection, Management, and Control of Wild Free- Roaming Horses and Burros is to implement the laws relating to the protection, management, and control of wild horses and burros under the administration of the BLM. The H-4700-1 – Wild Horses and Burrows Management Handbook describes the authorities, objectives, policies and procedures that guide the management of WH&B on the public lands administered by the BLM.

### 2019 Nevada Greater Sage-grouse Conservation Plan

The Nevada Greater Sage-grouse Conservation Plan provides guidance on Nevada State's goals for the long-term conservation of sage-grouse. Greater sage-grouse (*Centrocercus urophasianus*; hereafter, sage-grouse) is a historically and culturally significant species in the State of Nevada. Protection of the sage-grouse is accomplished through the protection of the sagebrush ecosystem upon which the species depends. The plan states that redundant, representative, and resilient populations of sage-grouse will be maintained through amelioration of

threats; conservation of key habitats; mitigation for loss of habitat due to anthropogenic disturbances; and restoration or rehabilitation of habitat degraded or lost due to Acts of Nature.

### 3.3.2.5 Bi-State – Tahoe Basin

#### Tahoe Regional Planning Agency

The Tahoe Regional Planning Agency (TRPA) was established in 1969 as a result of a bi-state agreement between California and Nevada and ratified by the U.S. Congress. The primary responsibility of TRPA is to protect environments of the Lake Tahoe basin by implementing land use regulations, such as those identified in the Lake Tahoe Regional Plan. The Regional Plan serves as a regulatory framework encompassing various initiatives and documents. This document incorporates the Bi-State Compact requirements, the environmental thresholds, related plans and legal mandates, and input from the public. The Regional Plan offers a coordinated and integrated direction for TRPA's regulatory Code of Ordinances and implementation programs. Provisions of the TRPA Code of Ordinances regarding biological resources that may be applicable to the proposed project are summarized below.

#### Protection and Management of Vegetation

The Code of Ordinances mandates the preservation and maintenance of all native vegetation types. Chapter 74, titled Vegetation Protection and Management, in the TRPA Code of Ordinances outlines the safeguarding measures for vegetation in Stream Environment Zones (SEZs), including common, uncommon, and sensitive plants. An SEZ, as defined by TRPA, is a region whose biological and physical attributes are due to the existence of surface or groundwater. This term encompasses areas within the Tahoe Basin that are influenced by near-surface water, such as perennial, intermittent, or ephemeral streams, as well as meadows and marshes. Any project or activity within an SEZ is prohibited unless it is for habitat enhancement, dispersed recreation, vegetation management, or as stipulated in Chapter 20, Land Coverage Standards, of the Code of Ordinances. If necessary, TRPA can mandate the development and execution of a remedial vegetation management plan for maintaining or achieving environmental thresholds. Furthermore, Chapter 77, Revegetation, lays out the guidelines for revegetation initiatives.

#### Protection of Sensitive and Uncommon Plants

Chapter 75, titled Sensitive and Uncommon Plant Protection and Fire Hazard Reduction, in the TRPA Code of Ordinances, sets forth guidelines for the conservation and management of sensitive and uncommon plant species and their habitats, which are further discussed in Environmental Threshold Carrying Capacities, below. Any projects or activities that pose a threat to these sensitive plants or their habitats must take full measures to mitigate their significant negative impacts. The protective measures for these sensitive plants and their habitats include:

- Erecting fences to protect individual species or habitats
- Limiting access or usage intensity
- Altering the project design as needed to avoid adverse impacts
- Allocating open space to encompass entire areas of suitable habitat
- Restoring disturbed habitat

### Tree Removal

TRPA oversees the management of forest resources in the Tahoe Basin with the aim of achieving and maintaining environmental thresholds for species and structural diversity, promoting the long-term health of these resources, and creating and maintaining suitable habitats for a variety of wildlife species. The TRPA Code of Ordinances provides guidelines for tree removal in Chapter 30, Design Standards; Chapter 65, Vegetation Protection During Construction; Chapter 71, Tree Removal; Chapter 75, Sensitive and Uncommon Plant Protection and Fire Hazard Reduction; and Chapter 77, Revegetation.

Tree removal requires review and approval by TRPA. Project proponents are required to obtain a permit from TRPA for the removal of live trees with a diameter at breast height (DBH) greater than 14 inches. However, trees of any size identified as a fire hazard by a fire protection district or fire department operating under a memorandum of understanding with TRPA can be removed without a separate tree permit.

Trees with a DBH greater than 30 inches must be preserved, except under circumstances specified in the TRPA Code of Ordinances. As per Sections 71 and 71.2.B of the Code of Ordinances, within the non-SEZ urban area, individual trees larger than 30 inches DBH that are healthy and sound will be retained as desirable specimen trees with aesthetic and wildlife value, unless: (1) all reasonable alternatives to retain the tree are not feasible, including reducing parking areas or modifying the original design; or (2) paragraphs 71.2.A(1), 71.2.A(2), 71.2.A(3), 71.2.A(7), 71.2.A(8), or 71.2.A(9) can be applied.

Furthermore, trees and vegetation not scheduled for removal must be protected during construction as per Chapter 65, Vegetation Protection During Construction, of the TRPA Code of Ordinances.

### Wildlife

TRPA establishes guidelines for the conservation and management of wildlife habitats, with a particular focus on enhancing or increasing habitats of notable importance, such as deciduous trees, wetlands, meadows, and riparian areas (TRPA Code of Ordinances, Chapter 78). The specific habitats under protection include riparian areas, wetlands, and SEZs; corridors for wildlife movement and migration; known bat roosts; crucial habitats for any species of concern; essential habitats for the survival of any species; nesting habitats for raptors and waterfowl; fawning habitats for deer; and snags and coarse woody debris. Moreover, TRPA's special-interest species (also known as "threshold species"), which hold local significance due to their rarity or public interest, and species listed under the ESA or CESA are shielded from habitat disturbances caused by conflicting land uses.

TRPA special-interest wildlife species consist of northern goshawk (*Accipiter gentilis*), osprey (*Pandion haliaetus*), bald eagle, golden eagle, peregrine falcon (*Falco peregrinus anatum*), mule deer (*Odocoileus hemionus*), and waterfowl species.

### Fish Resources

Chapter 79, Fish Resources, in the TRPA Code of Ordinances, includes measures for protecting fish habitat and improving degraded fish habitat. For instream habitats, these measures include prohibiting alterations to stream channels, facilitating fish movement at stream crossings, removing obstacles to fish movement, mitigating the impacts of development on fish habitats, maintaining instream flows, preventing sediment from entering the stream system, and promoting native vegetation cover.

The emphasis of fisheries management in the Conservation Element of TRPA's Goals and Policies is on maintaining essential habitats. The primary goal of the fisheries Conservation Element is to "enhance aquatic habitats crucial for the growth, reproduction, and continuation of existing and threatened fish resources in the Lake Tahoe Basin." For streams within the Tahoe Basin, the management focus is on the quality and quantity of habitat provided for fish species, including spawning and rearing habitats, food supply, and cover. The Conservation Element outlines the following five attainment policies related to instream fish habitat:

- Development proposals impacting streams, lakes, and adjacent lands will assess impacts on the fishery.
- Unnatural obstructions and other barriers to fish movement will be banned and removed where appropriate.
- Projects aimed at improving habitats in streams and lakes will be promoted.
- Instream flows will be maintained or enhanced.
- Efforts by state and federal agencies to reintroduce the Lahontan cutthroat trout will be supported.

## Environmental Threshold Carrying Capacities

TRPA thresholds have been established for water quality, air quality, scenic resources, soil conservation, fish, vegetation, wildlife, noise, and recreation. TRPA is not allowed to approve projects that would cause a significant adverse effect on a threshold area without suitable mitigation. The TRPA thresholds that may apply to the proposed project are listed below.

### V-1—Common Vegetation

Increase plant and structural diversity of forest communities through appropriate management practices as measured by diversity indices of species richness, relative abundance, and pattern by using the following indicators:

- Provide for the perpetuation of yellow pine forest, red fir forest, subalpine forest, shrub associations, sagebrush scrub, deciduous riparian, meadow associations, wetland associations, cushion plant association;
- Maintain at least 4 percent meadow and wetland vegetation, 4 percent deciduous riparian vegetation;
- Maintain no more than 25 percent dominant shrub vegetation;
- Maintain 15-25 percent of the yellow pine forest in seral stages other than mature;
- Maintain 15-25 percent of the red fir forest in seral stages other than mature;
- Limit acreage size of new forest openings to no more than 8 acres; and
- Ensure that adjacent forest openings are not of the same relative age class or successional stage.

### V-2—Uncommon Plant Communities

Provide for the non-degradation of the natural qualities of any plant community that is uncommon to the Tahoe Basin or of exceptional scientific, ecological, or scenic value. This threshold will apply but not be limited to the deep-water plants of Lake Tahoe, Grass Lake (*sphagnum fen*), Osgood Swamp, the Freel Peak Cushion Plant Community, Hell Hole (*sphagnum fen*), Upper Truckee Marsh, Taylor Creek Marsh, and Pope Marsh.

#### V-3—Sensitive Plants

Maintain the minimum number of population sites for five TRPA special-interest plant species: Galena Creek rockcress (*Arabis rigidissima* var. *demota*); long-petaled Lewisia (*Lewisia longipetala*); Cup Lake draba (*Draba asterophora* var. *macrocarpa*); Tahoe draba (*Draba asterophora* var. *asterophora*); and Tahoe yellow cress (*Rorippa subumbellata*).

#### V-4—Late Seral/Old-Growth Ecosystems

Attain and maintain a minimum percentage of 55 percent by area of forested lands within the Tahoe Basin in a late seral or old-growth condition, and distributed across elevation zones. Forested lands within TRPA-designated urban areas are excluded in the calculations for threshold attainment.

#### W-1—Wildlife Species of Special Interest

Preserve a minimum number of population sites for six TRPA special-interest wildlife species: northern goshawk (*Accipiter gentilis*); osprey (*Pandion haliaetus*); bald eagle (*Haliaeetus leucocephalus*); golden eagle (*Aquila chrysaetos*); peregrine falcon (*Falco peregrinus*); and waterfowl. Mule deer, another special-interest species, does not have a specified threshold site number. The perching and nesting sites of special-interest bird species will remain undisturbed. TRPA upholds a non-degradation standard within buffer zones (also known as "disturbance zones") surrounding the nesting sites of these species. In regions outside existing urban areas, any projects or land uses within the disturbance zones will not significantly affect the habitat or lead to the displacement or extirpation of the population, either directly or indirectly. Any manipulation of the habitat within disturbance zones is prohibited, except for habitat enhancement. The disturbance zone for the northern goshawk and bald eagle extends to a 0.5-mile radius around each nesting site, the disturbance zone for osprey, peregrine falcon, and golden eagle extends to a 0.25-mile radius around each nesting site. TRPA has also delineated disturbance zones for wintering bald eagles. For deer, the disturbance zones are meadows. The non-degradation standard in wildlife disturbance zones is not applicable in instances where these species choose areas close to existing developed parcels.

#### W-2—Habitats of Special Significance

Implement a non-degradation standard for habitats that include deciduous trees, wetlands, and meadows (i.e., riparian, wetland, and meadow habitats), while also creating opportunities to expand the area of such riparian associations. This involves, but is not limited to, maintaining existing naturally functioning SEZ lands in their original hydrologic state, restoring all disturbed SEZ lands in undeveloped, non-subdivided areas, and rehabilitating 25 percent of the SEZ lands that have been identified as disturbed, developed, or subdivided, with the aim of achieving a 5 percent overall increase in the naturally functioning SEZ land.

### 3.3.2.6 Local – California

Given the extent of the Working Area, this section describes local regulations in a broad and general manner. For local governments (e.g., counties, cities) within California that do not operate under an approved NCCP program, guidance is provided through the local government's general plan. A required element of a local general plan includes the protection and preservation for the diverse array of wildlife species and their habitats occurring throughout California. Specifically, the general plan should account for current habitats, health of wildlife, projected changes in such habitat due to climate change, wildlife conservation, responsible development and the needs of a growing human population, habitat connectivity and potential threats to such habitat from development pressures,

fragmentation, and edge effects. Furthermore, as stated in the General Plan Guidelines document put forth by California Office of Planning and Research, due to the considerable overlap between habitat lands and agricultural lands, multiple benefits for wildlife and agriculture may be gained by coordinating conservation plans and strategies.

Given the nature and known boundaries of work proposed at the Lassen and Tuolumne facilities and the Port site, relevant county or city general plans and ordinances are described in the following section.

## Lassen County

### Lassen County General Plan

The Lassen County General Plan addresses biological resources under Chapter 3, Natural Resources Element and Chapter 5, Wildlife Element (Lassen County 2000). The General Plan establishes the following goals, policies, and implementation measures related to biological resources in the county limits that may apply to the proposed project:

#### Natural Resources Element

Goal N-1. Productive cooperation with and from Federal and state agencies which manage natural resources in Lassen County and improved consistency in resource management objectives, policies and programs.

Policy NR-1. Federal and state agencies shall be requested and expected to coordinate and cooperate with the County when considering resource management issues in Lassen County, and to recognize the County's General Plan and resource management policies pursuant to the National Environmental Policy Act and the Federal Land Policy and Management Act.

Policy NR-2. The County shall consider related polices [*sic*] of this element and the General Plan when reviewing and responding to interagency resource management issues.

Policy NR-3. The County supports partnerships of private resource users with public agencies to provide for continued progressive management and conservation of public and private resources within the context of productive stewardship.

Policy NR-4. Proposed changes in Federal resource management policies and related environmental evaluations need to consider and mitigate potential economic, social and cultural impacts to Lassen County citizens and communities, and impacts to related private lands in Lassen County.

- Implementation Measure NR-A - The County supports the use of memorandums of understanding with Federal and state agencies to clarify and establish interagency agreements for the review and development of policies, programs and actions which address resource management issues of mutual concern.
- Implementation Measure NR-B - The County supports the establishment of locally-based resource advisory councils, with County participation, to advise public agencies on a wide variety of land use and resource issues. Such councils should: provide adequate representation of local social and economic concerns; focus on the array of ecosystem and multiple-use issues associated with Federal and state lands; participate directly and effectively in the preparation and amendment of resource management plans; and have an effective role with respect to influencing and guiding implementation of resource management plans.

- Implementation Measure NR-C - The County supports the use of the NEPA process by Federal agencies and the CEQA process by state agencies, in consultation and cooperation with the County, to carefully evaluate and mitigate social and economic impacts to local communities which may result from significant changes in resource management policies and regulations, including those that apply to agriculture and livestock uses on public lands.

Policy NR-5. Proposed acquisitions of land for State wildlife areas will be reviewed on a case-by-case basis by a standing committee representing agriculture, sportsmen, recreation, the environment, and the general public. The County will consider the findings and recommendations of this committee and shall support acquisitions that are found to meet the following criteria:

- A management plan for the wildlife area has been developed with input from local groups and will be implemented.
- Funding will be available for maintenance of structures, fences, etc., as well as to carry out the management plan. A strong commitment to provide this funding into the future to carry out the management plan needs to be evident.
- The proposed acquisitions are focused towards conserving key habitats or resources.
- Payments in-lieu of taxes should be paid by the state or appropriate public agency to maintain the county tax base.
- There is both a willing buyer and a willing seller.

Policy NR-6. The County supports agricultural uses in state wildlife areas and private wildlife management areas (PLM's) which are compatible with and complimentary to the management objectives of the area.

Goal N-2. To protect and maximize the present and future productive, economic and environmental values of the County's soil resources.

Policy NR-12. The County encourages sound soil management and erosion prevention and control programs and projects, including the use of windbreaks, minimum tillage practices, grazing management, and riparian area rehabilitation.

Goal N-7. To maintain diverse and healthy vegetation communities in order to sustain natural and economic benefits, including watershed, soil stabilization, wildlife, fisheries, timberland, grazing and scenic values.

Policy NR-25. The County recognizes that there are vegetation communities that warrant special consideration and protection, and that these areas may be regarded as important or significant vegetation communities or areas of special biological importance. These areas include, but are not limited to, bitterbrush plant communities, wetlands and riparian areas.

- Implementation Measure NR-I - The County shall work with other resource agencies to identify and map important vegetation resource areas in order to implement resource-specific policies and actions to more efficiently manage those areas.

Policy NR-26. In order to avoid or reduce the extent of potential adverse impact to important vegetation communities which may result from projects and land use decisions within its jurisdiction, the County shall consider the potential extent of such impacts in the course of project review.

Policy NR-27. Projects subject to County approval which will result in significant disturbance of a site's vegetative cover shall be required to prepare and implement an effective plan to revegetate disturbed, undeveloped areas of the site.

- Implementation Measure NR-J - Pursuant to the California Environmental Quality Act, the County shall review the potential for impacts of proposed projects on vegetation resources and shall require appropriate mitigation measures to avoid, reduce, or compensate for the extent of significant adverse impacts. Such mitigation measures may include the clustering of housing and development to conserve natural vegetation and the implementation of revegetation plans. Plans and revegetation measures shall also include provisions to avoid the introduction of noxious weeds.

Goal N-8. Protection of rare and endangered plant species balanced with the need to sustain productive, multiple land uses when possible.

Policy NR-28. The County recognizes the need to identify and provide reasonable measures for the protection of rare and endangered plant species in the consideration of projects and land use decisions.

- Implementation Measure NR-K - Pursuant to the California Environmental Quality Act, the County shall consider the impacts of proposed projects on rare and endangered plant resources and shall require necessary mitigation measures to avoid, reduce, or compensate for the extent of significant disturbance.

Goal N-9. Control invasive weeds and plant species.

Policy NR-29. The County supports strong measures to eliminate or prevent the spread of invasive and noxious weeds and plant species including, but not limited to, medusahead, yellow starthistle, and perennial pepperweed (whitetop), and to control the adverse effects from the excessive spreading of such species as juniper and cheatgrass.

- Implementation Measure NR-L - The County will review the need for the formation of weed abatement districts or similar measures to help control the spread of invasive weeds.

Goal N-10. Manage wildfire for the protection of life, property and natural resources.

Policy NR-30. The County supports programs for vegetation management to reduce the probability and potential severity of wildfires, provided that due consideration is given to related site-specific resource issues including protection of wildlife habitat and visual impacts in highway corridors.

Goal N-11. Healthy forest environments which will continue to provide resources for multiple uses and timber production in sustainable quantities which will benefit the local economy.

Policy NR-33. The County supports the balancing of policies for the conservation of natural resources (including wildlife management policies) in forested areas with the need to maintain production of timber at abundant, sustainable levels as an economic resource.

Policy NR-35. The County supports the efforts of the timber industry and local citizens to forge cooperative plans and agreements to achieve diverse objectives for protecting and managing forest resources while providing for the long-term economic stability of timber-reliant industries.

Policy NR-36. In areas having significant forest and timber resources, the County supports the formulation of resource management goals and objectives which address the long-term health and diversity of resources in these areas as well as the sustained productivity of timber products.

Policy NR-37. The County supports management of endangered species and critical wildlife habitats in balance with other resource management needs, including the need for economic stability related to timber industries.

### Wildlife Element

Goal W-1. To protect and enhance the overall health of wildlife habitats and special resource areas to maintain healthy, abundant and diverse wildlife populations.

Policy WE-1. The County supports the management of wildlife resources in ways that enhance the health and abundance of wildlife populations and the diversity of species and their habitats and which, at the same time, balance management policies and program objectives with the range of social and economic needs for which the County is also responsible.

Policy WE-2. The County supports the cooperative identification of “areas of significant wildlife value" or similar designations for areas where it is demonstrated by sound biological science that the habitat values are of significant importance to the health and/or survival of one or more species of wildlife. The County may apply a special designation to these areas, and/or agree to support specific resource management objectives, policies and voluntary programs to protect wildlife resources within these areas.

- Implementation Measure WE-A - The County will work with local stakeholders including property owners, agricultural organizations, sportsmen groups, applicable state and Federal resource management agencies, and the general public to develop and implement a cooperative "Lassen County Wildlife Resources Management Program". This program, which will be modeled after the Coordinated Resources Management Plan (CRMP) process, will define and identify important wildlife habitats and related issues and propose specific management objectives including objectives which address the current and future condition of resources in these areas. The program will propose policies and actions by which the County, stakeholders and involved agencies can work together to manage related wildlife resources in balance with other land use and resource management objectives.
- Implementation Measure WE-B - The County encourages and supports the development and implementation of a voluntary and cooperative land and resource management program by land owners and representative organizations (e.g., the Lassen County Farm Bureau, the Cattlemen's Association, Resource Conservation Districts, etc.) which proposes goals,

objectives and actions to protect wildlife resources on private lands in Lassen County. Such a program could become a major component of the proposed Lassen County Wildlife Management Program.

- Implementation Measure WE-C - Information from the California Department of Fish and Game will be used by the County to evaluate potential impacts to fish and wildlife as a result of proposed County policies and land use decisions. The County shall consider recommendations from the Department of Fish and Game and other agencies, special commissions and interested organizations regarding the identification of important wildlife habitat areas and the need for measures by the County, including special general plan amendments and zoning, to provide adequate protection of wildlife resources. Information and related recommendations should be provided in a manner which can be used to formulate protective measures which can be implemented on a programmatic ( as opposed to a case-by-case) basis.
- Implementation Measure WE-D - The County will encourage cooperation with state and federal agencies to make wildlife habitat and resource maps used for land use and resource planning available to the public. Appropriate local agencies and organizations will be given opportunities to review these maps and comment on their accuracy and validity.
- Implementation Measure WE-E - In review of project proposals, the County will continue to utilize the California Environmental Quality Act process to evaluate the potential for significant adverse impacts upon wildlife resources and will require appropriate related project decisions and necessary mitigation measures.

Policy WE-3. To support and protect the value and viability of areas having significant wildlife habitat resources, including migration corridors, such areas should remain in relatively large parcel units. County zoning and subdivision regulations should protect these resources by not allowing isolated subdivisions intended primarily for residential use (except in limited circumstances pursuant to the County's zoning ordinance, e.g., segregation of homesites, in association with approved use permits, etc.) to be developed in areas which are not specifically designated in the General Plan or an area plan for a community development land use (e.g., rural residential) and zoned accordingly.

Policy WE-5. Prior to the imposition of substantial wildlife-related mitigation measures by the County, the County shall review evidence demonstrating that the proposed action or project could otherwise have potentially significant adverse impacts to wildlife and that the proposed measures will, in fact, help accomplish practical and necessary mitigation objectives.

- Implementation Measure WE-F - The County shall, in consultation with land owners, sports groups, and other concerned groups, agencies and organizations, consider the use of specific resource protection and management tools for wildlife habitat when warranted, including but not limited to the use of: clustered development and conservation subdivisions; conservation easements; building restrictions such. as special setbacks; natural vegetation retention requirements; mechanisms to facilitate transfers of development rights; developer credits and density bonuses; 'wildlife mitigation funds' with funds to be used for acquisition and/or improvement of wildlife habitat; land dedication to public agencies or land trusts; and habitat banking. When used as mitigation measures, such actions shall be proportional to the magnitude of impacts caused by the project in question.

- Implementation Measure WE-G - When the resource value of wildlife habitat on lands proposed for development necessitates additional protection measures, the County may utilize a "Natural Habitat Combining District" to include specific provisions for special building site area requirements, building exclusions areas, retention of habitat in designated areas, requirements for special review and approval of site development plans prior to issuance of development and building permits, and other provisions which, in the County's judgement, are necessary to allow development while providing appropriate levels of protection for the identified habitat.

Policy WE-6. Funding for wildlife habitat programs (e.g., wildlife mitigation funds), should be directed to protect and enhance wildlife resources in the county, especially when funds are generated in Lassen County.

Policy WE-9. The County supports cooperation between the California Department of Fish and Game and the Nevada Department of Wildlife in the management of interstate deer herds.

Goal W-2. Protection of rare, threatened, and endangered wildlife species with an ecosystem approach to habitat management which also supports multiple land uses.

Policy WE-10. Through local coordination, the County encourages programs and actions to remove and avoid the listing of additional wildlife species as threatened or endangered by the state or Federal government. When listings are proposed, sound biology needs to be applied to the preparation of habitat management plans and/or recovery plans, and the related social and economic impacts of such plans and related measures need to be considered and mitigated.

Goal W-4. Protect and enhance the wildlife habitat of riparian areas and wetlands.

Policy WE-16. The County supports interagency efforts to protect and restore the wildlife habitat values of lakes, riverine and riparian areas and wetlands.

- Implementation Measure WE-H - In consideration of proposed projects which may affect lakes, streams, riparian areas or wetlands, the County will review the potential for proposed impacts through the CEQA process and require appropriate mitigation measures to avoid and mitigate significant adverse impacts.

Goal W-5. Protect and enhance important upland habitat areas which include bitterbrush, mountain mahogany and aspen.

Policy WE-17. The County supports cooperative efforts to protect and enhance the wildlife habitat values of upland vegetation communities of bitterbrush, mountain mahogany and aspen.

- Implementation Measure WE-I - In consideration of proposed development projects which may affect vegetation communities of bitterbrush, mountain mahogany and aspen which provide important upland habitat, the County will review the proposals for potential impacts through the CEQA process and require appropriate mitigation measures to avoid and mitigate significant adverse impacts.

Goal W-6. Maintain, restore and enhance fishery resources and habitat within the county.

Policy WE-18. The County supports the protection and improvement of the County's fishery resources, including fish stocking of local waters, in concert with related land use and resource management objectives.

## Lassen County Code

The Lassen County Ordinance Code addresses biological resources under Chapter 18, Zoning (Lassen County 2023). The Ordinance Code establishes the following zoning districts related to natural and biological resources that may apply to the proposed project:

### Section 18.52 F-R Forest Recreation District

18.52.010 Intent-The F-R district is intended to be an area of low density, transitory use. It is designed to provide forest recreation and outdoor experiences for county residents and tourists at the same time providing protection of natural resources under private ownership, e.g., wildlife habitat, watershed maintenance, viewshed, minimize fire hazards, and scenic resources. These are areas where public services are not available and are not to be provided on a year-round basis. (Ord. 467 § 25, 1984).

### Section 18.69 U-C-2 Upland Conservation/Resource Management District

#### 18.69.010 Intent

- Management of the county's valuable natural resources, including agricultural land, timberland, grazing land, wildlife habitat, minerals and scenic resources, is essential to ensure that such resources will be available to accommodate appropriate growth and development of the community and its economy. With effective management, the county and its residents can retain the ability to benefit in the future from those important resources.
- This district classification is intended to be applied as implementation of the county's general plan in the mountain, upland foothill, and valley areas of the county in which forestry, mining, grazing and recreation (e.g., hunting, hiking, camping, fishing, off-road vehicle use and nature study) are natural and desirable uses; and in floodplains and important water basin in which protection of water shed lands from wildfire, erosion, pollution and other detrimental effects is essential to the general welfare of residents of the county. It is further intended that this district will be applied to land areas which are classified by the general plan as natural resource land uses and identified as intensive agriculture, extensive agriculture, open space, scenic corridor, conservation/conservation corridor, and trail corridor, or other natural resource land use designations adopted in addition to, or to replace the foregoing. (Ord. 467-AC § 23, 2003; Ord. 467-D, 1987)

### Section 18.94 NH Natural Habitat Combining District

18.94.010 Intent- The intent of the NH natural habitat combining district is to protect areas which are recognized and established in the county general plan and applicable area plans as important to the wildlife populations of the county. These resources are important to the scenic, recreation, cultural, social, and economic values of the county. Accordingly, the county, in desiring to provide an appropriate place for these wildlife populations and to minimize the effects of development on them, while at the same time maximizing the enjoyment and use of private property, establishes the regulations provided in this chapter. (Ord. 467 § 63, 1984).

## Tuolumne County

### Tuolumne County General Plan

The Tuolumne County General Plan addresses biological resources under Chapter 16, Natural Resources Element (Tuolumne County 2018). The General Plan establishes the following goals and policies related to biological resources in the county limits that may apply to the proposed project:

#### Natural Resources Element

Goal 16B. Support the diversity and quality of biological resources while balancing the needs of public use and private property rights.

Policy 16.B.1. Recognize and map the variety of open space types and areas that are located within the county, including natural resources, recreation areas, geologic hazards, floodplains, groundwater recharge areas, managed resource areas and other open areas that support biological resources.

Policy 16.B.2. Recognize that agricultural and timberlands may be compatible with conservation of biological resources.

- Implementation Program-16.B.a- Recognize that the open area provided by land designated as Agricultural or Timber Production on the General Plan land use diagrams that supports an agricultural, timber management or residential land use or is unimproved may be used to provide on-site or off-site mitigation for development projects, such as conservation easements, mitigation banks for plant and wildlife species impacts, and other in perpetuity mitigation options.

Policy 16.B.4. Recognize that wildlife, fish and their habitats provide opportunities for recreational uses and educational pursuits and are a source of revenue to the County.

- Implementation Program-16.B.b - Encourage the preservation of open areas for recreational activities, including provision of an appropriate balance of facilities suitable for intensive use (e.g. playgrounds, sports fields) and low intensity use (e.g., hiking, camping) that meet the needs of residents and visitors. Preservation of open areas that provide cultural, historical and educational opportunities for residents and visitors should also be encouraged.
- Implementation Program-16.B.c - Allow trails, other recreational uses and educational pursuits in areas conserved for biological resources if the effects of such uses are determined to be compatible with conservation of the resources.
- Implementation Program-16.B.d - Design parks and trails incorporating scenic resources and biological and water resource areas consistent with the goals and policies of this Element of the General Plan.
- Implementation Program-16.B.e- Review all revisions of the Recreation Master Plan prior to adoption for consistency with this Element of the General Plan. In addition, design plans for all trails, especially those adjacent to creeks, shall require the input and review of the Tuolumne County Community Resources Agency and the California Department of Fish and Wildlife for consistency with this Element.

Policy 16.B.5. Evaluate and mitigate impacts to biological resources in accordance with the requirements of State and Federal law.

- Implementation Program-16.B.g- Maintain the Tuolumne County Wildlife Maps to assist in evaluating the effects of land development projects.
- Implementation Program-16.B.h - Provide the following information to assist in the evaluation of biological resources:
  - Tuolumne County Wildlife Maps
  - Deer Herd Maps and Management Plans
  - California Wildlife Habitat Relationships habitat typing and mapping
  - U.S. Department of Agriculture Forest Service Calveg mapping data
- Implementation Program-16.B.i - Require development that is subject to a discretionary entitlement from the County and to environmental review under the California Environmental Quality Act (CEQA) to evaluate potential impacts to biological resources and mitigate significant impacts for the following or as otherwise required by State or Federal law:
  - species listed or proposed for listing as threatened, rare, or endangered under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA);
  - species considered as candidates for listing under the ESA or CESA;
  - wildlife species designated by CDFW as Species of Special Concern;
  - animals fully protected under the California Fish and Game Code; and
  - plants considered by CDFW to be "rare, threatened, or endangered in California" (California Rare Plant Ranks [CRPR] of 1A, presumed extinct in California and not known to occur elsewhere; 1B, considered rare or endangered in California and elsewhere; 2A, presumed extinct in California, but more common elsewhere and 2B, considered rare or endangered in California but more common elsewhere).
  - Sensitive natural communities, including wetlands under Federal or State jurisdiction, other aquatic resources, riparian habitats, and valley oak (Quercus lobata) woodland.
  - Important wildlife movement corridors and breeding sites.
  - Oak woodlands, as provided in Implementation Program 16.B.j.
- Implementation Program-16.B.j- Establish thresholds of significance under the California Environmental Quality Act (CEQA) for the conversion of oak woodlands in Tuolumne County. The following provides the County's recommended standard guidelines for determining whether a project may result in a significant impact to oak woodlands, for purposes of review under the California Environmental Quality Act and Public Resources Code Section 21083.4
  - An oak woodland is defined in the General Plan as a woodland stand with 10% or greater native oak canopy cover. Tree removal from parcels with less than 10% native oak canopy cover is not considered a significant conversion or loss of oak woodland.
  - For parcels with 10% or greater native oak canopy cover (i.e., parcels with oak woodland, as defined in the General Plan), a significant impact to oak woodland includes tree removal that reduces the total oak canopy cover on site to below 10% (i.e., conversion to non-oak woodland), or a loss of 10% or greater of oak canopy woodland stand on the parcel, if the

conversion or loss is determined by a trained professional to be substantial in consideration of, but not limited to, the following:

- Total acres and amount of woodland stand removed or disturbed, and amount retained on site.
- Pattern of development or habitat loss on site (e.g., clustered vs. dispersed).
- Existing habitat functions and quality (e.g., intact/high-quality, moderately degraded, or severely degraded).
- Stand age- or size-class structure.
- Rarity.
- Landscape position in relation to larger wildlife corridors, stream systems, or other important natural features.
- Loss of valley oak (Quercus lobata) woodland, which is a sensitive habitat.
- Proximity to other oak woodland patches and connectivity to large blocks of intact habitat.
- Contribution to a cumulative loss, degradation, or fragmentation of oak woodland across the County

- Removal of valley oaks (Quercus lobata), regardless of woodland stand size or canopy cover, shall require evaluation and determination as set forth above, including consideration of any unique habitat value provided by valley oaks.

- Implementation Program-16.B.j.1- When considering discretionary development proposals, the County, through CEQA reviews, will require that project applicants map oak woodland resources on the project site and, where feasible, establish buffers around existing oak woodland stands to prevent adverse effects. For mapping purposes, project applicants may use the County's existing oak woodland map (developed for the Recirculated Draft EIR) as an initial base map for project-specific ground-truthing/field verification. The County will require implementation of BMPs while working near retained oak woodlands to avoid inadvertent damage to oak trees. BMPs will include establishment of no-disturbance buffers around the outer canopy edge to prevent root and crown damage, soil compaction, and standard management practices to reduce introduction and spread of invasive species and other indirect effects. For those impacts on oak woodland that cannot be avoided, the County will require the project applicant to minimize adverse effects. If substantial conversion of oak woodland will occur based Section D – The Tuolumne County Natural Environment Chapter 16 –Natural Resources Element 16-7 on Implementation Program 16.B.j, the County will require one or more of the following mitigation measures be implemented to mitigate the impact from loss of oak woodland habitat pursuant to Public Resources Code Section 21083.4, (which specifies certain projects, including commercial agricultural production, are exempt from the requirements of Section 21083.4):

  - Conserve oak woodlands through the purchase of conservation easements.
  - Plant acorns and container stock from a local seed source to replace oak woodland removed. The following parameters will be applied:
  - Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.
  - Maintain trees for seven years after the trees are planted.

  - Planting may not account for more than 50 percent of the required mitigation and must occur on lands that are subject to conservation easements, zoned open space, or similarly restricted from development.
  - Mitigation through planting may be used to restore former or degraded oak woodlands.
  - Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodland conservation easements, the Tuolumne County Oak Woodland Conservation Fund, or other appropriate established oak woodland conservation fund.

- Implementation Program-16.B.j.2- The County will require project applicants to develop a mitigation and monitoring plan to compensate for the loss of oak woodland habitat. The mitigation and monitoring plan will describe in detail how loss of oak woodlands shall be avoided or offset, including details on restoration and creation of habitat, compensation for the temporal loss of habitat, success criteria ensuring habitat function goals and objectives are met, performance standards to ensure success, remedial actions if performance standards are not met, and requirements for reporting implementation actions and progress to the County. The plan will include detailed information on the habitats present within the preservation and mitigation areas, the long-term management and monitoring of these habitats, legal protection for the preservation and mitigation areas (e.g., conservation easement, declaration of restrictions), and funding mechanism information (e.g., endowment). If planting is used as part of compensatory mitigation, an oak planting plan will be developed by a qualified professional such as a professional biologist, arborist, or registered professional forester
- Implementation Program-16.B.j.3- Oak woodlands habitat placed under conservation easements will be at appropriate ratios to offset the loss of habitat functions and values of the oak woodland to be lost. Oak woodland habitat preserved this way should have similar tree sizes and densities, species composition, site condition, and landscape context to the oak woodland to be removed to serve the same function and have similar habitat value. At a minimum, 1 acre of oak woodland habitat providing similar functions and values will be placed under conservation easement for every acre of oak woodlands habitat lost

Policy 16.B.6. Allow property owners to utilize the Tuolumne County Wildlife Handbook, which may be updated periodically, to assist in designing mitigation for impacts to biological resources resulting from new development.

- Implementation Program-16.B.k.- Periodically update the Tuolumne County Wildlife Handbook in accordance with changes in State and Federal laws and environmental review standards, recognizing that state and federal laws may require mitigation beyond what is adopted in the Wildlife Handbook.

Policy 16.B.8. Balance the conservation of biological resources with the need to reduce wildland fire hazards.

- Implementation Program-16.B.p.- Encourage vegetation removal for fire protection purposes or as otherwise required by the Tuolumne County Fire Department in the Open Space zoning district or other areas conserved through zoning, provided such vegetation removal is addressed in a management plan and approved following review under the California Environmental Quality Act.

Policy 16.B.9. Encourage the eradication of invasive plant species to protect native habitats, conserve agricultural land, support ecological diversity and reduce the wildland fire hazard.

- Implementation Program-16.B.q.- Discourage the sale of invasive plant species and noxious weeds identified by the State.
- Implementation Program-16.B.r. - Support efforts to control, and where possible, eradicate, invasive plant species in the County.
- Implementation Program-16.B.s. - Seek grant and other funding sources for programs to eradicate invasive plant species from the County.
- Implementation Program-16.B.t. - Refer applications for discretionary land development entitlements to the Agricultural Commissioner to identify potential impacts from invasive plant species and recommend appropriate mitigation measures.
- Implementation Program-16.B.u. - Encourage eradication of invasive plant species in biological resource conservation areas provided such eradication is addressed in a management plan prepared by a biologist on the County's list of approved environmental consultants and approved by the County following review under the California Environmental Quality Act.
- Implementation Program-16.B.v. - Develop a programmatic approach to vegetation removal for the eradication of invasive plant species.
- Implementation Program-16.B.w. - Develop an incentive program to encourage the eradication of invasive plant species and the removal of vegetation for fire protection.

Policy 16.B.10. Encourage planting of native species or other drought tolerant species.

- Implementation Program-16.B.x. - Encourage the use of native species and other drought tolerant species listed on the Tuolumne County Landscape Guidelines to promote water efficiency and reduce impacts associated with the introduction of exotic species.

Policy 16.C.5. Encourage the conservation of oak woodlands and the preservation of heritage trees.

- Implementation Program-16.C.g. - Plant native trees throughout Tuolumne County.
- Implementation Program-16.C.h. - Make the Tuolumne County Oak Woodland Voluntary Management Guidelines available to property owners upon request to assist them with voluntary conservation of oak woodlands.
- Implementation Program-16.C.i. - Cooperate with agencies and entities in their efforts to encourage voluntary stewardship of tree resources including:
  - Providing brochures, produced by these and other interested agencies, illustrating protection methods for construction near native trees.
  - Distributing handouts promoting the retention of tree quality and quantity throughout the County by providing guidelines for replacing native trees removed during construction, including size and quantity.
  - Promoting elementary and secondary school programs providing education on the benefits of native trees and including acorn and tree planting programs.

### Tuolumne County Code

The Tuolumne County Ordinance Code addresses biological resources under Section 8.14 – Hazardous Vegetation Management, Section 9.12 – Premature Removal of Native Oak Trees, and Section 17 – Zoning (Tuolumne County 2023). The Ordinance Code contains the following provisions related to biological resources that may apply to the proposed project:

#### Section 8.14.060. Duty to Remove and Abate Hazardous Vegetation

D. Fuel reduction shall not require the removal of healthy, mature, scenic trees; crops, productive vineyards or orchards; or marketable timber; however, it may impose mowing or livestock presence on grasslands, or fire-safe management of crops and forests.

E. Fuel reduction shall not be required within the bed, bank, or channel of any ephemeral or perennial streams which are mapped on USGS 7.5 minute quadrangle maps; in areas with environmental resources of hazardous or critical concern, including riparian areas and wetlands; or in areas which may cause a substantial adverse change in the significance of a cultural or historical resource.

#### Section 9.24.030 Premature removal.

The removal of native oak trees meeting one or more of the criteria listed below from a project site within the five (5) years preceding the submittal of an application for a discretionary entitlement from the County of Tuolumne for a land development project on that site is deemed premature removal of oak trees:

- Removal of native oak trees resulting in a 10% or more (>10%) average decrease in native oak canopy cover within an oak woodland;
- Removal of any old growth oak trees;
- Removal of any Valley Oak measuring 5” or greater in diameter at breast height (dbh). (Ord. 2903 §1 (part), 2008)

#### Section 17.14.010 Open Space District, Or (O) District

Purpose- The intent of the (O) district is to protect the public in areas not suitable for development because of flooding or other natural hazards and to provide areas of open space for the protection of wildlife habitat and scenic quality where vegetation removal may be appropriate in certain instances or for the preservation of cultural resources. (Ord. 2582 § 10, 2004; Ord. 1786 § 2 (part), 1990).

#### Section 17.15.010 Open Space – 1 District, Or (O-1) District

Purpose- The intent of the (O-1) district is to preserve and protect areas of valuable wildlife habitat consistent with the wildlife policies of the general plan or areas with significant cultural resources. (Ord. 2582 § 11, 2004)

## San Joaquin County

### San Joaquin County Multi-Species Conservation and Open Space Plan

The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP), as documented by the San Joaquin Council of Governments in 2000, outlines a strategy to strike a balance between preserving open

spaces and utilizing them for non-open space purposes. It also aims to ensure the long-term management of plant, fish, and wildlife species, particularly those currently listed or potentially listed in the future under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA). This plan spans 50 years, remaining in effect until 2049.

Participation in the SJMSCP is voluntary for local jurisdictions and independent project proponents. It allows participants to engage in permitted activities that might result in "Incidental Take" of listed species covered by the SJMSCP. Being part of the SJMSCP may streamline the approval process for development projects, as participants can avoid the need to acquire permits or authorizations directly from regulatory agencies.

## City of Stockton

### City of Stockton General Plan

Adopted in December 2018, the City's 2040 General Plan provides a comprehensive plan for the growth and development of the City. The plan comprises four separate Elements: Land Use, Transportation, Safety, and Community Health. There are no goals or policies for biological resources in this plan.

### City of Stockton Municipal Code

The Stockton Municipal Code contains all ordinances for the City, identifies land use categories, provides site development regulations, and other general provisions to ensure consistency between the General Plan and proposed development projects. One code governing biological resources may apply to the proposed project:

> The intent of Sections 5-037 through 5-042 of the Stockton Municipal Code is to protect and preserve heritage trees on public or private land within the city limits. Heritage trees are defined as any valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), and interior live oak (*Quercus wislizenii*) tree with a trunk diameter of sixteen inches or more, measured at twenty-four inches above actual grade. Approval from the Community Development Department is required to remove a heritage oak tree.

## Port of Stockton

### Ballast Water Management Program

The Port of Stockton enforces a ballast water management program. As part of this program, information is disseminated to all vessels that visit the Port of Stockton in the form of a Ballast Water Advisory. The Ballast Water Advisory highlights California's legal requirements for ballast water exchange and is continuously updated to incorporate the improvements introduced by California's Marine Invasive Species Act (discussed above). Additionally, the Port maintains a record of data related to the quantity and composition of ballast water (saltwater, freshwater, or estuarine) discharged at the Port, its source, the date of discharge into the Port's waters, and its specific gravity.

## 3.3.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to biological resources are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to biological resources would occur if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Substantially reduce the number or restrict the range of a rare or endangered plant or animal.
- Substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The significance of impacts to biological resources was assessed by assessing the potential changes resulting from the proposed project to these significance thresholds. An evaluation of whether or not an effect on biological resources would be “substantial” with respect to the significance thresholds generally considers the following:

- amount and/or extent of the resource (numbers, acres, etc.) to be affected versus preserved;
- the relative biological value (rarity, functions and values) and/or sensitivity status of the resource and its relevance within a specified geographical area;
- the type and severity of impact, (i.e., would the project adversely affect wildlife through mortality, injury, displacement, or habitat loss or adversely impact vegetation through destruction of a sensitive plant population?);
- timing of the impact, (i.e., would the impact occur at a critical time in the life cycle of a special-status plant or animal, such as breeding, nesting, or flowering periods?);
- duration of the impact, (i.e., whether the impact is temporary or permanent).

The analysis of direct and indirect impacts covers construction, operation, and maintenance of the proposed project, including wood processing facility construction and operation, port facility construction and operation, and feedstock acquisition. Facility construction and operation is analyzed at the project level, and feedstock acquisition in the Working Area is analyzed at the program level (see below and refer to Chapter 1, Introduction, for more details). Direct impacts include those that occur immediately as a result of the proposed project on a particular

biological resource. Indirect impacts include those that are caused by the proposed project later in time, but that are still reasonably certain to occur.

## 3.3.4 Impacts Analysis

This section identifies impacts to biological resources from the proposed project's three primary phases (feedstock acquisition, wood pellet production, and transport to market) based on the above significance thresholds. It includes a description of the methods used to identify impacts followed by impact discussions for each potentially affected resource or resource group.

### 3.3.4.1 Methodology

#### Impact Types and Mechanisms

To aid in the determination of biological resource impacts, biologists identified activities and impact mechanisms (the physical activities associated with each project phase that could result in adverse effects on biological resources) under each of the proposed project's phases (feedstock acquisition, wood pellet production, transport to market) that could result in direct and indirect impacts and assessed their potential to trigger one or more impact significance criteria. Project phase activities evaluated are described in Section 2.4 and include the following:

1. Feedstock acquisition (GSNR Biomass Only Thinning Projects)
    a. Mechanical treatment: Cutting, uprooting, crushing/compacting, or chopping of existing vegetation during GSNR Biomass Only Thinning Projects undertaken by GSNR, or on GSNR's behalf.
    b. Manual treatment: The use of hand tools (e.g., loppers) and hand-operated power tools (e.g., chainsaws) to prune, thin, or remove vegetation during GSNR Biomass Only Thinning Projects undertaken by GSNR, or on GSNR's behalf.
    c. Stream crossings: Installation and use of stream crossings only where necessary to facilitate access to remote GSNR Biomass Only Thinning Project sites. Crossing type would vary depending on the resource traversed or spanned. These crossing would be temporary and removed following treatment.
    d. New low standard road construction: Installation and use of up to 1 mile of new low standard (unpaved) road as necessary to facilitate access to remote GSNR Biomass Only Thinning Project sites. New roadways would be no more than 14 feet wide. These roads would be abandoned following treatment.
2. Feedstock acquisition (Residuals from Third-Party Projects)
    a. Harvest residuals: Removal of residual biomass material resulting from timber harvest and forest management operations undertaken by third-parties unaffiliated with GSNR, including slash piles.
    b. Mill residuals: Collection of by-products of commercial lumbermills operated by third-parties unaffiliated with GSNR, including mill residual chips, sawdust, planer shavings, and bark.
3. Wood pellet production (Lassen and Tuolumne Facilities)
    a. Construction of wood pellet processing facilities and associated infrastructure.
    b. Operation of wood pellet processing facilities and associated infrastructure.
4. Transport to market (Port of Stockton)
    a. Rail delivery of finished pellets to Port of Stockton (West Complex).
    b. Construction of new wood pellet storage and loadout facility.

c. Operation of wood pellet storage and loadout facility.
d. Cargo ship delivery of finished pellets to overseas markets.

The following categories of impact mechanisms associated with one or more of the project phases listed above include the following:

- Ground disturbance: Grading, clearing, and excavation needed to construct new facilities and infrastructure.
- Vegetation removal: Removal or trimming of trees and other vegetation.
- Structure modification/demolition: Modification or removal of existing structures.
- Hazardous material and pollutant release: Inadvertent release of hazardous materials (e.g., oils and fluids from construction equipment) into sensitive habitat or aquatic resources.
- Noise: Noise generated by heavy equipment and workers.
- Vibration: Vibration generated by heavy equipment.
- Visual disturbance: Visual perception of construction activities and human presence by wildlife.
- Vehicle strike: Movement of construction vehicles (e.g., trucks on temporary access roads).

Project phase activities and categories of impact mechanisms applicable to each phase are summarized in Table 3.3-13 and described further below.

## Table 3.3-13. Project Phase Activities and Applicable Potential Impact Mechanisms

| Phase | Activity | Potential Impact Mechanisms | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Ground-Disturbance | Vegetation Removal | Structure Mod/Demo | Hazardous Materials | Noise | Vibration | Visual Disturbance | Vehicle Strike |
| **Feedstock Acquisition (Sustainable Forest Management Projects)** | | | | | | | | | |
| GSNR Biomass Only Thinning Projects | Mechanical treatment | X | X | | X | X | X | X | X |
| | Manual treatment | X | X | | X | X | X | X | X |
| | Temporary stream crossing | X | X | | X | X | X | X | X |
| | Access road construction | X | X | | X | X | X | X | X |
| Residuals from Third-Party Projects | Harvest residuals | X | X | | X | X | X | X | X |
| | Mill residuals | | | | | | | | |
| **Wood Pellet Production** | | | | | | | | | |
| Lassen Facility | Facility construction | X | X | X | X | X | X | X | X |
| | Facility operation | | | | | X | | X | X |
| Tuolumne Facility | Facility construction | X | X | X | X | X | X | X | X |
| | Facility operation | | | | | X | | X | X |
| **Transport to Market** | | | | | | | | | |
| Port of Stockton | Facility construction | X | X | X | X | X | X | X | X |
| | Facility operation | | | | | X | | X | X |
| | Cargo ship delivery | | | | | X | | X | X |

**Notes:** Mill residuals were determined to have no potentially significant impact on biological resources, for the reasons set forth later in this section. New access road construction and associated stream crossings would only occur where needed to facilitate access to remote treatment sites.

### Project Level (Wood Pellet Production and Transport to Market)

Impacts associated with wood pellet production and transport to market are being evaluated at the project level. Project impacts may be direct (i.e., caused by the project and occurring at the same time and place) or indirect (i.e., reasonably foreseeable and caused by the project but at a different time, place, or both). Direct impacts to vegetation communities/land covers and jurisdictional aquatic resources associated with construction of new wood pellet processing (Lassen or Tuolumne) or storage (Port of Stockton) facilities were estimated by intersecting biological resource feature layers (vegetation/land cover, aquatic resources) with the anticipated limits of ground disturbance in a geographic information system (GIS). Prior to analysis, GIS analysts georeferenced portable document format (PDF) files and converted AutoCAD files provided by project engineers to ArcGIS geodatabases to facilitate intersects between design drawing and biological resource feature layers. Refer to Figure 2-5, Project Site Plan (Lassen), Figure 2-9, Project Site Plan (Tuolumne), and Figure 2-10, Project Location (Port Rough Terminal, Port of Stockton), for preliminary site plans at the Lassen Facility site, Tuolumne Facility site, and Port of Stockton site, respectively.

### Program Level (Feedstock Acquisition Only)

Direct impacts to biological resources that could occur under the feedstock acquisition phase are described more generally at a program level, which is appropriate when activities can be characterized as part of one large project and are related either: (1) geographically; (2) a logical part in the chain of contemplated actions; (3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways. The overall program is used to analyze potential direct and indirect impacts, including the geographic area and the types of activities that may be undertaken due to the infeasibility of providing site-specific details at this stage of the project when individual feedstock acquisition sites have not yet been identified. Indirect impacts were assessed based on biologists' best understanding of proposed feedstock acquisition activities and the species likely to experience indirect impacts for each activity area. As such, this document functions as a Program EIR in accordance with State CEQA Guidelines Section 15168 for streamlining of CEQA review of later activities described in Section 2.4 of this EIR.

The proposed project includes project design features (PDFs) that would be implemented as applicable throughout the feedstock acquisition phase. The impact assessment and determinations for feedstock acquisition discussed in Section 3.3.4.2, Project Impacts, account for the influence of the below-listed PDFs, which are presented in Section 2.4.

- PDF-BIO-1 (Biological Resource Review and Reconnaissance-Level Surveys)
- PDF-BIO-2 (Worker Environmental Awareness Training)
- PDF-BIO-3 (Prevent Spread of Plant Pathogens)
- PDF-BIO-4 (Prevent Spread of Invasive Plants and Wildlife)
- PDF-BIO-5 (Special-Status Plant Focused/Protocol Surveys)
- PDF-BIO-6 (Avoid Mortality, Injury, or Disturbance of Special-Status Plants)
- PDF-BIO-7 (Special-Status Wildlife Focused/Protocol Surveys)
- PDF-BIO-8 (Nesting Bird Surveys and Avoidance)
- PDF-BIO-9 (Avoid Mortality, Injury, or Disturbance of Special-Status Wildlife)
- PDF-BIO-10 (Maintain Habitat Function for Special-Status Wildlife)

- PDF-BIO-11 (Avoid Special-Status Bumble Bees and Loss of Habitat Function)
- PDF-BIO-12 (Avoid Loss of Sensitive Natural Communities or Other Sensitive Habitats)
- PDF-BIO-13 (Avoid Loss of State and Federally Protected Wetlands)

### Issues Not Evaluated Further in this Chapter

#### Transport of Feedstock Material to Pellet Facilities (Feedstock Acquisition)

Transporting feedstock material from the Working Area to the pellet facility sites would use existing haul routes, as shown on Figure 3.14-1, Feed Stock and Haul Routes - Lassen Facility, and discussed further in Section 3.14, Transportation. Local and state highways would constitute most expected haul routes throughout the Working Area and any wildlife (including special-status species) occurring in adjacent lands will have adapted to the noise associated with existing traffic along these highways. As noted in Section 3.14, use of a National Forest System Road for commercial hauling is prohibited without a Road Use Permit or written authorization. GSNR will operate under PDFs that require compliance with all applicable laws (see Section 2.4), and therefore adherence to U.S. Forest Service and state laws (e.g., Road Use Permits) would be required. No new road construction would be necessary for haul routes, and use of a given haul route would vary depending on the feedstock source and location. As such, these activities are not expected to result in direct or indirect impacts to biological resources and are not discussed further.

#### Mill Residual Removal (Feedstock Acquisition)

Collecting mill residuals in the Working Area would involve loading activities within an active mill subject to ongoing disturbance and maintenance. Any wildlife occurring on or adjacent to active mills will have adapted to existing disturbance levels (e.g., noise, vehicle traffic, human activity). As such, these activities are not expected to result in direct or indirect impacts to biological resources and are not discussed further.

#### Central Valley (GSNR Biomass Only Thinning Projects and Harvest Residual Removal)

Several special-status species known to inhabit the Central Valley were identified as having potential to occur within the Working Area, including valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), California tiger salamander, giant garter snake (*Thamnophis gigas*), and San Joaquin kit fox (*Vulpes macrotis mutica*). As previously discussed, feedstock acquisition in the Working Area would be restricted to National Forest land and other timber lands, which are depicted on Figure 2-2 as “Forest Management Area.” Within the Working Area, small and discontinuous patches of land in the Central Valley were mapped as part of the Forest Management Area. However, no feedstock acquisition activities, apart from hauling feedstock to the pellet facilities, would occur within the Central Valley. As such, there would be no impact as a result of GSNR biomass only thinning projects or harvest residual removal on these species and they are not considered further.

## 3.3.4.2 Project Impacts

Impact BIO-1a — The project may have a substantial adverse effect, either directly or through habitat modifications, on special-status plant species or substantially reduce the number or restrict the range of a rare or endangered plant.

## Sustainable Forest Management Projects (Feedstock Acquisition)

A total of 643 special-status plant species have potential to occur in the Working Area. Those species associated with forest, woodland, and shrubland communities are most vulnerable to impacts from feedstock acquisition in the Working Area because of their predominance on National Forest land and other timberlands. As discussed in Section 2.4, feedstock for manufacturing of wood pellets would come from three sources in the Working Area: (1) GSNR biomass only thinning projects, (2) harvest residuals, and (3) mill residuals from third-party commercial lumbermills. However, and as discussed in Section 3.3.4.1, Methodology, there is only a potential for impacts to biological resources, including special-status plants, from two sources: GSNR biomass only thinning projects and harvest residuals, both of which are discussed below.

### GSNR Biomass Only Thinning Projects

As discussed in Section 2.4, GSNR biomass only thinning projects (expected to range from 10 to 2,000 acres each) are wildfire fuel reduction operations designed to reduce the risk and severity of wildfire occurrence. The goal of fuel treatment is not to remove all vegetation, but to minimize the potential for ignitions, crown fires, and extreme fire behavior by reducing fuel loads and altering the structure, composition, and spacing (horizontal and vertical) of retained vegetation. GSNR biomass only thinning projects include hazardous fuel reduction projects, construction of shaded fuel breaks, site preparation, and fire, insect, and disease salvage harvests. These projects, depending on location, may also include up to 1 mile of new low standard (unpaved) road (per year, per project) and temporary stream crossings to access remote treatment sites.

Sustainable Forest Management projects (treatment activities) of this type in the Working Area would involve vegetation and debris removal that could directly impact special-status plants potentially occurring in work areas. Mechanical and manual treatment activities during GSNR biomass only thinning projects could result in the death, altered growth, or reduced seed set of special-status plants through physical breakage, trampling, or uprooting. Installation of new roads and temporary stream crossings (to facilitate access if necessary and practicable) at locations within or near special-status plant populations could also result in mortality of such species from ground-disturbing activities.

The above activities could also indirectly affect special-status plants. An indirect impact would occur if activities altered habitat or site conditions in a manner that later resulted in the death or lack of regeneration of special-status plants. Indirect impacts to special-status plants could result from: accidental spills of fuel or other hazardous materials, ground disturbance resulting in the introduction of invasive plant species, and dust generation. GSNR biomass only thinning projects would not involve the use of substantive quantities of hazardous materials or waste products and would be largely limited to fuels and oils that are associated with trucks, loading vehicles, and other motorized equipment. Use of this equipment and vehicles and any associated maintenance would be done in accordance with applicable federal, state, and local health and safety laws and regulations. However, unintentional release of fuels and oils into the root zone of special-status plant populations could result in mortality of the affected population. GSNR biomass only thinning projects could generate dust that could settle on the leaves of nearby special-status plants, adversely affecting photosynthesis, respiration, and transpiration. Additional ground disturbance resulting from these activities could create new barren substrates into which invasive plant species could expand and displace special-status plants. Together, these impacts could disrupt individual plants or small populations of plants in ways that reduce the growth, survival, and reproduction. In contrast, GSNR biomass only thinning projects could also cause indirect beneficial effects by restoring the normal fire return interval, removing invasive plant infestations and unnatural buildup of excess vegetation and vegetation debris, and thinning live trees and shrubs and removing dead or dying trees and shrubs. This would open the canopy where tree or shrub densities

are uncharacteristic of healthy or desired examples of the vegetation type and result in both immediate and long-term benefits to special-status plants.

### Third-Party Harvest Residuals

As discussed in Section 2.4, GSNR would procure residual biomass material resulting from third-party sustainable forest management projects (i.e., harvest residuals) in the Working Area. Access to harvest residuals, including slash piles, and other downed vegetative debris (roundwood or chips), would primarily occur using existing logging/haul roads. This activity would be limited to discrete locations previously disturbed by treatment activities. Therefore, third-party harvest residuals would typically result in less ground disturbance than described above for GSNR biomass only thinning projects. Direct impacts to special-status plants from third-party harvest residuals could include death, altered growth, or reduced seed set of special-status plants through physical breakage, trampling, or uprooting. Indirect impacts could include accidental spills of fuel or other hazardous materials, ground disturbance resulting in the introduction of invasive plant species, and dust generation. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on special-status plants. However, several project design features (PDFs) would avoid or minimize such impacts. As discussed in Section 3.9, Hydrology and Water Quality, hazardous materials used during feedstock activities would be transported, used, and disposed of in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. The proposed biomass only thinning projects would also implement a Stormwater Pollution Prevention Plan (SWPPP) (PDF-GEO-2) or equivalent document that would include steps to prevent, contain, and clean up hazardous material spills that could result from feedstock activities. PDF-GEO-1, PDF-GEO-2, PDF-GEO-5, and PDF-GEO-6 as applicable require implementation of measures to minimize soil erosion, which would reduce potential indirect impacts on special-status plants from soil destabilization and dusting. In addition, PDF-BIO-05 requires a protocol-level rare plant survey prior to biomass only thinning project activities and PDF-BIO-6 requires avoidance of special-status plant species if and where present in the work area. PDF-BIO-04 requires implementation of actions to prevent the spread of invasive plants and noxious weeds that could compete with special-status plants for water, light, and nutrients, which would reduce potential indirect impacts from competition with invasive species.

While PDFs would minimize impacts, the above feedstock activities in the Working Area could still result in direct or indirect impacts on special-status plants if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas not avoided by treatment activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-1** (Compensate for Unavoidable Loss of Special-Status Plants), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no long-term operation-related impacts would occur.

## Wood Pellet Production

### Lassen Facility

Special-status plant species evaluated for the Lassen Facility site have low potential or are not expected to occur due to the lack of suitable habitat or very low-quality wetland habitat within or adjacent to the site, the lack of documented occurrences near the site, and/or the site being outside of the species' known geographic or elevation range (see Appendix C2). As such, impacts to special-status plant species as a result of construction and operations at the Lassen facility site are not anticipated, and there would be **no impact**.

### Tuolumne Facility

A total of seven special-status plant species have potential to occur on the Tuolumne facility site: Beaked clarkia, Tuolumne button-celery, spiny-sepaled button-celery, Stanislaus monkeyflower, forked hare-leaf, veiny monardella, and Patterson's navarretia. Three populations of Stanislaus monkeyflower (CRPR 1B.1 species) were mapped in spikerush marsh and cattail marsh the northern portion of the site. No other special-status plant species were identified during the focused plant survey conducted in May 2021. Because of the presence of suitable habitat and because the species described above are known to occur in the project region, there is potential for other individuals or populations of some of these species to become established in the project site area during future growing seasons. Many special-status plant species are annuals and thus may lie dormant in seedbanks or shift geographic locations based on annual weather conditions.

The proposed project would involve construction of a wood pellet processing facility and associated infrastructure that could directly impact special-status plants potentially occurring in the work area. Ground disturbance and vegetation removal to facilitate construction could result in the mortality, altered growth, or reduced seed set of special-status plants through physical breakage, trampling, or uprooting.

Construction of the wood pellet processing facility and associated infrastructure, as well as ongoing activities associated with operation of the facility, could also indirectly affect special-status plants. Ground-disturbing activities would generate dust that could settle on the leaves of nearby special-status plants, adversely affecting photosynthesis, respiration, and transpiration. Additional ground disturbance resulting from these activities would create new barren substrates into which invasive plant species could expand and displace special-status plants. Together, these impacts could disrupt ecosystem, community, or population structure or processes in ways that reduce the growth, survival, and reproduction of special-status plants.

As discussed in Section 3.6, the project would adhere to the required measures stipulated by a site-specific SWPPP to minimize soil erosion, which would reduce potential indirect impacts associated with construction and operations on special-status plants from soil destabilization and dusting. In addition, **MM-BIO-9** requires a protocol-level rare plant survey prior to construction and avoidance of special-status plant species if and where present in the work area wherever feasible. **MM-BIO-16** requires implementation of actions to prevent the spread of invasive plants and noxious weeds that could compete with special-status plants for water, light, and nutrients, which would reduce potential indirect impacts from competition with invasive species. While several mitigation measures would minimize impacts, construction at the Tuolumne facility site could still result in the direct removal of special-status plants or habitat modifications that lead to reduced survival, growth and reproduction if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas not avoided by construction activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-1**

(Compensate for Unavoidable Loss of Special-Status Plants), the impact would be reduced to less than significant with mitigation.

Operations and maintenance activities at the Tuolumne facility site would be limited to already disturbed or developed areas that do not provide habitat for special-status plants. As such, construction and operational impacts to special-status plant species at the Tuolumne facility site are not anticipated, and there would be **no impact**. No mitigation is required.

## Transport to Market

### Port of Stockton

Special-status plant species are not expected to occur at the Port site due to the lack of suitable habitat or the presence of very low quality habitat within or adjacent to the site, the lack of documented occurrences near the site, and/or the site being outside of the species' known geographic or elevation range. As such, construction and operational impacts to special-status plant species at the Port facility site are not anticipated, and there would be **no impact**. No mitigation is required.

Impact BIO-1b The project may have a substantial adverse effect, either directly or through habitat modifications, on special-status wildlife species or substantially reduce the number or restrict the range of a rare or endangered animal.

## Sustainable Forest Management Projects (Feedstock Acquisition)

### Introduction

Appendix C1, Table 3 identifies 200 special-status wildlife species known or with potential to occur in the Working Area. Those species associated with the forest and woodland and shrubland communities listed in Table 3.3-4 are most vulnerable to impacts from Sustainable Forest Management projects because of their predominance on National Forest lands and other timberlands. Refer to Table 3 in Appendix C1 for a summary of species identified as having a potential to occur in the region of the Working Area but are not expected to occur on forested lands where Sustainable Forest Management projects (feedstock acquisition) would be implemented.

For the purposes of this analysis, which covers a large geographic area, special-status wildlife species are organized into life history groups with similar exposures and responses to potential impacts from GSNR biomass only thinning projects and third-party harvest. Furthermore, the narrative below includes specific species examples to better illustrate potential impacts to each life history group. Table 3.3-14 presents the special-status species considered in this analysis categorized by the eight life history groups: tree-, cavity-, and shrub-nesting wildlife, ground- and cliff-nesting/breeding wildlife, burrowing or denning wildlife, terrestrial invertebrates, bats, ungulates, fish and aquatic invertebrates, and amphibians and reptiles.

## Table 3.3-14. Special-Status Wildlife Species Considered and Grouped by Life History

| Life History Group | Federal and/or State Listed and Fully Protected Species[1] | Non-Listed Special-Status Species[2] | |
|---|---|---|---|
| **Amphibians and Reptiles** | California tiger salamander | Blainville's horned lizard | Pacific tailed frog |
| | California red-legged frog | California glossy snake | southern long-toed salamander |
| | Cascades frog | Columbia spotted frog | Southern torrent salamander |
| | foothill yellow-legged frog - Feather River DPS | Del Norte salamander | western pond turtle |
| | foothill yellow-legged frog - north Sierra DPS | foothill yellow-legged frog - north coast DPS | |
| | foothill yellow-legged frog - south Sierra DPS | Kings River slender salamander | |
| | limestone salamander | Mount Lyell salamander | |
| | mountain yellow-legged frog | northern California legless lizard | |
| | Oregon spotted frog | northern leopard frog | |
| | Scott Bar salamander | | |
| | Shasta salamander | | |
| | Sierra Nevada yellow-legged frog | | |
| | Siskiyou Mountain salamander | | |
| | Yosemite toad | | |
| **Bats** | None | fringed myotis | western mastiff bat |
| | | long-eared myotis | western red bat |
| | | pallid bat | western small-footed myotis |
| | | spotted bat | Yuma myotis |
| | | Townsend's big-eared bat | |
| **Burrowing or Denning Wildlife** | gray wolf | American badger | Sierra Nevada mountain beaver |
| | riparian brush rabbit | mountain lion | Sierra Nevada red fox - southern Cascades DPS |
| | San Joaquin kit fox | Mount Lyell shrew | Sierra Nevada snowshoe hare |
| | Sierra Nevada red fox - Sierra Nevada DPS | pygmy rabbit | western white-tailed jackrabbit |

## Table 3.3-14. Special-Status Wildlife Species Considered and Grouped by Life History

| Life History Group | Federal and/or State Listed and Fully Protected Species[1] | Non-Listed Special-Status Species[2] | | |
|---|---|---|---|---|
| **Fish and Aquatic Invertebrates** | bull trout | Archimedes springsnail | Klamath ramshorn | Owens sucker |
| | chinook salmon - Central Valley spring-run ESU | Benson Gulch hesperian | kneecap lanx | Pacific lamprey |
| | chinook salmon - Sacramento River winter-run ESU | bigeye marbled sculpin | Lahontan Lake tui chub | Pit-Klamath brook lamprey |
| | green sturgeon - southern DPS | blue chub | Lahontan mountain sucker | Pit sculpin |
| | Lahontan cutthroat trout | California floater | lined ramshorn | Railroad Valley springfish |
| | Lost River sucker | central California roach | Lower Klamath marbled sculpin | Red Hills roach |
| | Modoc sucker | Cow Head tui chub | McCloud River redband trout | Sacramento perch |
| | Owens tui chub | Eagle Lake rainbow trout | Miller Lake lamprey | Sacramento splittail |
| | Paiute cutthroat trout | Eagle Lake tui chub | Modoc pebblesnail | scalloped juga |
| | railroad Valley springfish | Goose Lake lamprey | montane peaclam | steelhead - Klamath Mountains Province DPS |
| | rough sculpin | Goose Lake redband trout | mountain whitefish | topaz juga |
| | Shasta crayfish | Goose Lake sucker | northern California brook lamprey | Turban pebblesnail |
| | shortnose sucker | Goose Lake tui chub | northern roach | Upper Klamath marbled sculpin |
| | steelhead - Central Valley DPS | Great Basin rams-horn | nugget pebblesnail | vernal pool fairy shrimp |
| | Warner sucker | Harney Basin duskysnail | Oregon Great Basin redband trout | vernal pool tadpole shrimp |
| | | hardhead | Oregon lakes tui chub | Western ridged mussel |
| | | highcap lanx | | Willow Creek pyrg |
| | | Kern brook lamprey | | |
| | | Klamath largescale sucker | | |
| **Ground- and Cliff-nesting/ breeding Wildlife** | American peregrine falcon | American white pelican | mountain plover | |
| | California black rail | bufflehead | Mountain quail | |
| | greater sandhill crane | burrowing owl | northern harrier | |
| | | | Oregon snowshoe hare | |

## Table 3.3-14. Special-Status Wildlife Species Considered and Grouped by Life History

| Life History Group | Federal and/or State Listed and Fully Protected Species[1] | Non-Listed Special-Status Species[2] | | |
|---|---|---|---|---|
| | | cackling (=Aleutian Canada) goose<br>California gull<br>California horned lark<br>Columbian sharp-tailed grouse<br>greater sage-grouse<br>harlequin duck | prairie falcon<br>red-necked grebe<br>white-faced ibis<br>yellow rail<br>yellow-headed blackbird | |
| **Terrestrial Invertebrates** | Carson wandering skipper<br>Crotch's bumble bee<br>Franklin's bumble bee<br>valley elderberry longhorn beetle<br>western bumble bee | Crater Lake tightcoil<br>hirsute Sierra sideband snail<br>hooded lancetooth<br>Johnson's hairstreak<br>keeled sideband | Mardon skipper<br>monarch - California overwintering population<br>Mono checkerspot butterfly<br>Morrisoni bumble bee<br>Shasta chaparral snail<br>Shasta hesperian<br>Shasta sideband snail | Siskiyou hesperian<br>Siskiyou short-horned grasshopper<br>Suckley cuckoo bumble bee<br>Tehama chaparral snail<br>Tuolumne sideband snail<br>Wintu sideband snail |
| **Tree-, Cavity-, and Shrub-nesting Wildlife** | bald eagle<br>bank swallow<br>California wolverine<br>fisher - Southern Sierra Nevada ESU<br>great gray owl<br>Humboldt marten<br>northern spotted owl<br>Riparian (=San Joaquin Valley) woodrat | black swift<br>California spotted owl<br>Cooper's hawk<br>double-crested cormorant<br>ferruginous hawk<br>fisher<br>flammulated owl<br>golden eagle | merlin<br>northern goshawk<br>osprey<br>Pacific marten<br>purple martin<br>ringtail<br>sharp-shinned hawk<br>short-eared owl | |

## Table 3.3-14. Special-Status Wildlife Species Considered and Grouped by Life History

| Life History Group | Federal and/or State Listed and Fully Protected Species[1] | Non-Listed Special-Status Species[2] | |
|---|---|---|---|
| | Swainson's hawk | grasshopper sparrow | Sierra marten |
| | tricolored blackbird | Lewis's woodpecker | song sparrow ("Modesto" population) |
| | western yellow-billed cuckoo | long-eared owl | three-toed woodpecker |
| | White-tailed kite | | White-headed woodpecker |
| | willow flycatcher | | yellow warbler |
| | | | yellow-breasted chat |
| **Ungulates** | Sierra Nevada bighorn sheep | None | |

**Notes:**
[1,2] Refer to Section 3.3.1.1, Sustainable Forest Management Projects (Feedstock Acquisition in the Working Area), for definitions.

As discussed in Section 2.4, feedstock for manufacturing of wood pellets would come from three sources in the Working Area: (1) GSNR biomass only thinning projects, (2) harvest residuals, and (3) mill residuals from third-party commercial lumbermills. However, and as discussed in Section 3.3.4.1, there is only potential for impacts to biological resources, such as special-status wildlife, from two sources, GSNR biomass only thinning projects and third-party harvest residuals, both of which are briefly described below.

- **GSNR biomass only thinning projects:** These projects (expected to range from 10 to 2,000 acres each) are wildfire fuel reduction operations, undertaken by or on behalf of GSNR, that are designed to reduce the risk and severity of wildfire occurrence. The goal of fuel treatment is not to remove all vegetation, but to minimize the potential for ignitions, crown fires, and extreme fire behavior by reducing fuel loads and altering the structure, composition, and spacing (horizontal and vertical) of retained vegetation. These projects include hazardous fuel reduction projects, construction of shaded fuel breaks, site preparation, and fire, insect, and disease salvage harvests. These projects, depending on location, could include up to 1 mile of new low standard (unpaved) road (per year, per project) and temporary stream crossings. New roads and stream crossings would only be operational and maintained through the duration of treatment activities.
- **Third-party harvest residuals:** GSNR would procure residual biomass material resulting from third-party sustainable forest management projects (i.e., harvest residuals) in the Working Area. Access to harvest residuals, including slash piles, and other downed vegetative debris (roundwood or chips), would primarily occur using existing logging/haul roads. This activity would be limited to discrete locations previously disturbed by treatment activities. Third-party harvest residuals may be collected weeks to months following treatment activities at a given site.

Potential impacts to special-status wildlife from GSNR biomass only thinning projects and third-party harvest residuals are discussed for each of eight life history groups in the following text.

## Amphibians and Reptiles

Special-status amphibians with potential to occur in the Working Area include, but are not limited to, foothill yellow-legged frog (*Rana boylii*), Yosemite toad (*Anaxyrus canorus*), Pacific tailed frog (*Ascaphus truei*), and southern long-toed salamander (*Ambystoma macrodactylum sigillatum*). Special-status reptiles with potential to occur in the Working Area include, but are not limited to, western pond turtle (*Emys marmorata*) Coronado skink (*Plestiodon skiltonianus interparietalis*), and Blainville's horned lizard (*Phrynosoma blainvillii*). Table 3.3-14 provides a comprehensive list of these species known to occur or with some potential to occur in the Working Area and considered in this analysis. Most of these species are closely tied to aquatic habitat but may estivate or lay eggs in underground burrows below leaf litter, rocks, and woody debris and seasonally disperse through upland habitat. Refer to Table 3 in Appendix C1 for additional species information.

### GSNR Biomass Only Thinning Projects

Sustainable Forest Management projects (treatment activities) of this type would avoid most aquatic resources in the Working Area, including riparian areas and perennial streams, by at least 75 feet as set forth in Section 2.4. However, these projects may also include up to 1 mile of new low standard (unpaved) road (per year, per project) and temporary stream crossings. Installation of temporary stream crossings (to facilitate access if necessary and practicable) could result in mortality of special-status amphibians and reptiles from ground-disturbing activities if present in the work area. In addition, mechanical and manual treatment activities during GSNR biomass only thinning projects could impact special-status amphibians and reptiles if present in upland habitat or small aquatic

features in the treatment area. In general, there are two types of impacts discussed for special-status amphibians and reptiles: mortality to individual animals, and loss or modification of species habitat. These impact types are discussed below.

Mechanical and manual treatment activities, new road construction, and temporary stream crossings could result in direct mortality (i.e., physical harm) to special-status amphibians and reptiles from equipment and vehicle strikes, as well as direct removal of woody debris from slash piles occupied by wildlife. The risk of physical harm varies depending on the species, location, and seasonality. For example, amphibians that spend most of their time in close proximity to aquatic habitat and within riparian vegetation, such as foothill yellow-legged frog and Sierra yellow-legged frog (*Rana sierrae*), would be less at risk of direct harm as treatment activities would be restricted from these areas by at least 75 feet as set forth in Section 2.4. However, these species could be at risk if present in the work area during temporary stream crossing installation or if dispersing through uplands in the work area. Conversely, species that spend time below leaf litter, in burrows, or other refugia (e.g., rocks, logs, and bark), such as western pond turtle and southern long-toed salamander, could be accidentally crushed by heavy equipment or personnel.

Mechanical and manual treatment activities, new road construction, and temporary stream crossings could also indirectly harm special-status amphibians and reptiles in aquatic habitat from soil destabilization, dust accumulation, and transport to waterbodies. For example, toad or frog larvae occupying lacustrine environments may be sensitive to sedimentation as indicated by a reduction in growth and survival rates (Wood and Richardson 2009), unless there is an increase in organic matter from these inputs (Kupferberg et al. 1994). In addition, contaminants (e.g., fuels, lubricants, hydraulic fluids), if not properly contained, could be introduced into waterbodies and harm special-status amphibians and reptiles occupying these habitats.

GSNR biomass only thinning projects in the Working Area have the potential to impact special-status amphibians and reptiles through the temporary loss of, or modification to, upland and aquatic habitat within the work area. Heavy equipment and personnel could accidentally collapse burrows, and some treatments could remove refugia used by special-status amphibians and reptiles, such as slash piles and downed trees. Additionally, removing excess vegetation and vegetation debris from the forest floor and overstory thinning could modify understory conditions to favor species more adapted to drier environments (McIver et al. 2013).

In contrast, GSNR biomass only thinning projects could also cause indirect beneficial effects to special-status amphibians and reptiles by reducing the risk of severe wildfires (megafires) that cause catastrophic loss of habitat. There is abundant evidence that fuel reduction treatments effectively moderate the behavior of wildfires by lowering fireline intensity and by reducing severity and smoke production in treatment areas (Safford et al. 2012; Stephens et al. 2012; Prichard and Kennedy 2014; Lydersen et al. 2017; Hessburg et al. 2019; Prichard et al. 2020, 2021; Jones et al. 2022; North et al. 2021). Reducing the risk of megafires is important for wildlife as these events can homogenize landscapes, reduce overall species richness, and eliminate critical habitat for forest wildlife, including fire-dependent species (White et al. 2019; Kelly et al. 2020; Jones and Tingley 2022; Steel et al. 2022; Stillman et al. 2021).

### Third-Party Harvest Residuals

While ground disturbance would be minor and localized, third-party harvest residual collection may occur weeks to months following treatment activities at a given site, allowing sufficient time for special-status amphibians and reptiles to inhabit slash piles and other vegetative debris targeted for removal. The likelihood of wildlife occupying a slash pile or similar along a roadside may be lower than those piles located further away. Further, the time of year

in which harvest residuals are collected could influence the potential for impacts to overwintering/hibernating amphibians or reptiles. Direct impacts to special-status amphibians and reptiles from third-party harvest residuals could include mortality of such species through equipment and vehicle strikes, as well as direct removal of woody debris from slash piles occupied by wildlife. Indirect impacts could include accidental spills of fuel or other hazardous materials and temporary habitat modification or loss. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on special-status amphibians and reptiles. However, several PDFs would avoid or minimize such impacts. As discussed in Section 3.9, hazardous materials used during feedstock activities would be transported, used, and disposed of in accordance with all relevant federal, state, and local laws. The proposed project would implement a Stormwater Pollution Prevention Plan (SWPPP) (PDF-GEO-2) during treatment activities that would include steps to prevent, contain, and clean up accidental hazardous material spills. PDF-GEO-1, PDF-GEO-2, PDF-GEO-5, and PDF-GEO-6 require implementation of measures to minimize soil erosion, which would reduce potential indirect impacts on special-status amphibians and reptiles from soil transport to waterbodies. PDF-BIO-1 requires a reconnaissance-level survey of the work area for biomass only thinning projects to determine whether there is potential for special-status amphibians and reptiles to occur. Moreover, PDF-BIO-7 requires focused or protocol-level surveys to identify special-status species prior to work start so that they can be avoided by implementing additional measures (e.g., avoidance of occupied habitat and limited operating periods). PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of special-status species potentially in the work area and measures to avoid or minimize impacts. PDF-BIO-9 and PDF-BIO-10 as applicable would reduce the likelihood of species impacts by minimizing the direct disturbance and loss of species habitat and functionality. Lastly, PDF-BIO-13 requires that the contractor install no-disturbance buffers around each delineated aquatic resource using high-visibility flagging, fencing, stakes, or similar that would be inspected and maintained through the duration of activities at a given treatment site.

While PDFs would minimize impacts, the above feedstock activities in the Working Area could still result in direct or indirect impacts on special-status amphibians and reptiles if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas not avoided by treatment activities. This would be a potentially significant impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to **less than significant with mitigation.**

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

## Bats

Special-status bats with potential to occur in the Working Area include, but are not limited to, fringed myotis (*Myotis thysanodes*), northern hoary bat (*Aeorestes cinereus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and Yuma myotis (*Myotis yumanensis*). Table 3.3-14 provides a comprehensive list of these species known or with potential to occur in the Working Area and considered in this analysis. Special-status bats require specific habitat features for roosting, such as lava tubes, caves, abandoned structures, bridges, and trees with cavities, exfoliating bark, or broad leaves. Most of these species form colonies during the maternity

season from spring to early fall and hibernate in colonies through winter. Colonies vary in size (from a few to several hundred individuals) with maternity colonies composed of adult females and their young. Most bat species are highly sensitive to disturbance. Refer to Table 3 in Appendix C1 for additional species information.

### GSNR Biomass Only Thinning Projects

Special-status bats with potential to occur in the Working Area could be impacted by treatment activities of this type if roosting in or near the work area. In general, there are three types of impacts discussed for special-status bats: mortality and injury to individual animals, sensory disturbance (i.e., noise, vibration, and visual), and loss or modification of species habitat. These impact types are discussed below.

Mechanical and manual treatment activities, new road construction, and temporary stream crossings could result in direct mortality (i.e., physical harm) to bats within roosts or maternity colonies from removal of trees, snags, or cavities occupied by bats. The risk of physical harm varies depending on the species and affected habitat. For example, tree-roosting bats would be more vulnerable to treatment activities than bats that roost in riparian areas, caves, cliffs, bridges, or other human-made structures, which would be avoided by the proposed project. Bats that roost in riparian areas would be more vulnerable to disturbance from temporary stream crossing installation, depending on the location and type of vegetation disturbed. In rare instances, special-status bats, such as western red bat (*Lasiurus blosevillii*), may roost in leaf litter on the forest floor and would be at risk for injury or death from GSNR biomass only thinning projects.

Sensory disturbances to special-status bats could occur during mechanical and manual treatment activities, new road construction, and temporary stream crossing installation/use in the Working Area from increased noise, vibrations from heavy equipment use, and increased human activity/presence. Bats roosting in or near the work area during loud activities may exhibit signs of stress through roost displacement, or ceasing critical activities, such as parental care. Bats forage or feed their young at night and therefore would be less at risk as there would be no nighttime treatment activities. Indirect impacts from sensory stress may include a reduction in health and reproductive fitness of individuals and potentially local populations. Sensory disturbances would be localized, temporary, and limited to daylight hours.

Mechanical and manual treatment activities, new road construction, and temporary stream crossing installation in the Working Area have the potential to impact special-status bats through the loss of, or modification to, habitat within the work area. Special-status bats with a potential to occur in the Working Area typically roost in riparian areas, caves, cliffs, bridges, or other human-made structures that would be avoided by the project. Hazardous fuel reduction projects and shaded fuel breaks would principally target smaller trees that typically lack suitable features for roosting (i.e., crevices and cavities), while pruning limbs on the larger remaining trees. Conversely, bats that roost in dead or dying trees and snags would be vulnerable to the loss of roosting habitat where hazardous fuel reduction and salvage activities target these features for intentional removal.

Special-status bats with potential to occur in the Working Area generally forage over wetlands, edge habitats along streams, grassland, and within a variety of wooded habitats gleaning insects from surfaces and capturing insects in flight. Grasslands, riparian areas, and aquatic resources, such as lakes, ponds, meadows, and streams in the Working Area would not be targeted for treatment. However, stream crossing installation (if necessary) could impact aquatic foraging habitat, and equipment operation during treatment activities could disturb forest and woodland vegetation that attracts insects for bats to prey on, thus impacting their foraging habitat.

In contrast, GSNR biomass only thinning projects could also cause indirect beneficial effects to special-status bats by reducing the risk of severe wildfires (megafires) that cause catastrophic loss of habitat. There is abundant evidence that fuel reduction treatments effectively moderate the behavior of wildfires by lowering fireline intensity and by reducing severity and smoke production in treatment areas (Safford et al. 2012; Stephens et al. 2012; Prichard and Kennedy 2014; Lydersen et al. 2017; Hessburg et al. 2019; Prichard et al. 2020, 2021; Jones et al. 2022; North et al. 2021). Reducing the risk of megafires is important for wildlife as these events can homogenize landscapes, reduce overall species richness, and eliminate critical habitat for forest wildlife, including fire-dependent species (White et al. 2019; Kelly et al. 2020; Jones and Tingley 2022; Steel et al. 2022; Stillman et al. 2021).

### Third-Party Harvest Residuals

While ground disturbance would be minor and localized, third-party harvest residual collection may occur weeks to months following treatment activities at a given site, allowing sufficient time for special-status bats, such as western red bat, to inhabit slash piles and other vegetative debris targeted for removal. The likelihood of bats occupying a slash pile or similar along a roadside may be lower than those piles located further away. Further, the time of year in which harvest residuals are collected could influence the potential for impacts to overwintering/roosting bats. Direct impacts to special-status bats from third-party harvest residuals could include mortality of such species through equipment and vehicle strikes, as well as direct removal of woody debris from slash piles occupied by wildlife. Indirect impacts could include sensory disturbances from equipment operation and increased human presence and temporary habitat modification or loss. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on special-status bats. However, several PDFs would avoid or minimize such impacts. PDF-BIO-1 requires a reconnaissance-level survey of the proposed work area for biomass only thinning projects to determine whether there is potential for special-status bats to roost on site. Moreover, PDF-BIO-7 requires focused or protocol-level surveys to identify habitat for special-status bats prior to work start for such projects so that it can be avoided by implementing additional measures (e.g., avoidance of occupied roosts and limited operating periods). PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of special-status species potentially in the Working Area and measures to avoid or minimize impacts. PDF-BIO-9 and PDF-BIO-10 as applicable would reduce the likelihood of impacts to bats by minimizing the direct disturbance and loss of species habitat and functionality.

While PDFs would minimize impacts, the above feedstock activities could still result in direct or indirect impacts on special-status bats if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas not avoided by feedstock activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

## Burrowing or Denning Wildlife

Special-status burrowing or denning wildlife with potential to occur in the Working Area include, but are not limited to, Sierra Nevada red fox (*Vulpes vulpes necator*), Mount Lyell shrew (*Sorex lyelli*), Sierra Nevada mountain beaver (*Aplodontia rufa californica*), gray wolf (*Canis lupus*), and American badger (*Taxidea taxus*). Table 3.3-14 provides a comprehensive list of these species known or with potential to occur in the Working Area and considered in this analysis. Burrowing or denning wildlife occur in a variety of habitat types, including riparian, woodland, forest, shrubland, and grassland. These species may occupy underground burrows under dense vegetation, tree cavities, rock recesses, hollow logs, and other similar features. Many of these species are nocturnal and may be especially cryptic (e.g., Sierra Nevada mountain beaver and American badger). Sierra Nevada red fox, mountain lion, gray wolf, and American badger are highly mobile species with relatively large home ranges, while other species, such as Mount Lyell shrew, have small home ranges. Refer to Table 3 in Appendix C1 for additional species information.

### GSNR Biomass Only Thinning Projects

Special-status burrowing or denning wildlife with potential to occur in the Working Area could be impacted by Sustainable Forest Management projects (treatment activities) of this type if present in or near the Working Area. In general, there are three types of impacts discussed for special-status burrowing or denning wildlife: mortality to individual animals, sensory disturbance (i.e., noise, vibration, and visual), and loss or modification of species habitat. These impact types are discussed below.

Mechanical and manual treatment activities, new road construction, and temporary stream crossings could result in direct mortality (i.e., physical harm) to burrowing or denning wildlife from construction equipment and vehicle strikes. The risk of physical harm varies depending on the species, location, and seasonality. For example, treatment activities and stream crossing installation conducted during the breeding/rearing season could result in direct injury to young or loss of young that are confined to a burrow or den. Species that typically burrow or den in riparian habitat (e.g., Mt. Lyell shrew) would be less at risk of direct harm from treatment activities, which would be restricted from these areas by at least 75 feet as set forth in Section 2.4. Conversely, these riparian-denning species would be at risk if present in the work area during temporary stream crossing installation.

Sensory disturbances to special-status burrowing or denning wildlife could occur during mechanical and manual treatment activities, new road construction, and temporary crossing installation/use in the Working Area from increased noise, vibrations from heavy equipment use, and increased human activity/presence. Wildlife in or near the work area during loud activities may exhibit signs of stress through habitat displacement or avoidance, or ceasing critical activities, such as foraging, reproduction, and parental care (Frid and Dill 2002). Nocturnal wildlife that typically forage or feed their young at night would be less at risk as there would be no nighttime treatment activities. In addition, many species, especially those with expansive home ranges, would have the ability to forage in other suitable areas until temporary treatment activities near their preferred foraging site is complete. Indirect impacts from sensory stress may include a reduction in health and reproductive fitness of individuals and potentially local populations. Sensory would be localized, temporary, and limited to daylight hours.

Mechanical and manual treatment activities, new road construction, and temporary stream crossings in the Working Area also have the potential to impact special-status burrowing or denning wildlife through the loss of, or modification to, habitat within the work area. Heavy equipment and personnel could accidentally collapse burrows and dens occupied by special-status wildlife. This impact would not be limited to the breeding/rearing season for species that occupy burrows year-round (e.g., Mount Lyell shrew and Sierra Nevada mountain beaver). In addition, heavy equipment use could lead to soil compaction and impede recolonization of the treatment area. Sierra Nevada

mountain beaver prefer areas with dense understory vegetation, so changes to the character of these understory features from hazardous fuel reduction and shaded fuel breaks could result in temporary loss of habitat function and exclusion of these species from the treatment site. However, overstory thinning could increase light penetration to the forest floor and increase growth of herbaceous plant species, which may benefit this species in the long-term.

In contrast, treatment activities could also cause indirect beneficial effects to special-status burrowing or denning wildlife by reducing the risk of severe wildfires (megafires) that cause catastrophic loss of habitat. There is abundant evidence that fuel reduction treatments effectively moderate the behavior of wildfires by lowering fireline intensity and by reducing severity and smoke production in treatment areas (Safford et al. 2012; Stephens et al. 2012; Prichard and Kennedy 2014; Lydersen et al. 2017; Hessburg et al. 2019; Prichard et al. 2020, 2021; Jones et al. 2022; North et al. 2021). Reducing the risk of megafires is important for wildlife as these events can homogenize landscapes, reduce overall species richness, and eliminate critical habitat for forest wildlife, including fire-dependent species (White et al. 2019; Kelly et al. 2020; Jones and Tingley 2022; Steel et al. 2022; Stillman et al. 2021).

### Third-Party Harvest Residuals

While ground disturbance would be minor and localized, third-party harvest residual collection may occur weeks to months following treatment activities at a given site, allowing sufficient time for special-status burrowing or denning wildlife to inhabit slash piles and other vegetative debris targeted for removal. The likelihood of wildlife occupying a slash pile or similar along a roadside may be lower than those piles located further away. Further, the time of year in which harvest residuals are collected could influence the potential for impacts to overwintering/hibernating wildlife. Direct impacts to special-status burrowing or denning wildlife from third-party harvest residuals could include mortality of such species through equipment/vehicle strikes or unintentional collapsing of occupied burrows or dens. Indirect impacts could include sensory disturbances from equipment operation and increased human presence and temporary habitat modification or loss. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on special-status bats. However, several PDFs would avoid or minimize such impacts. PDF-BIO-1 requires a reconnaissance-level survey of the proposed work area for biomass only thinning projects to determine whether there is potential for special-status burrowing or denning wildlife species to occur on site. Moreover, PDF-BIO-7 requires focused or protocol-level surveys to identify special-status species prior to work start for such projects so that they can be avoided by implementing additional measures (e.g., avoidance of occupied habitat/dens/burrows and limited operating periods). PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of special-status species potentially in the work area and measures to avoid or minimize impacts. PDF-BIO-9 and PDF-BIO-10 as applicable would reduce the likelihood of impacts to burrowing or denning wildlife by minimizing the direct disturbance and loss of species habitat and functionality.

While PDFs would minimize impacts, the above feedstock activities could still result in direct or indirect impacts on special-status burrowing or denning wildlife if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas not avoided by feedstock activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance

and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

## Fish and Aquatic Invertebrates

Special-status fish and aquatic invertebrates with potential to occur in the Working Area include, but are not limited to, chinook salmon - upper Klamath and Trinity Rivers ESU (*Oncorhynchus tshawytscha*), Shasta crayfish (*Pacifastacus fortis*), southern steelhead - southern California DPS (*Oncorhynchus mykiss irideus*), California floater (*Anodonta californiensis*), Lower Klamath marbled sculpin (*Cottus klamathensis polyporus*), and Pit-Klamath brook lamprey (*Entosphenus lethophagus*). Table 3.3-14 provides a comprehensive list of these species known or with potential to occur in the Working Area and considered in this analysis. Ponds, lakes, streams, vernal pools, wetlands, and constructed aquatic resources (e.g., canals, impoundments, stock ponds) mapped in the Working Area provide habitat for special-status fish and aquatic invertebrates. Mapped aquatic resources in the Working Area were derived from publicly accessible datasets based largely on coarse mapping (USGS 2024a; USFWS 2024a; FRAP 2015). Aquatic resources not captured by these public datasets may include seasonal and freshwater emergent wetlands, ephemeral drainages, and other features not visible below tree canopy or detectable by aerial mapping.

### GSNR Biomass Only Thinning Projects

Sustainable Forest Management projects (treatment activities) of this type would avoid most aquatic resources in the Working Area, including riparian areas, lakes, and perennial streams, by at least 75 feet as set forth in Section 2.4. However, installation of temporary stream crossings (to facilitate access if necessary and practicable) could result in mortality of special-status fish and aquatic invertebrates from ground-disturbing activities if present in the work area. In addition, mechanical and manual treatment activities could impact fish and aquatic invertebrates if present in smaller aquatic resources in or near the work area. In general, there are two types of impacts discussed for special-status fish and aquatic invertebrates: mortality or injury to individual animals and temporary loss or modification of species habitat. These impact types are discussed below.

Ground disturbance from treatment activities, new road construction, and temporary stream crossings could result in soil destabilization, dust accumulation, and transport to nearby waterbodies, which could impact special-status fish and aquatic invertebrates if present. For example, prolonged exposure to high levels of suspended sediment could create a loss of visual capability, disrupting predator avoidance and normal feeding behavior, leading to reduced growth and survival rates in salmonids. Such exposure could also result in a thickening of the gills, potentially causing the loss of respiratory function; in clogging and abrasion of gills; and in increased stress levels, which in turn could reduce tolerance to disease and toxicants (Waters 1995).

GSNR biomass only thinning projects would not involve the use of substantive quantities of hazardous materials or waste products and would be largely limited to fuels and oils that are associated with motorized vehicles and equipment. Use of this equipment and vehicles and any associated maintenance would be done in accordance with applicable federal, state, and local health and safety laws and regulations. However, if not properly contained, these contaminants could be introduced into nearby waterbodies, either directly or through surface runoff. Contaminants may be toxic to fish or cause altered oxygen diffusion rates and may also cause acute and chronic toxicity to aquatic organisms, thereby reducing growth and survival.

Habitat modification from nearby treatment activities, new road construction, or temporary stream crossings (as discussed above) could temporarily reduce the availability of suitable habitat for special-status fish and aquatic invertebrates if present. Avoidance of modified aquatic habitat by moving away from unsuitable conditions is a common fish response to increases in turbidity and sedimentation, unless there are no other options. The settling of fine sediments, depending on the load, could degrade salmonid spawning habitat by reducing the interstitial space between gravel and subsequent oxygen levels critical for successful egg development.

In contrast, treatment activities could also cause indirect beneficial effects to special-status fish and aquatic invertebrates by reducing the risk of severe wildfires (megafires) that cause devastating impacts to aquatic habitat. These impacts, which may persist for many years (Rust et al. 2018; Rhoades et al. 2019), include increased surface runoff, erosion, and conveyance of sediment, ash, pollutants, and debris to surface waters (Bodí et al. 2014) and subsequent impacts to water quality (Abraham et al. 2017) and aquatic ecosystems (Silva et al. 2015). There is abundant evidence that fuel reduction treatments effectively moderate the behavior of wildfires by lowering fireline intensity and by reducing severity and smoke production in treatment areas (Safford et al. 2012; Stephens et al. 2012; Prichard and Kennedy 2014; Lydersen et al. 2017; Hessburg et al. 2019; Prichard et al. 2020, 2021; Jones et al. 2022; North et al. 2021).

### Third-Party Harvest Residuals

Collecting harvest residuals would involve minor ground disturbance in previously disturbed treatment areas at least 75 feet from aquatic habitat. Thus, there would be no direct impacts to special-status fish and aquatic invertebrates from this activity. Indirect impacts to special-status fish could include accidental spills of fuel or other hazardous materials but are unlikely to occur due to harvest residuals being collected at least 75 feet from aquatic habitat. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on special-status fish and aquatic invertebrates. However, several PDFs would avoid or minimize such impacts. As discussed in Section 3.9, hazardous materials used during treatment activities would be transported, used, and disposed of in accordance with all relevant federal, state, and local laws. Biomass only thinning projects would also implement a Stormwater Pollution Prevention Plan (SWPPP) or equivalent document (PDF-GEO-3 and PDF-GEO-4) during treatment activities that would include steps to prevent, contain, and clean up hazardous material spills that could result from treatment activities. PDF-GEO-1, PDF-GEO-2, PDF-GEO-5 and PDF-GEO-6 as applicable require implementation of measures to minimize soil erosion, which would reduce potential indirect impacts on special-status fish and aquatic invertebrates from soil transport to waterbodies. PDF-BIO-1 requires a reconnaissance-level survey of the work area for biomass only thinning projects to determine whether there is potential for special-status fish and aquatic invertebrates to occur. Moreover, PDF-BIO-7 requires focused or protocol-level surveys to identify special-status species prior to work start for such projects so that they can be avoided by implementing additional measures (e.g., avoidance of occupied habitat and limited operating periods). PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of special-status species potentially in the work area and measures to avoid or minimize impacts. PDF-BIO-9 and PDF-BIO-10 as applicable would reduce the likelihood of impacts to fish and aquatic invertebrates by minimizing the direct disturbance and loss of species habitat and functionality. Lastly, PDF-BIO-13 requires that the contractor install no-disturbance buffers around each delineated aquatic resource using high-visibility flagging, fencing, stakes, or similar that would be inspected and maintained through the duration of activities at a given treatment site.

While PDFs would minimize impacts, the above feedstock activities could still result in direct or indirect impacts to special-status fish and aquatic invertebrates if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas that are not avoided by feedstock activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

### Ground- and Cliff-Nesting/Breeding Wildlife

Special-status ground- and cliff-nesting/breeding wildlife with potential to occur in the Working Area include, but are not limited to, Sierra Nevada snowshoe hare (*Lepus americanus tahoensis*), western black-tailed jackrabbit (*Lepus townsendii townsendii*), greater sandhill crane (*Antigone canadensis tabida*), and American peregrine falcon (*Falco peregrinus anatum*). Table 3.3-14 provides a comprehensive list of these species known or with potential to occur in the Working Area and considered in this analysis. Habitat for special-status ground- and cliff-nesting/breeding wildlife in the Working Area includes woodland, forest, riparian, scrub, and open meadow or grassland habitat. Wetlands, shorelines, and cliffs are also important for certain ground- and cliff-nesting/breeding species, such as the greater sandhill crane and American peregrine falcon, respectively. Special-status ground- and cliff-nesting/breeding wildlife nest in cups or mounds composed of plant material or ground scrapes below dense vegetation, logs, or other woody debris. These species may nest as individual pairs (e.g., northern harrier [*Circus hudsonius*] and prairie falcon [*Falco mexicanus*]), or in colonies (e.g., California gull [*Larus californicus*] and black tern [*Chlidonias niger*]). Some ground- and cliff-nesting/breeding birds are winter migrants with limited breeding ranges in California, such as the greater sandhill crane, black tern, and harlequin duck (*Histrionicus histrionicus*). Sierra Nevada snowshoe hare and western black-tailed jackrabbit are present year-round and most active at twilight (crepuscular) or night (nocturnal). Refer to Table 3 in Appendix C1 for additional species information.

#### GSNR Biomass Only Thinning Projects

Special-status ground- and cliff-nesting/breeding wildlife with potential to occur in the Working Area could be impacted by treatment activities of this type if present in or near the work area. In general, there are three types of impacts discussed for special-status ground- and cliff-nesting/breeding wildlife: mortality and injury to individual animals, sensory disturbance (i.e., noise, vibration, and visual), and loss or modification of species habitat. These impact types are discussed below.

Mechanical and manual treatment activities during GSNR biomass thinning only projects, new road construction, and temporary stream crossings could result in direct injury or mortality (i.e., physical harm) to ground- and cliff-nesting/breeding wildlife from construction equipment and vehicle strikes. The risk of physical harm varies depending on the species, location, and seasonality. For example, treatment activities or stream crossing installation during the breeding season could result in direct injury or mortality to young or loss of eggs that are confined to a nest. Conversely, species that typically nest in wetlands (yellow-headed blackbird [*Xanthocephalus xanthocephalus*]), grassland and meadows (northern harrier), or shrubland (greater sage-grouse [*Centrocercus urophasianus*]) among forest and woodland habitat would be less at risk of direct harm as mechanical and manual treatment activities would not target these areas. Whereas, these species would be at a higher risk of direct harm if present in or near the work area during stream crossing installation.

Sensory disturbances to special-status ground- and cliff-nesting/breeding wildlife could occur during mechanical and manual treatment activities, new road construction, and temporary stream crossing installation/use in the Working Area from increased noise, vibrations from heavy equipment use, and increased human activity/presence. Wildlife in or near the work area during loud activities may exhibit signs of stress through habitat displacement or avoidance, or ceasing critical activities, such as foraging, reproduction, and parental care (Frid and Dill 2002). Nocturnal wildlife, such as snowshoe hares and jackrabbits, that typically forage or feed their young at night would be less at risk as there would be no nighttime feedstock activities. In addition, many species would have the ability to forage in other suitable areas until feedstock activities near their preferred foraging site are complete. Indirect impacts from sensory stress may include a reduction in health and reproductive fitness of individuals and potentially local populations. Sensory disturbances would be localized, temporary, and limited to daylight hours.

Mechanical and manual treatment activities, new road construction, and temporary stream crossing installation in the Working Area have the potential to impact wildlife through the loss of, or modification to, habitat within the work area. Heavy equipment and personnel could unintentionally remove understory vegetation used by special-status wildlife. This impact would not be limited to the breeding/rearing season for species that utilize ground scrapes year-round (e.g., Sierra Nevada snowshoe hare and western black-tailed jackrabbit). Nonetheless, many of the special-status ground- and cliff-nesting/breeding wildlife that may occur in the Working Area are found in open vegetation communities that would not be targeted for treatment.

In contrast, treatment activities could also cause indirect beneficial effects to special-status ground- and cliff-nesting/breeding wildlife by reducing the risk of severe wildfires (megafires) that cause catastrophic loss of habitat. There is abundant evidence that fuel reduction treatments effectively moderate the behavior of wildfires by lowering fireline intensity and by reducing severity and smoke production in treatment areas (Safford et al. 2012; Stephens et al. 2012; Prichard and Kennedy 2014; Lydersen et al. 2017; Hessburg et al. 2019; Prichard et al. 2020, 2021; Jones et al. 2022; North et al. 2021). Reducing the risk of megafires is important for wildlife as these events can homogenize landscapes, reduce overall species richness, and eliminate critical habitat for forest wildlife, including fire-dependent species (White et al. 2019; Kelly et al. 2020; Jones and Tingley 2022; Steel et al. 2022; Stillman et al. 2021).

### Third-Party Harvest Residuals

While ground disturbance would be minor and localized, third-party harvest residual collection may occur weeks to months following treatment activities at a given site, allowing sufficient time for special-status ground-nesting wildlife to inhabit slash piles and other vegetative debris targeted for removal. The likelihood of wildlife occupying a slash pile or similar along a roadside may be lower than those piles located further away. Further, the time of year in which harvest residuals are collected could influence the potential for impacts to ground nests. Cliff-nesting/breeding wildlife is not expected to occupy slash piles but could be impacted by this activity if present in the vicinity. Direct impacts to special-status ground- and cliff-nesting/breeding wildlife from third-party harvest residuals could include mortality of such species through equipment and vehicle strikes, as well as direct removal of vegetation occupied by these species. Indirect impacts could include sensory disturbances from equipment operation and increased human presence and habitat modification or loss. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on special-status bats. However, several PDFs would avoid or minimize such impacts. PDF-BIO-1 requires a reconnaissance-level survey of the proposed work area for biomass only thinning projects to determine whether there is potential for special-status ground- and cliff-nesting/breeding wildlife to occur on site. Moreover, PDF-BIO-7 requires focused or protocol-level surveys to identify special-status species prior to work start for such projects so that they can be avoided by implementing additional measures (e.g., pre-activity surveys, avoidance of occupied habitat/dens/burrows and limited operating periods). PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of special-status species potentially in the work area and measures to avoid or minimize impacts. Active nests of ground- and cliff-nesting/breeding birds would be protected from noise or visual impacts through the implementation of PDF-BIO-8, which involves pre-treatment surveys for active bird nests prior to commencement of biomass only thinning project work, the establishment of no-disturbance buffers until the nest has fledged or is deemed inactive, and/or monitoring by a biological monitor to ensure that treatment-related noise is not disturbing an active nest. Lastly, PDF-BIO-9 and PDF-BIO-10 as applicable would reduce the likelihood of impacts to ground- and cliff-nesting/breeding wildlife by minimizing the direct disturbance and loss of species habitat and functionality.

While PDFs would minimize impacts, the above feedstock activities could still result in direct or indirect impacts on special-status ground- and cliff-nesting/breeding wildlife if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas not avoided by feedstock activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

## Terrestrial Invertebrates

Special-status terrestrial invertebrates with potential to occur in the Working Area include, but are not limited to, Crotch's bumble bee (*Bombus crotchii*), western bumble bee (*Bombus occidentalis*), Bing's checkerspot butterfly (*Euphydryas editha bingi*), and Tuolumne sideband snail (*Monadenia tuolumneana*). Table 3.3-14 provides a comprehensive list of these species known or with potential to occur in the Working Area and considered in this analysis. Various habitat types in the Working Area may support special-status terrestrial invertebrates, although the geographic range for many of these species is extremely limited or poorly understood. For example, Bing's checkerspot butterfly is only known from the Warner Mountains in the Modoc National Forest, but there remains scientific uncertainty around the validity of its status as a genetically distinct subspecies (Crabtree, pers. comm., 2023; Emmel 1998). Keeled sideband (*Monadenia circumcarinata*) is endemic to limestone outcrops and talus slopes of the Tuolumne River canyon, and hirsute Sierra sideband snail (*Monadenia mormonum hirsuta*) is only known from few basaltic outcrops in Tuolumne County. Conversely, Crotch's bumble bee and western bumble bee are generalist species that occur in meadows, grassland, chaparral, and/or scrubland, provided there is sufficient foraging cover in spring through fall and overwintering habitat. Special-status terrestrial invertebrates may nest or overwinter in a variety of habitat features, including tree cavities, underground burrows, leaf litter, rock outcrops, and downed woody debris. Refer to Table 3 in Appendix C1 for additional species information.

### GSNR Biomass Only Thinning Projects

Special-status invertebrate species with potential to occur in the Working Area could be impacted by treatment activities of this type if present in or near the work area. In general, there are two types of impacts discussed for special-status invertebrates: mortality and injury to individual animals and loss or modification of species habitat. These impact types are discussed below.

Mechanical and manual treatment activities, new road construction, and temporary stream crossings could result in direct mortality (i.e., physical harm) to special-status invertebrates from construction equipment and vehicle strikes and foot traffic. The risk of harm varies depending on the species, location, and seasonality. As discussed above, many special-status invertebrates are restricted to localized and/or unique sites that may not be targeted for treatment. While there are limited data for many special-status invertebrates, it is likely that flying invertebrates would be able to flee from moving equipment during the flight season, while overwintering or larval species, ground-nesting colonies, and snails may be unable to flee if present in the work area during treatment activities or stream crossing installation.

Mechanical and manual treatment activities, new road construction, and temporary stream crossing installation/use in the Working Area also have the potential to impact wildlife through the loss of, or modification to, habitat within the work area. Heavy equipment and personnel could unintentionally remove or damage nesting or overwintering habitat (e.g., tree cavities, burrows, and leaf litter) and understory vegetation used by pollinator species (e.g., bumble bees and butterflies). This impact would not be limited to a particular season as special-status invertebrates could be present year-round at a given site assuming suitable habitat is present.

In contrast, treatment activities could also cause indirect beneficial effects to special-status invertebrates by reducing the risk of severe wildfires (megafires) that cause catastrophic loss of habitat. There is abundant evidence that fuel reduction treatments effectively moderate the behavior of wildfires by lowering fireline intensity and by reducing severity and smoke production in treatment areas (Safford et al. 2012; Stephens et al. 2012; Prichard and Kennedy 2014; Lydersen et al. 2017; Hessburg et al. 2019; Prichard et al. 2020, 2021; Jones et al. 2022; North et al. 2021). Reducing the risk of megafires is important for wildlife as these events can homogenize landscapes, reduce overall species richness, and eliminate critical habitat for forest wildlife, including fire-dependent species (White et al. 2019; Kelly et al. 2020; Jones and Tingley 2022; Steel et al. 2022; Stillman et al. 2021).

### Third-Party Harvest Residuals

While ground disturbance would be minor and localized, third-party harvest residual collection may occur weeks to months following treatment activities at a given site, allowing sufficient time for special-status invertebrates to inhabit slash piles and other vegetative debris targeted for removal. The likelihood of wildlife occupying a slash pile or similar along a roadside may be lower than those piles located further away. Further, the time of year in which harvest residuals are collected could influence the potential for impacts to overwintering or nesting invertebrates, such as listed bumble bees. Direct impacts to special-status invertebrates from third-party harvest residuals could include mortality of such species through equipment/vehicle strikes, removal of vegetation or slash piles occupied by these species, or unintentional removal of nesting or overwintering habitat. Indirect impacts could include habitat modification or loss. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on special-status invertebrates. However, several PDFs would avoid or minimize such impacts. PDF-BIO-1 requires a reconnaissance-level survey of the proposed work area for biomass only thinning projects to determine whether there is potential for special-status invertebrates to occur on site. Moreover, PDF-BIO-7 requires focused or protocol-level surveys to identify special-status species prior to work start for such projects so that they can be avoided by implementing additional measures (e.g., pre-activity surveys, avoidance of occupied or suitable habitat). PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of special-status species potentially in the work area and measures to avoid or minimize impacts. Special-status bumble bees and their habitat would be protected through implementation of PDF-BIO-11. Lastly, PDF-BIO-9 and PDF-BIO-10 as applicable would reduce the likelihood of impacts to special-status invertebrates by minimizing the direct disturbance and loss of species habitat and functionality.

While PDFs would minimize impacts, the above feedstock activities could still result in direct or indirect impacts on special-status terrestrial invertebrates if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas or habitats that are not avoided by feedstock activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

## Tree-, Shrub-, and Cavity-nesting Wildlife

Special-status tree-, shrub- and cavity-nesting wildlife with potential to occur in the Working Area include, but are not limited to, spotted owls (*Strix occidentalis occidentalis* and *S. o. caurina*), California wolverine (*Gulo gulo*), martens (*Martes caurina, M. c. humboldtensis,* and *M. c. sierrae*), fishers (*Pekania pennanti*), northern goshawk (*Accipiter gentilis*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and ringtail (*Bassariscus astutus*). Table 3.3-14 provides a comprehensive list of these species known or with potential to occur in the Working Area and considered in this analysis. Coniferous forest, riparian woodland, shrub, grassland, and many other habitat types could be occupied by special-status tree-, shrub-, and cavity-nesting wildlife. However, some of these species strictly nest in riparian habitat (e.g., western yellow-billed cuckoo, yellow-breasted chat [*Icteria virens*], and willow flycatcher [*Empidonax traillii*]). Numerous bird species nest in trees (e.g., bald eagle [*Haliaeetus leucocephalus*]) or shrubs (Brewer's sparrow [*Spizella breweri*]). Cavity-nesting wildlife includes martens, fishers, ringtail, and other bird species (Lewis's woodpecker and spotted owls). Most of these species breed and rear their young in early spring through late summer, usually as pairs or some as colonies (e.g., tricolored blackbird [*Agelaius tricolor*]). Some of these species are nocturnal hunters (e.g., spotted owls and ringtail) and/or highly mobile outside of the breeding season (e.g., ringtail and California wolverine). Refer to Table 3 in Appendix C1 for additional species information.

### GSNR Biomass Only Thinning Projects

Special-status tree-, shrub-, and cavity-nesting wildlife with potential to occur in the Working Area could be impacted by treatment activities of this type if present in or near the work area. In general, there are three types of impacts discussed for special-status tree-, shrub-, and cavity-nesting wildlife: mortality and injury to individual animals,

sensory disturbance (i.e., noise, vibration, and visual), and loss or modification of species habitat. These impact types are discussed below.

Mechanical and manual treatment activities during GSNR biomass thinning only projects, new road construction, and temporary stream crossing installation could result in direct injury or mortality (i.e., physical harm) to tree-shrub-, and cavity-nesting wildlife from construction equipment and vehicle strikes, as well as direct removal of trees, shrubs, snags, or cavities occupied by wildlife. The risk of physical harm varies depending on the species, location, and seasonality. For example, fishers and martens that are closely tied to dense forests with complex understories would be more vulnerable to treatment activities or stream crossing installation in these areas. In addition, vegetation removal or trimming during the breeding/rearing season could result in direct injury or mortality to young or loss of eggs that are confined to a nest. Riparian tree- and shrub-nesting species would be less at risk of direct harm as mechanical and manual treatment activities would be restricted from these areas by at least 75 feet as set forth in Section 2.4. Whereas these riparian-dwelling species would be at a higher risk of direct harm if present in or near the work area during stream crossing installation.

Sensory disturbances to special-status tree-, shrub-, and cavity-nesting wildlife could occur during mechanical and manual treatment activities, new road construction, and temporary stream crossing installation/use in the Working Area from increased noise, vibrations from heavy equipment use, and increased human activity/presence. Wildlife in or near the work area during loud activities may exhibit signs of stress through habitat displacement or avoidance, or ceasing critical activities, such as foraging, reproduction, and parental care (Frid and Dill 2002). For example, loud construction noise could alter the behaviors of adult birds nesting in the vicinity of the work area, such that eggs and young would be left alone for long periods of time, or even abandoned, resulting in potential loss of young or eggs. Nocturnal wildlife that typically forage or feed their young at night would be less at risk as there would be no nighttime feedstock activities. In addition, many species would have the ability to forage in other suitable areas until feedstock activities near their preferred foraging site are complete. Indirect impacts from sensory stress may include a reduction in health and reproductive fitness of individuals and potentially local populations. Sensory disturbances would be localized, temporary, and limited to daylight hours.

Mechanical and manual treatment activities, new road construction, and temporary stream crossing installation in the Working Area have the potential to impact special-status tree-, shrub-, and cavity-nesting wildlife through the loss of, or modification to, habitat within the work area. These activities could result in reduced canopy cover and reduced understory complexity if canopy trees, understory trees, shrubs, snags, and other forest fuels are intentionally removed. Alterations to the complexity of the understory could lead to the temporary loss of habitat functionality for some wildlife species, such as martens and fishers. Further, removal of woody debris and snags that provide critical refugia could subject these species to a higher risk of predation. Because many special-status wildlife species have specific habitat requirements, including high canopy cover and complex understory structure, changes to the character of these understory features could result in temporary loss of habitat function and exclusion of these species from the treatment site.

In contrast, treatment activities could also cause indirect beneficial effects to special-status tree-, shrub-, and cavity-nesting wildlife by removing unnatural buildup of litter, woody debris and fuel ladders, and thinning live trees and shrubs (while retaining medium and large-sized trees). This would open the canopy where tree or shrub densities are uncharacteristic of healthy or desired examples of the vegetation type and result in both immediate and long-term benefits to wildlife. Overstory thinning may result in increased light penetration and increased growth of herbaceous plant species, which may benefit some wildlife, such as seed-eating birds (McIver et al. 2013). In general, treatment activities would likely reduce the risk of severe wildfires (megafires) that cause catastrophic loss of habitat. There is abundant evidence that fuel reduction treatments effectively moderate the behavior of wildfires

by lowering fireline intensity and by reducing severity and smoke production in treatment areas (Safford et al. 2012; Stephens et al. 2012; Prichard and Kennedy 2014; Lydersen et al. 2017; Hessburg et al. 2019; Prichard et al. 2020, 2021; Jones et al. 2022; North et al. 2021). Reducing the risk of megafires is important for wildlife as these events can homogenize landscapes, reduce overall species richness, and eliminate critical habitat for forest wildlife, including old-growth forests that support spotted owls (White et al. 2019; Kelly et al. 2020; Jones et al. 2022; Jones and Tingley 2022; Steel et al. 2022; Stillman et al. 2021).

### Third-Party Harvest Residuals

While ground disturbance would be minor and localized, third-party harvest residual collection may occur weeks to months following treatment activities at a given site, allowing sufficient time for special-status tree-, shrub-, and cavity-nesting wildlife to inhabit slash piles and other vegetative debris targeted for removal. The likelihood of wildlife occupying a slash pile or similar along a roadside may be lower than those piles located further away. Further, the time of year in which harvest residuals are collected could influence the potential for impacts to nesting wildlife. Direct impacts to special-status tree-, shrub-, and cavity-nesting wildlife from third-party harvest residuals could include mortality of such species through equipment and vehicle strikes. Indirect impacts could include sensory disturbances from equipment operation and increased human presence and temporary habitat loss or modification. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on special-status tree-, shrub-, and cavity-nesting wildlife. However, several PDFs would avoid or minimize such impacts. PDF-BIO-1 requires a reconnaissance-level survey of the proposed work area for biomass only thinning projects to determine whether there is potential for special-status tree-, shrub-, and cavity-nesting species to occur on site. Moreover, PDF-BIO-7 requires focused or protocol-level surveys to identify special-status species prior to work start for such projects so that they can be avoided by implementing additional measures (e.g., avoidance of occupied habitat and limited operating periods). PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of special-status species potentially in the work area and measures to avoid or minimize impacts. PDF-BIO-9 and PDF-BIO-10 would as applicable reduce the likelihood of impacts to tree-, shrub-, and cavity-nesting species by minimizing the direct disturbance and loss of species habitat and functionality. Active nests of special-status tree-, shrub-, and cavity-nesting bird species would be protected from noise or visual impacts through the implementation of PDF-BIO-8, which involves surveys for active nests prior to the commencement of biomass thinning project work, the establishment of no-disturbance buffers until the nest has fledged or is deemed inactive, and/or monitoring by a biological monitor to ensure that construction-related noise is not disturbing an active nest.

While PDFs would minimize impacts, the above feedstock activities could still result in direct or indirect impacts to tree-, shrub-, and cavity-nesting special-status wildlife if these species and their habitat are not sufficiently avoided after identification and if these species occur in areas not avoided by treatment activities. This would be **a potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

### Ungulates

Only one special-status ungulate, Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*), has potential to occur in the Working Area. This species occurs as five disjunct populations on the eastern slopes of the southern Sierra Nevada within Tuolumne, Mono, Fresno, Inyo, and Tulare counties. Sierra Nevada bighorn sheep are associated with canyons and other open areas that are generally steep, rocky, and sparsely-vegetated. As a prey species for mountain lions (*Puma concolor*), Sierra Nevada bighorn sheep typically avoid forest, woodland, or other densely-vegetated habitat to evade predation. These species are highly mobile with expansive home ranges (approximately 38 square miles for males) (USFWS 2007) within which they migrate between summer and winter ranges to avoid deep snow.

#### GSNR Biomass Only Thinning Projects

Mechanical and manual treatment activities during GSNR biomass thinning only projects, new road construction, and temporary stream crossings would involve the use of heavy equipment and vehicles. These activities would not result in impacts to Sierra Nevada bighorn sheep as this highly mobile species would be able to leave the area if present. The proposed project does not involve permanent fence installation and would not exclude these species from suitable habitat. In general, treatment activities could cause indirect beneficial effects by reducing the risk of severe wildfires that cause catastrophic loss of habitat.

#### Third-Party Harvest Residuals

Collecting harvest residuals would be limited to discrete locations previously disturbed by treatment activities. Similar to GSNR biomass thinning only projects, there would be no direct or indirect impacts to Sierra Nevada bighorn sheep from third-party harvest residuals. See above for additional information.

#### Conclusion

While no project-related impacts are anticipated, treatment activities could still result in indirect impacts to Sierra Nevada bighorn sheep if habitat for this species is not sufficiently avoided by feedstock activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

## Wood Pellet Production

### Lassen Facility

All of the 15 special-status wildlife species known to occur in the region of the Lassen Facility site were determined to have a low potential to occur or are not expected to occur due to the lack of suitable habitat or the presence of very low quality habitat within or adjacent to the site, the lack of documented occurrences near the site, or due to the site being outside of the species' known geographic or elevation range. As such, project construction and operational impacts to special-status plant species, if any would occur on the site, would not be considered substantial and would, therefore, would be considered **less than significant**. No mitigation is required.

## Tuolumne Facility

Seven special-status wildlife species are present or have a potential to occur on the Tuolumne Facility site: California red-legged frog, California tiger salamander, northwestern pond turtle, tricolored blackbird, pallid bat, Townsend's big-eared bat, and western red bat. Additional information on special-status wildlife species and their habitat at the Tuolumne Facility site is provided in Appendix C5. The seven special-status wildlife species with potential to occur on the Tuolumne Facility site could be impacted by project activities if present in or near the work area. Potential impacts to these species are discussed below.

**California Red-legged Frog.** The Tuolumne Facility site is located within the geographic range of California red-legged frog, a federally threatened species and CDFW species of special concern. Based on a field assessment and coordination with the USFWS, some wetlands in the northern portion of the site could provide habitat for California red-legged frog. In addition, riparian habitat and adjacent uplands may provide dispersal habitat for this species. Project activities at the Tuolumne Facility site would involve the use of heavy equipment, which could lead to accidental crushing of frogs if dispersing through the work area from suitable habitat nearby. These potential impacts to California red-legged frog would be avoided or minimized with implementation of **MM-BIO-2**, **MM-BIO-8**, and **MM-BIO-13**.

**California Tiger Salamander.** The Tuolumne Facility site is located at the eastern extent of the geographic range of California tiger salamander (Central Valley DPS), a federally and state threatened species. Based on a field assessment and coordination with the USFWS, some wetlands on the site could provide habitat for California tiger salamander. In addition, riparian habitat and adjacent uplands may provide dispersal habitat for this species. Project activities at the Tuolumne Facility site would involve the use of heavy equipment, which could lead to accidental crushing of salamanders if dispersing through the work area from suitable habitat nearby. These potential impacts to California tiger salamander would be avoided or minimized with implementation of **MM-BIO-2**, **MM-BIO-8**, and **MM-BIO-13**.

**Northwestern Pond Turtle.** Northwestern pond turtle is a CDFW species of special concern that was observed in the pond in the northern portion of the Tuolumne Facility site. In addition, riparian habitat and adjacent uplands surrounding the pond provide nesting habitat for this species. No ground-disturbance or vegetation removal is proposed within riparian and wetland habitat surrounding the pond. Aquatic resources and the surrounding uplands within the proposed footprint provide low quality habitat for northwestern pond turtle due to a lack of cover and basking sites and limited suitable nesting habitat nearby. However, project activities at the Tuolumne Facility site would involve the use of heavy equipment, which could lead to accidental crushing of nests or turtles if dispersing through the work area from suitable habitat nearby. These potential impacts to northwestern pond turtle would be avoided or minimized with implementation of **MM-BIO-2**, **MM-BIO-8**, and **MM-BIO-11**.

**Tricolored Blackbird.** Tricolored blackbird is a state threatened species with a potential to occur on the Tuolumne Facility site. The pond and surrounding riparian and wetland habitat in the northern portion of the site provide suitable nesting habitat for tricolored blackbird. This species is not expected to nest within or adjacent to the work area, which lacks suitable vegetation and cover to support a nesting colony. No ground-disturbance or vegetation removal is proposed within suitable nesting habitat in the northern portion of the site. Should this species nest on site prior to construction, potential indirect impacts could include abandonment of active nests by adults due to construction-related noise. These potential impacts to tricolored blackbird would be avoided or minimized with implementation of **MM-BIO-8**, **MM-BIO-10**, and **MM-BIO-12**.

**Roosting Bats (including Pallid Bat, Townsend's Big-eared Bat, and Western Red Bat).** The Tuolumne Facility site provides potential roosting habitat for three special-status bats (pallid bat, Townsend's big-eared bat, and western red bat) and other native bats protected by regulations defined in the CFGC. Mature cottonwood trees (or other trees with exfoliating bark, crevices, and/or sufficient foliage) in the riparian woodland and abandoned structures on site provide roosting habitat, and aquatic resources on the site provide foraging habitat. No ground-disturbance or vegetation removal is proposed within riparian and wetland habitat surrounding the pond. Should bats roost on site prior to construction, potential impacts could include roost removal due to structure demolition and/or roost abandonment due construction-related noise. These potential impacts to roosting bats, including pallid bat and western red bat, would be avoided or minimized with implementation of **MM-BIO-8** and **MM-BIO-14**.

While several mitigation measures would minimize impacts, project activities at the Tuolumne Facility site could still result in direct or indirect impacts to special-status wildlife if these species and their habitat are not sufficiently avoided and if these species occur in areas not avoided by project activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to less than significant with mitigation.

Once all proposed facilities associated with the Tuolumne Facility site are constructed, operation and maintenance impacts would not be substantially different than existing conditions (i.e., noise) or impacts that are potentially significant would be reduced to less than significant with mitigation (i.e., lighting). Further, the proposed Tuolumne Facility site is in an area that is primarily disturbed, developed, or adjacent to an active wood shavings plant.

As stated in Chapter 3.11, Noise, there would not be a significant increase in the outdoor ambient noise levels according to the Tuolumne County standards. As discussed in Chapter 3.1, Aesthetics, development and operation of the Tuolumne Facility site would introduce new sources of lighting that could cause light trespass and contribute to "sky glow." However, the Tuolumne Facility site is adjacent to an existing, active wood shavings plant, which produces light and glare. While the proposed project would require exterior lighting for operations and safety at the Tuolumne Facility site, which could be a potentially significant impact, implementation of **MM-AES-1** would reduce this potential impact to less than significant. As such, any impacts to special-status wildlife species from additional activity or person(s) associated with maintenance and operation of the proposed Tuolumne Facility site would be **less than significant**.

## Transport to Market

### Port of Stockton

Eight special-status wildlife species are present or have a potential to occur on or adjacent to the Port site: green sturgeon - southern DPS, burrowing owl, Swainson's hawk, white-tailed kite, Delta smelt, loggerhead shrike, steelhead – Central Valley DPS, and chinook salmon - Central Valley fall/late fall-run ESU. Additional information on special-status wildlife species and their habitat at the Port site is provided in Section 3.3.1.4, Port of Stockton. The eight special-status wildlife species with potential to occur on the Port site could be impacted by project activities if present in or near the work area. Potential impacts to these species are discussed below.

**Aquatic Species (Green Sturgeon, Delta Smelt, Steelhead, and Chinook Salmon).** Green sturgeon, Delta smelt, steelhead, and Chinook salmon are federally-listed, state-listed or protected, and/or SJCOG covered species that could occur in the Stockton Deepwater Channel (San Joaquin River) adjacent to the Port site. The proposed project does not involve any construction or improvements to existing facilities within or over the San Joaquin River. Two large domes would be constructed at the Port site for storing and transporting pellets to a shiploader. The domes

would feed pellets to the shiploader via a gravity conveyor, and the shiploader would transfer the pellets to cargo ships for export. Pellet transport to cargo ships would take place in a sealed/contained system with no potential for pellets to enter nearby waterbodies. There would be no direct or indirect impacts to the San Joaquin River resulting from pellet storage, transport, and export. As such, impacts to special-status aquatic species at the Port site are not anticipated.

**Burrowing Owl.** Burrowing owl is a state species of special concern and SJCOG covered species that could occur at the Port site. Although no active burrow complexes were identified on site during the field survey, this species is known to occupy highly disturbed sites and may nest in constructed features, such as downspouts, storm drains, or similar. Should burrowing owl nest or overwinter at the Port site prior to construction activities, this species could be impacted by the proposed project. Direct impacts could include mortality or injury to owls or destruction of burrows/nests if nesting in or adjacent to a construction site prior to ground-disturbing activities. In addition, loud construction activities could cause an adult owl to abandon an active nest that is in close proximity to construction, which could lead to nest failure. These potential impacts to burrowing owl would be avoided or minimized with implementation of **MM-BIO-17**, **MM-BIO-18**, and **MM-BIO-20**.

**Nesting Birds (including Swainson's Hawk, White-tailed Kite, and Loggerhead Shrike).** Swainson's hawk, white-tailed kite, and loggerhead shrike are state protected species and SJCOG covered species that could nest in trees or shrubs in the vicinity of the Port site. Should any of these species nest at the Port site prior to construction activities, they could be impacted by the proposed project. Direct and indirect impacts to these species would be similar to those described above for burrowing owl. Potential impacts to Swainson's hawk, white-tailed kite, and loggerhead shrike would be avoided or minimized with implementation of **MM-BIO-17**, **MM-BIO-18**, and **MM-BIO-19**.

While several mitigation measures would minimize impacts, project activities at the Port site could still result in direct or indirect impact if special-status wildlife species and their habitat are not sufficiently avoided and if these species occur in areas not avoided by project activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), the impact would be reduced to **less than significant with mitigation.**

Once all proposed facilities at the Port site are constructed, operation and maintenance impacts would not be substantially different than existing conditions. As discussed in Chapter 3.1, Aesthetics, the proposed Port site consists of an undeveloped area in the northwest quarter of the Port of Stockton – West Complex. Approximately 75 facilities or businesses operate out of the West Complex as of 2020. While the project may require additional lights at the storage facility, these lights would not introduce substantial light compared to the project vicinity. As stated in Chapter 3.11, Noise, there would not be a significant increase in the outdoor ambient noise levels according to the City of Stockton standards. As such, any impacts to special-status wildlife species from additional activity or person(s) associated with maintenance and operation of the proposed Port site would be **less than significant**.

Impact BIO-2 The project may substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community.

### Sustainable Forest Management Projects (Feedstock Acquisition)

In general, common and widespread plant and wildlife species (including fish species) would not be susceptible to population threats and community elimination. Special-status plant and wildlife species may be more susceptible

due to declining populations, vulnerability to habitat change, or restricted distributions. As previously stated, 200 special-status wildlife or fish species are known to occur or have a potential to occur in the Working Area. Those special-status species associated with forest, woodland, and shrubland communities are most vulnerable to impacts from feedstock acquisition in the Working Area because of their predominance on National Forest land and other timberlands.

Special-status species may be more or less susceptible to population threats or community elimination, depending on their life history strategy and distribution. For example, wildlife species that can occupy a wide variety of habitat types throughout the state (e.g., western bumblebee and American badger) or highly mobile species with large home ranges (e.g., Sierra Nevada red fox and gray wolf) would be less susceptible to population threats or community elimination as a result of feedstock acquisition activities. In addition, plant and wildlife species that occur in aquatic or riparian habitat would be generally less susceptible to population threats as their habitat would not be targeted by feedstock activities.

There is critical habitat designed for 30 federally listed plant (10) and wildlife (20) species in the Working Area (refer to Table 3.3-5). However critical habitat for 22 of these species is either located outside of forested land where feedstock activities would specifically occur (e.g., Central Valley) or is designated for species strongly tied to vernal pools that would not be treated, nor disturbed by feedstock acquisition. Critical habitat for the remaining 8 species could occur in or adjacent to forested land in the Working Area: California red-legged frog, Lost River sucker, Northern spotted owl, Oregon spotted frog, Shortnose sucker, Sierra Nevada yellow-legged frog, Webber's ivesia, and Yosemite toad. For any project that could result in adverse impacts to threatened or endangered species, the project proponent or federal lead agency must consult with the USFWS to ensure that any such action is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat for that species. Therefore, the proposed project would comply with the federal ESA such that no adverse modification to critical habitat would result from feedstock activities.

As discussed in Section 2.4, feedstock would come from three sources in the Working Area: (1) GSNR biomass only thinning projects, (2) harvest residuals, and (3) mill residuals from third-party commercial lumbermills. However, and as discussed in Section 3.3.4.1, there is only a potential for impacts to biological resources from two sources: GSNR biomass only thinning projects and third-party harvest residuals, both of which are discussed below.

### GSNR Biomass Only Thinning Projects

Mechanical and manual treatment activities and potential temporary stream crossing installation during GSNR biomass thinning only projects would not involve the permanent removal of natural vegetation communities as would a land conversion or development project. Moreover, GSNR Biomass Only Thinning Projects would be subject to mandatory treatment prescription criteria (see Section 2.4) limiting the materials that may be removed during these activities, and regulating the conditions for removal. Treatment activities of this type would avoid major waterbodies and associated riparian vegetation by at least 75 feet, as set forth in Section 2.4. Temporary stream crossings would only be installed if necessary to facilitate access to a given treatment site; these structures would be designed to result with minimal habitat impacts in accordance with required resource permits (e.g., Lake or Streambed Alteration Agreement, Incidental Take Authorization/Biological Opinion). Further, habitat loss would be limited to forest and timberlands and temporary in nature, as well as a means to prevent catastrophic habitat loss from severe wildfires (megafires) that ignite from the suppression and buildup of forest fuels. The proposed project is intended to enhance forest resiliency to drought, reduce fire risk, restore natural watersheds, among other objectives (refer to Section 2.2, Project Objectives).

### Third-Party Harvest Residuals

As discussed in Section 2.4, GSNR would procure residual biomass material resulting from third-party sustainable forest management projects in the Working Area. This activity would be subject to the applicable constraints set forth in Section 2.4, including limiting the materials that may be removed and regulating the conditions for removal. Access to harvest residuals, including slash piles and other vegetative debris (roundwood or chips), would primarily occur using existing forest roads and logging/haul trucks. This activity would be limited to discrete locations previously disturbed by treatment activities, and therefore involve less ground-disturbance than GSNR biomass only thinning projects. Further, this activity would not involve the permanent removal of natural vegetation communities, as well as avoid major waterbodies and riparian vegetation by at least 75 feet, as set forth in Section 2.4.

While ground disturbance associated with third-party harvest residuals would be minor and localized to previously treated sites, this activity may occur weeks to months following treatment at a given site, allowing sufficient time for special-status wildlife, as well as common prey species (e.g., invertebrates, amphibians, reptiles, and rodents), to inhabit slash piles and other vegetative debris targeted for removal. The likelihood of wildlife occupying a slash pile or similar (harvest residuals) along a roadside may be lower than residuals located further away, and seasonality would influence the critical activity (e.g., nesting, overwintering, foraging) or resource impacted (e.g., shelter, prey) for a given species. As such, there is a potential for plant and wildlife populations to be impacted by this activity due to the extent of land in the Working Area subject to harvest residual collection and associated habitat disturbance/loss.

### Conclusion

Several PDFs are included as part of the proposed project to avoid or minimize impacts to special-status species individuals, communities, and their habitat in the Working Area during GSNR biomass thinning only projects (including potential stream crossings) and third-party harvest residuals. PDF-BIO-1 requires a reconnaissance-level survey of the proposed work area for biomass only thinning projects to determine whether there is potential for special-status species to occur on site. Moreover, PDF-BIO-7 requires focused or protocol-level surveys to identify special-status wildlife species prior to work start for such projects so that they can be avoided by implementing additional measures (e.g., avoidance of occupied habitat and limited operating periods). PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of special-status species potentially in the work area and measures to avoid or minimize impacts. Hazardous materials used during construction would be transported, used, and disposed of in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. The proposed project would also implement a SWPPP or equivalent document (PDF-GEO-3 and PDF-GEO-4) during biomass only thinning project treatment activities that would include steps to prevent, contain, and clean up hazardous material spills that could result from construction. PDF-GEO-1, PDF-GEO-2, PDF-GEO-5 and PDF-GEO-6 require implementation of measures to minimize soil erosion, which would reduce potential indirect impacts on special-status plants from soil destabilization and dusting. In addition, PDF-BIO-05 requires a protocol-level rare plant survey prior to treatment activities and PDF-BIO-6 requires avoidance of special-status plant species if and where present in the work area. PDF-BIO-04 requires implementation of actions to prevent the spread of invasive plants and noxious weeds that could compete with special-status plants for water, light, and nutrients, which would reduce potential indirect impacts from competition with invasive species. PDF-BIO-9 and PDF-BIO-10 would as applicable reduce the likelihood of impacts to special-status plant and wildlife species by minimizing the direct disturbance and loss of species habitat and functionality.

While PDFs would minimize impacts, the above feedstock activities in the Working Area could still result in direct or indirect impacts if these species and their habitat are not sufficiently avoided after identification and if these

species occur in areas not avoided by feedstock activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-1** (Compensate for Unavoidable Loss of Special-Status Plants) and **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), potential impacts to existing fish or wildlife populations and/or plant or animal communities would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no long-term operation-related impacts would occur.

## Wood Pellet Production

### Lassen Facility

In general, common and widespread plant and wildlife species (including fish species) would not be susceptible to population threats and community elimination. Special-status plant and wildlife species may be more susceptible due to declining populations, vulnerability to habitat change, or restricted distributions. As previously stated, special-status plant and wildlife species were determined to have a low potential to occur or are not expected to occur due to the lack of suitable habitat or the presence of very low quality habitat within or adjacent to the site, the lack of documented occurrences near the site, or due to the site being outside of the species' known geographic or elevation range. As such, project construction and operational would not substantially reduce habitat, cause a species population to drop below self-sustaining levels, or threaten to eliminate a wildlife or plant community altogether, and the impact would be **less than significant.** No mitigation is required.

### Tuolumne Facility

In general, common and widespread plant and wildlife species (including fish species) would be less susceptible to population threats and community elimination. Special-status plant and wildlife species may be more susceptible due to declining populations, vulnerability to habitat change, or restricted distributions. As previously stated, seven special-status plant species (Beaked clarkia, Tuolumne button-celery, spiny-sepaled button-celery, Stanislaus monkeyflower, forked hare-leaf, veiny monardella, and Patterson's navarretia) and seven special-status wildlife species (California tiger salamander, California red-legged frog, northwestern pond turtle, tricolored blackbird, Townsend's big-eared bat, pallid bat, and western red bat) have potential to occur on the Tuolumne facility site. All of these species are known to occur in other locations outside of the Tuolumne facility site region (CDFW 2024a).

Several mitigation measures are included as part of the proposed project to avoid or minimize potential impacts to special-status species individuals, communities, and their habitat at the Tuolumne facility site. As discussed in Section 3.6, the project would adhere to the required measures stipulated by a site-specific SWPPP to minimize soil erosion, which would reduce potential indirect impacts associated with construction and operations on special-status plants from soil destabilization and dusting. In addition, **MM-BIO-9** requires a protocol-level rare plant survey prior to construction and avoidance of special-status plant species if and where present in the work area wherever feasible. **MM-BIO-16** requires implementation of actions to prevent the spread of invasive plants and noxious weeds that could compete with special-status plants for water, light, and nutrients, which would reduce potential indirect impacts from competition with invasive species. Potential impacts to special-status wildlife and native and migratory nesting birds or their habitat would be avoided or minimized with implementation of **MM-BIO-8** through **MM-BIO-16**.

Given the incorporation of the above forementioned mitigation measures and the general lack of self-sustaining plant and animal communities currently occurring in the work area, construction and operation of the Tuolumne

Facility site would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community. As such, potential impacts with respect to existing fish or wildlife populations and/or plant or animal communities would be **less than significant.** No mitigation is required.

## Transport to Market

### Port of Stockton

In general, common and widespread plant and wildlife species (including fish species) would not be susceptible to population threats and community elimination. Special-status plant and wildlife species may be more susceptible due to declining populations, vulnerability to habitat change, or restricted distributions. As previously stated, no special-status plant species are expected to occur at the Port site due to the lack of suitable habitat or the presence of very low quality habitat within or adjacent to the site, the lack of documented occurrences near the site, and/or the site being outside of the species' known geographic or elevation range. There are eight special-status wildlife species (green sturgeon - southern DPS, burrowing owl, Swainson's hawk, white-tailed kite, Delta smelt, loggerhead shrike, steelhead – Central Valley DPS, and chinook salmon - Central Valley fall/late fall-run ESU) known to occur or have a potential to occur at the Port site. Of these eight species, no impacts to the four aquatic species are anticipated, leaving potential impacts to four special-status wildlife species (burrowing owl, Swainson's hawk, white-tailed kite, and loggerhead shrike). All of these four species are known to occur in other locations outside of the region of the Port site (CDFW 2024a).

As previously discussed, the Port site is largely in a disturbed condition from previous grading and regular vegetation management, as well as some existing development. Approximately 90% of the site is mapped as disturbed or urban, and the remaining 10% consists of a degraded seasonal wetland and riparian vegetation. As such, there is a general lack of suitable habitat for many common and special-status species known to occur in the region. In addition, the Port site is essentially surrounded by urban development which further limits the ability of wildlife populations to become established and to be self-sustaining. Native plant and vegetation communities on the site are essentially non-existent. The two patches of riparian vegetation are dominated by non-native and invasive species.

Given the highly disturbed nature of the Port site, its isolation from other areas of undisturbed habitat in the vicinity, and the general lack of self-sustaining plant and animal communities currently occurring at the Port site, construction and operation of the Port site would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community. As such, potential impacts with respect to existing fish or wildlife populations and/or plant or animal communities would be **less than significant.** No mitigation is required.

Impact BIO-3 The project may have a substantial adverse effect on riparian habitat or other sensitive natural community.

## Sustainable Forest Management Projects (Feedstock Acquisition)

As discussed in Section 3.3.1.1, sensitive natural communities may be of special importance to federal and state agencies and local conservation organizations for a variety of reasons, including their rarity or regionally declining status, or because they provide important habitat to common and special-status plant and wildlife species. Within California, the CNDDB reported 147 sensitive natural communities within 5 miles of the Working Area (refer to

Table 4 in Appendix C1), and undocumented occurrences may occur within treatment sites or other work areas. Of these 147 sensitive natural communities, 40 natural communities are associated with upland forest, woodland, or shrubland communities. Within southern Oregon, the OCS has designated nine strategy habitats determined to be of greatest conservation concern in the Working Area: aspen woodland, flowing water and riparian habitat, grasslands, late successional mixed conifer forests, natural lakes, oak woodlands, Ponderosa pine woodlands, sagebrush habitats, and wetlands (ODFW 2024b). Of these nine habitats, four strategy habitats are associated with upland forest, woodland, or shrubland communities (late successional mixed conifer forests, oak woodlands, Ponderosa pine woodlands, sagebrush). Within western Nevada, NatureServe (2024) has designated numerous areas of unprotected biodiversity importance (AUBIs) in the Working Area.

Forest, woodland, and shrubland communities that are also considered sensitive natural communities as described above and in Section 3.3.1.1, are most vulnerable to impacts from feedstock activities in the Working Area because of their predominance on National Forest land and other timberlands where treatments would occur.

### GSNR Biomass Only Thinning Projects

Treatment activities of this type would involve vegetation removal that could directly impact sensitive natural communities potentially occurring in work areas. Mechanical and manual treatment activities, road construction, and stream crossing installation and use could result in loss or degradation of sensitive natural communities through the direct removal of dominant and characteristic vegetation that defines the community or modifications to species composition, growth form, and vegetation structure that causes a transition to a more common community or one dominated by non-native vegetation.

GSNR biomass only thinning projects could also indirectly impact sensitive natural communities. An indirect impact would occur if activities altered habitat or site conditions in a manner that later results in the death or lack of regeneration of vegetation that typifies the sensitive community at the alliance level. Additional ground disturbance resulting from these activities could create new barren substrates into which invasive plant species could expand and degrade adjacent sensitive natural communities. If not properly sanitized, equipment could spread plant pathogens among work areas, causing death of native vegetation that typifies sensitive communities.

### Third-Party Harvest Residuals

Access to harvest residuals, including slash piles and other vegetative debris (roundwood or chips), would primarily occur using existing forest roads and logging/haul trucks. This activity would be limited to discrete locations previously disturbed by treatment activities, and therefore involve less ground-disturbance than GSNR biomass only thinning projects. Further, this activity would avoid major waterbodies and riparian vegetation by at least 75 feet, as set forth in Section 2.4. Direct impacts to sensitive natural communities could include loss or degradation through the direct removal of dominant and characteristic vegetation or modifications to species composition, growth form, and vegetation structure. Indirect impacts could include the spread of invasive species and plant pathogens, leading to the degradation of sensitive communities. These direct and indirect impacts would generally be similar, but typically lesser in extent and intensity than in the case of biomass only thinning projects. See above for additional information regarding these impacts.

### Conclusion

Several PDFs would avoid or minimize impacts on sensitive natural communities. PDF-BIO-1 and PDF-BIO-12 would minimize direct impacts to sensitive natural communities by requiring the identification and mapping of such

communities and the establishment of avoidance buffers to be marked prior to and through the duration of biomass only thinning project treatment activities. Riparian vegetation would be avoided by at least 75 feet as stated in Section 2.4 of Chapter 2, Project Description. PDF-BIO-3 would avoid infection of sensitive communities by implementing best management practices to prevent the spread of plant pathogens into sensitive communities from construction equipment and soil. PDF-BIO-4 would avoid degradation of sensitive communities by non-native invasive plants by implementing measures to prevent the spread of such plants at treatment sites.

While PDFs would minimize impacts, the above feedstock activities could still reduce the acreage of some communities, eliminate communities from a work area, or reduce existing habitat values and functions provided by such communities (e.g., soil stabilization provided by native bunchgrasses). This would be a **potentially significant** impact. However, with implementation of **MM-BIO-3**, Compensate for Unavoidable Loss of Sensitive Natural Communities and Oak Woodlands, the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

## Wood Pellet Production

### Lassen Facility

The development footprint for the Lassen Facility site contains approximately 57 acres of Great Basin grassland, which is considered a sensitive natural community by CDFW. An additional 165 acres of this sensitive natural community occurs throughout the greater site boundary (as shown on Figure 3.3-3) and is co-dominated ashy ryegrass, bald brome, and nineleaf biscuitroot. Trees are absent and shrubs are limited to sparse big sagebrush individuals.

Construction of the wood pellet processing facility and associated infrastructure would result in the direct removal of approximately 26% of the Great Basin grassland on the four parcels encompassing the proposed site. Construction and operational activities could also indirectly impact additional Great Basin grassland located outside but adjacent to the project site. Potential indirect impacts include increased cover of nonnative invasive plants and reduced survival of native vegetation from construction- and operational-related dust or competition with nonnative invasive plants. Additional disturbance associated with construction would create new barren substrates into which such species could expand. Dust generated from construction- and operational-related traffic or ground disturbance could settle on the leaves of native plants growing near access roads or adjacent to work areas, adversely affecting photosynthesis, respiration, and transpiration.

Within the project site footprint, this community is highly disturbed as a result of previous grading and stockpiling activities. Impacts to Great Basin grassland would be significant if loss of this community on the site substantially reduced its spatial extent in the region. Great Basin grassland on the site contains sparse cover of big sagebrush within the site, but is coarsely mapped by FRAP (2015) and USDA (2023) as sagebrush or Basin sagebrush. Moreover, Great Basin grassland often occurs in a fine mosaic with big sagebrush (Young et al. 2007). Based on FRAP (2015) and USDA (2023) mapping, an estimated 25 to 40 acres of other habitat, alliance, and community groupings of Big Basin grassland (i.e., perennial grassland and perennial grasses and forbs) and 15,990 to 17,500 acres of sagebrush or Basin sagebrush (which often contains Great Basin grassland) are mapped within 5 miles of the site footprint. Based on a review of aerial photography (Google Earth Pro 2023), Great Basin grassland mapped on the site has a very similar or identical vegetative signature of the sagebrush communities mapped extensively in the region by FRAP (2015) and USDA (2023). Although there is existing Great Basin grassland throughout the

region, the loss of 57 acres on the Lassen Facility site would be a **potentially significant** impact. However, with implementation of **MM-BIO-3** (Compensate for Unavoidable Loss of Sensitive Natural Communities and Oak Woodlands), the impact would be reduced to less than significant with mitigation.

Once constructed, operations and maintenance at the Lassen Facility site would be limited to already disturbed areas. Therefore, there would be **no impact** to sensitive natural communities from operations and maintenance activities. No mitigation is required.

#### Tuolumne Facility

The Tuolumne Facility site contains 0.7 acres of spikerush marsh and 0.25 acres of riparian woodland, both of which are considered sensitive natural communities by CDFW. Both communities occur adjacent to the perennial pond in the northeastern corner of the site, with spikerush marsh occurring as a component of the freshwater emergent wetland at the pond's eastern edge and riparian woodland growing on the western and southern banks. These sensitive natural communities would be avoided by the project. As such, impacts to sensitive natural communities at the Tuolumne Facility site are not anticipated; as such, there would be **no impact**. No mitigation is required.

### Transport to Market

#### Port of Stockton

Within the site, there is approximately 1.39 acres of riparian vegetation growing along a constructed ditch. This vegetation community occurs in two small patches and is dominated by invasive Himalayan blackberry. There is a continuous riparian woodland growing along the Stockton Deep Water Channel near the Port site. Given the very small quantity and disturbed nature of the riparian vegetation on site and the availability of existing riparian habitat proximate to the site, project construction and operational impacts to this community are considered **less than significant**.

Impact BIO-4 The project may have a substantial adverse effect on federally or state-protected wetlands.

### Sustainable Forest Management Projects (Feedstock Acquisition)

As discussed above, the Working Area intersects tens of thousands of linear miles of streams, rivers, canals, and ditches, as well as freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, lake, and riverine habitat. State and federally protected wetlands and other aquatic resources in the Working Area and considered in this analysis are mapped at a statewide level (USGS 2024e; USGS 2024a; USFWS 2024a). However, many aquatic resources are defined at a finer scale than is available in by public datasets used in this analysis.

#### GSNR Biomass Only Thinning Projects

GSNR Biomass Only Thinning Projects (treatment activities) would avoid most aquatic resources in the Working Area, including riparian areas, lakes, and perennial streams, by at least 75 feet, as set forth in Section 2.4. However, access to remote treatment areas may require installing a temporary stream crossing, which have the potential to impact state and federally protected wetlands and other aquatic resources. Temporary crossings would only be installed if necessary and would be designed and implemented to result with minimal aquatic resource impacts in accordance with the required resource permits (e.g., Lake or Streambed Alteration Agreement, Waste Discharge Requirements or Section 401 and 404 Clean Water Act permits, Incidental Take Authorization/Biological Opinion).

In addition, mechanical and manual treatment activities during GSNR biomass only thinning projects could impact smaller aquatic resources in or near the work area. Thus, treatment activities of this type have the potential to unintentionally impact protected aquatic resources, leading to the degradation of ecological functions and inherent value. This impact could result from ground-disturbance, removing upland vegetation that affects hydrology, directly clearing wetland vegetation, and filling or dredging within aquatic resources.

### Third-Party Harvest Residuals

Collecting harvest residuals would involve minor ground disturbance in previously disturbed treatment areas at least 75 feet from aquatic habitat, as set forth in Section 2.4. Thus, there would be no direct impacts to state and federally protected wetlands and other aquatic resources from this activity. Indirect impacts could include accidental spills of fuel or other hazardous materials, but these impacts are unlikely to occur due to harvest residuals being collected in previously disturbed treatment areas at least 75 feet from aquatic habitat.

### Conclusion

GSNR biomass only thinning projects and third-party harvest residuals could have direct and indirect impacts on state and federally protected wetlands and other aquatic resources. However, several PDFs would avoid or minimize such impacts. As discussed in Section 3.9, hazardous materials used during construction would be transported, used, and disposed of in accordance with all relevant federal, state, and local laws. The proposed project would also implement a Stormwater Pollution Prevention Plan (SWPPP) or equivalent document (PDF-GEO-3 and PDF-GEO-4) during biomass only thinning project treatment activities that would include steps to prevent, contain, and clean up hazardous material spills that could result from treatment activities. PDF-GEO-1, PDF-GEO-2, PDF-GEO-5, and PDF-GEO-6 as applicable require implementation of measures to minimize soil erosion, which would reduce potential indirect impacts from soil transport to waterbodies. PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources, including aquatic resources, to increase awareness of these resources in or near the work area and measures to avoid or minimize impacts. Lastly, PDF-BIO-13 requires that the contractor install no-disturbance buffers around each delineated aquatic resource using high-visibility flagging, fencing, stakes, or similar that would be inspected and maintained through the duration of activities at a given work site.

While PDFs would minimize impacts, the above feedstock activities could still result in impacts to state and federally protected wetlands and other aquatic resources if these resources are not sufficiently avoided after identification and if these resources occur in areas that are not avoided by feedstock activities. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-4** (Compensate for Unavoidable Loss of Wetlands and Other Aquatic Resources), the impact would be reduced to less than significant with mitigation.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, no operation-related impacts would occur.

## Wood Pellet Production

### Lassen Facility

The Lassen Facility site contains approximately 42.8 acres of potentially jurisdictional aquatic resources, including 2.1 acres of non-wetland waters and 40.7 acres of wetlands. Wetlands are composed of eight seasonal wetlands and three seasonal wetland swales. Non-wetland waters are composed of six constructed drainage ditches.

Construction of the wood pellet processing facility and associated infrastructure would directly remove of 39.9 acres of aquatic resources on the Lassen Facility site. Within the site footprint, wetlands are highly disturbed because of previous grading and stockpiling activities. Impacts to these wetlands would be significant if the loss would substantially reduce the extent of wetlands in the region. Further, there are approximately 1,326 acres of wet meadows mapped within 5 miles of the site boundary (FRAP 2015). Thus, the loss of 39.9 acres of wetlands on the Lassen Facility site is relatively small when compared to the extent of wetlands in the region.

Construction activities could also indirectly impact avoided aquatic resources. Indirect impacts include accidental spills of fuel or other hazardous materials and ground disturbance resulting in the introduction of invasive plant species and dust generation. Dust produced by ground disturbance could settle on the leaves of nearby wetland plants, adversely affecting plant survival. Construction equipment and materials could also introduce invasive plant species if not properly cleaned prior to arriving on site. In addition, changes in site topography from construction grading could alter site hydrology and surface run-off, resulting with habitat degradation or loss of wetland function over time. Together, these impacts could disrupt wetland ecosystems in ways that reduce the extent and survival of the wetland over time.

As discussed in Section 3.9, hazardous materials used during construction would be transported, used, and disposed of in accordance with all relevant federal, state, and local laws. The proposed project would also implement a Stormwater Pollution Prevention Plan (SWPPP) during construction activities that would include BMPs to control erosion and sedimentation, which would reduce potential indirect impacts from soil transport to waterbodies. In addition, **MM-BIO-5** requires mandatory training for all field personnel regarding biological resources, including aquatic resources, to increase awareness of these resources near the work area and measures to avoid or minimize impacts.

While mitigation measures would minimize impacts to avoided wetlands, the direct removal of 39.9 acres of aquatic resources on the site would permanently remove the existing habitat and functions these features provide. This would be a **potentially significant** impact. However, **MM-BIO-7** requires compensatory mitigation to ensure no net loss of wetlands or other aquatic resources. Based on site soil, hydrology, and watershed characteristics, the southern portion of the Lassen Facility site could be used as on-site wetland mitigation. This portion of the site has the potential to support approximately 47.8 acres of seasonal wetland (WRA 2024b). Therefore, with implementation of **MM-BIO-7**, the impact would be reduced to less than significant with mitigation.

Once constructed, operations at the Lassen Facility site would be restricted to disturbed or developed areas outside of aquatic resources. Feedstock material stockpiling at the Lassen Facility site would be restricted from areas where material could wash into nearby aquatic resources. In general, operations would be implemented such that there would be **no impact** to nearby aquatic resources.

### Tuolumne Facility

The Tuolumne Facility site contains approximately 10.5 acres of potentially jurisdictional aquatic resources, including 7.6 acres of non-wetland waters, 1.9 acres of wetlands, and 1 acre of riparian woodland (CDFW jurisdiction only). Wetlands are composed of two freshwater emergent wetlands, five seasonal wetlands, and a small vernal pool. Non-wetland waters are composed of five natural drainages, three constructed drainage ditches, a perennial pond, and four detention basins.

The proposed project would directly remove approximately 2.5 acres of aquatic resources at the Tuolumne Facility site. Within the site footprint, wetlands and other aquatic resources are highly disturbed because of past and

ongoing mill operation activities. Impacts to these resources would be significant if the loss would substantially reduce the extent of wetlands in the region. Further, there are approximately 970 acres of similar aquatic resources mapped within 5 miles of the site boundary (freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, and riverine) (USFWS 2024a). Thus, the loss of 2.5 acres of aquatic resources at the Lassen Facility site is relatively small when compared to the extent of wetlands in the region.

Construction activities could also indirectly impact avoided aquatic resources. Indirect impacts include accidental spills of fuel or other hazardous materials and ground disturbance resulting in the introduction of invasive plant species and dust generation. Dust produced by ground disturbance could settle on the leaves of nearby wetland plants, adversely affecting plant survival. Construction equipment and materials could also introduce invasive plant species if not properly cleaned prior to arriving on site. In addition, changes in site topography from construction grading could alter site hydrology and surface run-off, resulting with habitat degradation or loss of wetland function over time. Together, these impacts could disrupt wetland ecosystems in ways that reduce the extent and survival of the wetland over time.

As discussed in Section 3.9, hazardous materials used during construction would be transported, used, and disposed of in accordance with all relevant federal, state, and local laws. The proposed project would also implement a Stormwater Pollution Prevention Plan (SWPPP) during construction activities that would include BMPs to control erosion and sedimentation, which would reduce potential indirect impacts from soil transport to waterbodies. In addition, **MM-BIO-8** requires mandatory training for all field personnel regarding biological resources, including aquatic resources, to increase awareness of these resources near the work area and measures to avoid or minimize impacts.

While mitigation measures would minimize impacts to avoided wetlands, the direct removal or degradation of 2.5 acres of aquatic resources on the site would permanently remove the existing habitat and functions these features provide. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-4** (Compensate for Unavoidable Loss of Wetlands and Other Aquatic Resources), the impact would be reduced to less than significant with mitigation.

Once constructed, operations at the Tuolumne Facility site would be restricted to disturbed or developed areas outside of aquatic resources. Feedstock material stockpiling at the Tuolumne Facility site would be restricted from areas where material could wash into nearby aquatic resources. In general, operations would be implemented such that there would be **no impact** to nearby aquatic resources.

## Transport to Market

### Port of Stockton

The Stockton Deepwater Channel (San Joaquin River) is located adjacent to the Port site. The proposed project does not involve any construction or improvements to existing facilities within or over the San Joaquin River. Two large domes would be constructed at the Port site for storing and transporting pellets to a shiploader. The domes would feed pellets to the shiploader via a gravity conveyor, and the shiploader would transfer the pellets to cargo ships for export. Pellet transport to cargo ships would take place in a sealed/contained system with no potential for pellets to enter nearby waterbodies. There would be no direct or indirect impacts to the San Joaquin River resulting from pellet storage, transport, and export.

Within the Port site, there are three ditches, one seasonal wetland, and two patches of riparian woodland (CDFW jurisdiction only). In general, these resources are constructed stormwater features, altered by the surrounding landscape, and/or mowed regularly. Construction at the Port site may result in the direct removal or fill of these resources during ground disturbance, resulting in the loss of wetland habitat and function. Construction activities could also indirectly impact these resources.

As discussed in Section 3.9, hazardous materials used during construction would be transported, used, and disposed of in accordance with all relevant federal, state, and local laws. The proposed project would also implement a Stormwater Pollution Prevention Plan (SWPPP) during construction activities that would include BMPs to control erosion and sedimentation, which would reduce potential indirect impacts from soil transport to waterbodies. In addition, **MM-BIO-17** requires mandatory training for all field personnel regarding biological resources, including aquatic resources, to increase awareness of these resources in or near the work area and measures to avoid or minimize impacts.

While mitigation measures would minimize impacts to avoided wetlands, the direct removal or degradation of aquatic resources on the site would permanently remove the existing habitat and functions these features provide. This would be a **potentially significant** impact. However, with implementation of **MM-BIO-4** (Compensate for Unavoidable Loss of Wetlands and Other Aquatic Resources), the impact would be reduced to less than significant with mitigation.

Once constructed, operations at the Port site would be restricted to developed areas. There would be **no impact** to the San Joaquin River or other aquatic resources resulting from pellet storage, transport, and export.

Impact BIO-5 The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

## Sustainable Forest Management Projects (Feedstock Acquisition)

Movement corridors in the Working Area are used by a variety of wildlife including small mammals, larger predators such as bobcat, mountain lion, and wolves, ungulates such as deer, big-horn sheep, and elk, and birds. There are 70 designated movement corridors partially located with forested land where feedstock activities could occur. Refer to Figure 3.3-8, Working Area - Wildlife Connectivity, for a visual depiction of these corridors in the Working Area.

As discussed in Section 2.4, feedstock for manufacturing of wood pellets would come from three sources in the Working Area: (1) GSNR biomass only thinning projects, (2) harvest residuals, and (3) mill residuals from third-party commercial lumbermills. However, and as discussed in Section 3.3.4.1, there is only potential impacts to biological resources, such as wildlife movement corridors, from two sources: GSNR biomass only thinning projects and harvest residuals, both of which are discussed below.

### GSNR Biomass Only Thinning Projects

#### Wildlife Movement

GSNR biomass only thinning projects would range in location and size (10 to 2,000 acres) such that each work site would vary in its potential to support wildlife movement. Treatment sites located closer to human habitation would typically provide habitat for wildlife species that are more tolerate of disturbance. Whereas large treatment sites in

remote areas may support movements of wildlife species that are sensitive to disturbance. In addition, wildlife species with extensive home ranges (e.g., wolves, elk, and big-horn sheep) would be less susceptible to impact compared to species with much smaller home ranges (e.g., small mammals, invertebrates, and amphibians).

GSNR biomass only thinning projects would range in size and duration (weeks to months), depending on the location and type of treatment. In general, GSNR biomass only thinning projects, including stream crossing construction and use, would be localized and temporary and would not involve permanent fence or any major barrier that could impede wildlife movement. Treatment sites containing historic migratory corridors or other important movement routes would likely not encompass the entire area available for movement, thereby allowing migratory or mobile species to use the surrounding forested land to avoid treatment activities. Migratory nocturnal wildlife would be less susceptible to impacts as treatment activities would not create any temporary barriers outside of working hours. Although a given work site may function as local dispersal habitat for wildlife movement, treatment activities would not create a significant impediment to wildlife movement.

GSNR biomass only thinning projects could include up to 1 mile of standard low standard (unpaved) road (per year, per project) and temporary stream crossings to facilitate access to remote sites. New roads and stream crossings would only be operational and maintained through the duration of treatment activities. Stream crossings would be designed to not impede fish or other aquatic species passage. In addition, each crossing would be removed, and the site restored in accordance with the required permits (e.g., Streambed Alteration Agreement from CDFW, Biological Opinion/Incidental Take Permit). New road construction and crossing installation would be temporary and localized (less than 1-mile-long disturbance area). Further, these roads and crossings would not create a significant impediment to wildlife movement.

#### Wildlife Nursery Sites

Nursery sites are locations where fish and wildlife congregate for hatching and/or raising young, such as bird nests, colonial waterbird (e.g., herons and egrets) rookeries, spawning areas for fish, fawning areas for deer, and bat maternity roosts. For the purposes of this EIR, nursery sites are considered for native wildlife that are not designated as special-status species, which are addressed separately. However, potential impacts to native wildlife nursery sites would be similar to those described above for special-status wildlife. Direct impacts include loss of a nursery site or associated individuals if not properly avoided by the project. Indirect impacts include sensory disturbance (i.e., noise, vibration, and visual) and loss or modification of species habitat.

### Third-Party Harvest Residuals

#### Wildlife Movement

Collection of harvest residuals from third-party treatment areas would not interfere substantially with the movement of native fish or wildlife, or with established wildlife corridors because the area would already be disturbed. This activity would typically involve a small crew supporting removal of previously felled material at each acquisition site. Although the crew size and location will vary widely depending on the intensity of the specific project across the Working Area, crews (or “sides” at any given location would not normally exceed six workers). In addition, access to harvest residuals would primarily occur using existing logging/haul roads and avoid aquatic habitat by least 75 feet, as set forth in Section 2.4. As such, this activity would not create a significant impediment to wildlife movement.

#### Wildlife Nursery Sites

While ground disturbance associated with third-party harvest residuals would be minor and localized to previously treated sites, this activity may occur weeks to months following treatment at a given site, allowing sufficient time for wildlife to establish a nest, roost, or similar in slash piles and other vegetative debris targeted for removal. Potential impacts to native wildlife nursery sites would be similar to those described above for special-status wildlife. Direct impacts include loss of a nursery site or associated individuals if not properly avoided by the project. Indirect impacts include sensory disturbance (i.e., noise, vibration, and visual) and loss or modification of species habitat.

### Conclusion

While GSNR biomass only thinning projects and third-party harvest residuals would not create a significant impediment to wildlife movement, these feedstock activities could have direct or indirect impacts on wildlife nursery sites. However, several PDFs would avoid or minimize such impacts. PDF-BIO-2 requires mandatory training for all field personnel regarding biological resources to increase awareness of wildlife potentially nesting or roosting in the work area and measures to avoid or minimize impacts. PDF-BIO-7 requires focused surveys for bat maternity roosts and other protected wildlife resources (if suitable habitat is found in the treatment area per PDF-BIO-1) prior to work start for biomass only thinning projects so that they can be avoided by implementing additional measures (e.g., pre-activity surveys, avoidance of occupied roosts and limited operating periods). In addition, active bird nests would be protected from noise or visual impacts through the implementation of PDF-BIO-8, which involves pre-treatment surveys for active bird nests prior to commencement of biomass only thinning project work, the establishment of no-disturbance buffers until the nest has fledged or is deemed inactive, and/or monitoring by a biological monitor to ensure that treatment-related noise is not disturbing an active nest.

Potential impacts to wildlife nursery sites and wildlife movement from the above feedstock activities would be avoided and minimized through implementation of PDFs. As such, any impact to wildlife nursery sites or movement would be **less than significant.** No mitigation is required.

## Wood Pellet Production

### Lassen Facility

#### Wildlife Movement

The southern half of the Lassen Facility site is within the outside edge of the Beaver Creek Rim/Indian Mountain – Little Hot Spring Valley essential connectivity area, as defined by the California Essential Habitat Connectivity (CEHC) project (Spencer et al. 2010). This site was formerly part of a wood processing sawmill. The buildings from the prior use are located north of the site. The BNSF Railroad forms the eastern boundary of the site. An agricultural chemical company (Helena Agri-Business) and two residences are located west of the site. Agricultural land is located to the east and south. Most of the lands adjacent to the site are under Williamson Act contracts.

Development of the facilities at the Lassen Facility site would not interfere substantially with the movement of native wildlife in the southern portion of the site. The proposed facility is sited in an undeveloped area generally nestled between existing development and would not impede movement through the area. There is extensive open space in the southern portion of the site where no development would occur. Additionally, once constructed, ample undeveloped land will remain in the region capable of supporting wildlife movements, including the Pit River corridor to the east and the rest of the Beaver Creek Rim/Indian Mountain – Little Hot Spring Valley essential connectivity

area to the south. Thus, project construction and operations at the Lassen Facility would not substantially interfere with the movement of native fish or wildlife, or with established wildlife corridors and there would be **no impact**. No mitigation is required.

### Wildlife Nursery Sites

The Lassen Facility site contains vegetation, barren areas, and structures that may support nursery sites for common native birds. Grassland and barren areas provide nesting habitat for common native and migratory ground-nesting/breeding birds such as western meadowlark (*Sturnella neglecta*) and killdeer (*Charadrius vociferus*), and buildings adjacent to the site provide nesting habitat for birds such as mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), and rock pigeon (*Columba livia*). As discussed in Section 3.3.2, native and migratory nesting birds are protected by the Migratory Bird Treaty Act (MTBA) and California Fish and Game Code.

If conducted during the nesting season (February 1 to August 31), construction activities could impact nesting birds. Ground disturbance, vegetation removal, and structure modification or demolition associated with construction of the wood pellet processing facility could directly impact nesting birds by crushing eggs or killing nestlings in active nests. Indirect impacts would occur if increased human activity and construction-generated noise and vibration near active nests caused adults to abandon eggs or recently hatched young. This could be a **potentially significant** impact. However, implementation of **MM-BIO-6** would avoid these impacts by scheduling construction work outside the nesting season or conducting pre-activity nesting bird surveys and avoiding active nests. Therefore, these project activities would not substantially impede the use of bird nursery sites; as such, potential impacts would be reduced to less than significant with mitigation.

Once constructed, facility operations would likely preclude many wildlife species from commencing nesting or roosting on site due to regular human disturbance. Further, it is assumed that any wildlife establishing a nursery site on site would already exhibit some tolerance to disturbances from ongoing operations and maintenance As such, potential impacts associated with facility operation would be **less than significant.** No mitigation is required.

## Tuolumne Facility

### Wildlife Movement

The Tuolumne Facility site is not within an essential connectivity area, natural landscape block, or natural area, as defined by the CEHC project (Spencer et al. 2010). This site is partially developed with existing structures and other features generally concentrated within the center of the site. The Red Hills Recreation Management Area located approximately 0.60 miles east of the site is designated as a natural Landscape Block connecting the unique soils and habitats of the region to the aquatic habitat of the Don Pedro Reservoir to the south. The riparian and wetland habitat and associated wetland and seasonal drainage at the northern portion of the Tuolumne Facility site provide a movement corridor and safe undercrossing of La Grange Road for local wildlife such as deer, racoon, skunk, opossum, fox, coyote, and mountain lion.

Development of the facilities at the Tuolumne Facility site would not interfere substantially with the movement of native wildlife along the northern boundary of the site. The proposed site plan avoids 100% of the riparian corridor and would not impede movement through the area. Further, once constructed, ample undeveloped land will remain in the region capable of supporting wildlife movements, including the Red Hills Recreation Management Area corridor to the east. Thus, project construction and operation of the Tuolumne Facility would not substantially

interfere with the movement of native fish or wildlife, or with established wildlife corridors and there would be **no impact**. No mitigation is required.

### Wildlife Nursery Sites

The Tuolumne Facility site contains vegetation, barren areas, and structures that may support nursery sites for common native birds and bats. Grassland and barren areas provide nesting habitat for ground-nesting birds such as western meadowlark and killdeer, and the abandoned buildings provide nesting habitat for birds such as barn owl (*Tyto alba*), black phoebe (*Sayornis nigricans*), and barn swallow (*Hirundo rustica*). Mature cottonwood trees (or other trees with exfoliating bark, crevices, and/or sufficient foliage) in the riparian woodland adjacent to the pond and the abandoned buildings provide roosting habitat for common bats such as Brazilian free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), and California myotis (*Myotis californicus*). No evidence of bat maternity roosts was observed during the May 2021 bat roost assessment (Table 3.3-9) but bats could form maternity roosts in the future. As discussed in Section 3.3.2, native and migratory nesting birds are protected by the MBTA and CFGC and native bats are protected by CFGC.

If conducted during the nesting season (February 1 to August 31), construction activities could impact nesting birds. Ground disturbance, vegetation removal, and structure modification or demolition associated with construction of the wood pellet processing facility could directly impact nesting birds by crushing eggs or killing nestlings in active nests. Indirect impacts would occur if increased human activity and construction-generated noise and vibration near active nests caused adults to abandon eggs or recently hatched young. This could be a **potentially significant** impact. However, implementation of **MM-BIO-10** would avoid these impacts by scheduling construction work outside the nesting season or conducting pre-activity nesting bird surveys and avoiding active nests. Therefore, these project activities would not substantially impede the use of bird nursery sites; as such, potential impacts would be less than significant with mitigation.

Project activities could impact any bat maternity roosts that may form in the abandoned buildings in the future. Structure demolition associated with construction of the wood pellet processing facility could directly impact roosting bats by killing dependent young that are unable to fly. Indirect impacts would occur if increased human activity and construction-generated noise and vibration near active nests caused adults to abandon dependent young. These could be **potentially significant** impacts. However, implementation of **MM-BIO-8** and **MM-BIO-14** would avoid these impacts by educating workers about the potential presence of sensitive biological resources, including roosting bats, and scheduling construction and demolition work outside the bat maternity season or conducting a pre-construction survey for maternity roosts and avoiding any that are found. Therefore, these project activities would not impede the use of native bat nursery sites; as such, potential impacts would be less than significant with mitigation.

Once constructed, facility operations would likely preclude many wildlife species from commencing nesting or roosting on site due to regular human disturbance. Further, it is assumed that any wildlife establishing a nursery on site would already exhibit some tolerance to disturbances from ongoing operations and maintenance. As such, potential impacts associated with facility operation would be **less than significant.** No mitigation required.

## Transport to Market

### Port of Stockton

#### Wildlife Movement

The Port of Stockton site is not within an essential connectivity area, natural landscape block, or natural area, as defined by the CEHC (Spencer et al. 2010). The Stockton Deepwater Channel (San Joaquin River) is located adjacent to the Port site. The San Joaquin River is a migratory corridor for native fish and wildlife, such as salmonids and harbor seals. The Port of Stockton site is also within the Pacific flyway, an established air route of waterfowl and other birds migrating between wintering grounds in Central and South America and nesting grounds in Pacific Coasts states and provinces of North America.

The proposed project does not involve any construction or improvements to existing facilities within or over the San Joaquin River. Two large domes would be constructed at the Port site for storing and transporting pellets to a shiploader for export via a cargo ship. An estimated 29 cargo ships are anticipated for product loadout each year. There would be no direct or indirect impacts to the San Joaquin River resulting from pellet storage, transport, and export. As such, project construction and operations at the Port site would not interfere substantially with the movement of native fish or wildlife, or with established wildlife corridors, and there would be **no impact**. No mitigation is required.

#### Wildlife Nursery Sites

The Port site contains vegetation, barren areas, and structures that may support nursery sites for common native birds. If conducted during the nesting season (February 1 to August 31), construction activities could impact nesting birds. Ground disturbance and vegetation removal could directly impact nesting birds by crushing eggs or killing nestlings in active nests. Indirect impacts would occur if increased human activity and construction-generated noise and vibration near active nests caused adults to abandon eggs or recently hatched young. This could be a **potentially significant** impact. However, implementation of **MM-BIO-18** would avoid these impacts by scheduling construction work outside the nesting season or conducting pre-activity nesting bird surveys and avoiding active nests. Therefore, these project activities would not substantially impede the use of bird nursery sites; as such, potential impacts would be less than significant with mitigation.

The Port site provides potential roosting habitat for native bats protected by regulations defined in the CFGC. Bats could potentially roost in riparian trees or buildings in the vicinity of the Port site and forage along the Stockton Deepwater Channel (San Joaquin River) adjacent to the site. Regular human foot traffic, noise, and lighting at the adjacent properties likely precludes the potential for these species to roost in the area. In addition, it is assumed that any other bats roosting or otherwise utilizing the area are fairly adapted to such activities and any additional human activity resulting from the proposed development is not expected to result in adverse impacts to these species.

The proposed project does not anticipate the removal of riparian trees along the San Joaquin River adjacent to the Port site. However, because construction of the proposed project would occur near potential roosting habitat for bats, construction-related noise could result in the disturbance of bat roosts if occupied during construction. This could be a **potentially significant** impact. Implementation of **MM-BIO-17** and **MM-BIO-21** would avoid impacts by educating workers about the potential presence of sensitive biological resources, including roosting bats, and scheduling construction work outside the bat maternity season or conducting a pre-construction survey for

maternity roosts and avoiding any that are found. Therefore, potential impacts to bat nursery sites would be less than significant with mitigation.

As previously discussed, the proposed project does not involve any construction or improvements to existing facilities within or over the San Joaquin River. There would be no direct or indirect impacts to the San Joaquin River resulting from pellet storage, transport, and export. As such, project construction and operations at the Port site would not interfere substantially with wildlife and fish nursery sites in the San Joaquin River, and there would be **no impact.** No mitigation is required.

Impact BIO-6 The project may conflict with local policies or ordinances protecting biological resources.

## Sustainable Forest Management Projects (Feedstock Acquisition)

### GSNR Biomass Only Thinning Projects and Third-Party Harvest Residuals

Most counties and cities within the Working Area have adopted local ordinances and policies that protect various biological resources including native trees, wetland habitats, open space corridors, and other locally significant natural resources. These ordinances and policies vary in their definitions of protected trees (e.g., certain species, minimum diameter at breast height [dbh], trees that form riparian corridors) and other resources, and in the requirements for ordinance or policy compliance.

All GSNR Biomass Only Thinning Projects and third-party harvest residuals that are subject to local policies or ordinances would be required to comply with any applicable county, city, or other local policies, ordinances, and permitting procedures related to protection of biological resources. Further, each individual Sustainable Forest Management Project would be required to demonstrate compliance with all applicable all applicable land use plans, policies and regulations, including those identified in Section 3.10.2, Regulatory Setting. Therefore, the proposed project would not conflict with local policies or ordinances protecting biological resources; as such, there would be **no impact**. No mitigation is required.

Proposed feedstock activities in the Working Area would not include construction or operation of permanent structures or infrastructure. As a result, there would be **no impact**. No mitigation is required.

## Wood Pellet Production

### Lassen Facility

The Natural Resources and Wildlife elements in Chapters 3 and 5 of the Lassen County General Plan encourage the protection of biological resources in the County. The proposed project would not conflict with any of the goals or policies listed in the County's General Plan that protect biological resources. Relevant goals and policies for biological resources in Lassen County are presented in Section 3.3.2 above.

According to the County Ordinance Code Section 18.69, the intent of the Upland Conservation/Resource Management District is to manage local and valuable natural resources in the mountain, upland foothill, and valley areas consistent with the County's General Plan. As stated above, the proposed project would not conflict with any of the goals or policies for biological resources listed in the County's General Plan.

The proposed project would be consistent with the relevant goals and policies of the Natural Resources and Wildlife elements (Chapters 3 and 5) of the County General Plan, including maintenance of diverse and healthy vegetation

communities (Goal N-7), protection of rare and endangered plant species (Goal N-8), control invasive weeds and plant species (Goal N-9), and protect rare, threatened, and endangered wildlife species (Goal W-2). Therefore, project construction and operation would not conflict with local policies or ordinances protecting biological resources; as such, there would be **no impact**. No mitigation is required.

### Tuolumne Facility

The Natural Resources Element in Chapter 16 of the Tuolumne County General Plan encourages the protection of biological resources in the County. For example, Implementation Program-16.B.j.1 requires the use of BMPs while working near retained oak woodlands to avoid inadvertent damage to oak trees. These BMPs include establishment of no-disturbance buffers around the outer canopy edge to prevent root and crown damage, soil compaction, and standard management practices to reduce introduction and spread of invasive species and other indirect effects.

Based on the preliminary grading plans, approximately 0.08 acres of blue oak woodland may be impacted by proposed road improvements at the Tuolumne Facility site. Several mitigation measures would avoid or minimize impacts to the oak woodland. **MM-BIO-16** requires implementation of actions to prevent the spread of invasive plants and noxious weeds that could compete with oak trees for water, light, and nutrients, which would reduce potential indirect impacts from competition with invasive species. In addition, **MM-BIO-15** requires that the contractor implement measures to avoid staging, equipment or vehicle use, soil excavation and fill, and trenching within the dripline of retained trees, as well as compliance with relevant goals and policies in the Tuolumne County General Plan.

The proposed project would be consistent with the relevant goals and policies in the Natural Resources Element (Chapter 16) of the County General Plan, including support of diversity and quality of biological resources (Goal 16B), evaluate and mitigate impacts to biological resources (Policy 16.B.5), and encourage oak woodland conservation and preservation of heritage trees (Policy 16.C.5).

While several mitigation measures would minimize impacts, the direct removal or degradation of any existing oak tree on the site would be a **potentially significant** impact. However, with implementation of **MM-BIO-3** (Compensate for Unavoidable Loss of Sensitive Natural Communities and Oak Woodlands), the impact would be reduced to less than significant with mitigation.

## Transport to Market

### Port of Stockton

The proposed project would result in the construction of project specific features and the use of an existing Port of Stockton Berth. The project site is located in the Port of Stockton West Complex, which has historically been used for port related activities, including warehousing. The proposed project would not conflict with any local policies or ordinances that protect biological resources within Joaquin County, the City of Stockton, and the Port of Stockton. Relevant policies and ordinances for biological resources at the Port site are presented in Section 3.3.2.2, State – California, above.

The proposed project would comply with the City of Stockton Municipal Code, Ballast Water Management Program, and any other relevant policies and ordinances for biological resources at the Port site. Therefore, project construction and operation would not conflict with local policies or ordinances protecting biological resources; as such, there would be **no impact**. No mitigation is required.

Impact BIO-7 The project may conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state conservation plan.

### Sustainable Forest Management Projects (Feedstock Acquisition)

#### GSNR Biomass Only Thinning Projects and Third-Party Harvest Residuals

There is no adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP), or any other approved local, regional, or state conservation plans that overlap with the Working Area (CDFW 2024i). As such, there would be **no impact.** No mitigation is required.

### Wood Pellet Production

#### Lassen Facility

There is no adopted HCP or NCCP, or any other approved local, regional, or state conservation plans that overlap with the Lassen Facility site (CDFW 2024i). As such, there would be **no impact.** No mitigation is required.

#### Tuolumne Facility

There is no adopted HCP or NCCP, or any other approved local, regional, or state conservation plans that overlap with the Tuolumne Facility site (CDFW 2024i). As such, there would be **no impact.** No mitigation is required.

### Transport to Market

#### Port of Stockton

Like all of San Joaquin County, the Port site is in the Plan Area for the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) (SJCOG 2000). While mitigation measures would minimize impacts to special-status species and riparian habitat (discussed above), construction activities at the Port site could still result in **potentially significant** impacts if special-status wildlife species and their habitat are not sufficiently avoided and if these species occur in areas not avoided by project activities. These impacts would be in direct conflict with the conservation and protection objectives of the SJMSCP. However, with implementation of **MM-BIO-2** (Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife), **MM-BIO-3**, Compensate for Unavoidable Loss of Sensitive Natural Communities and Oak Woodlands, and **MM-BIO-4** (Compensate for Unavoidable Loss of Wetlands and Other Aquatic Resources) the impact would be reduced to less than significant with mitigation.

Once constructed, operation and maintenance impacts at the Port site would be limited to developed areas that generally lack habitat for special-status species. As such, covered species associated with the SJMSCP are not expected to use the Port site following construction, nor be impacted by associated maintenance and operation activities. As a result, there would be **no impact**. No mitigation is required.

## 3.3.4.3 Cumulative Impacts

This section considers cumulative impacts on biological resources under CEQA. “Cumulative impacts” under CEQA refers to two or more individual effects which, when considered together, are considerable or which compound or

increase other environmental impacts (CEQA Guidelines Section 15355). Consistent with Section 15130(b) of the CEQA Guidelines, the discussion reflects the severity of the impacts and the likelihood of their occurrence but does not provide as much detail as is provided under project-level impacts. The project-level impact analysis in Section 3.3.4.2 demonstrates that the proposed project would not interfere substantially with the movement of native fish or wildlife or with established wildlife corridors, and the proposed project would not conflict with local policies or ordinances protecting biological resources or adopted Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs). Therefore, no cumulative impact analysis for these topics is required.

The geographic context of cumulative impacts to biological resources for the proposed project varies depending on the project component. The geographic context for feedstock acquisition (Sustainable Forest Management Project) is on private and public forested land and other timberlands within the Working Area (shown as "Forest Management Area" on Figures 2-1 and 2-2). The geographic context for the wood processing facilities is each proposed facility site boundary plus a 5-mile buffer. The geographic context for export to market at the Port of Stockton is the Port site boundary plus a 5-mile buffer.

The project's contribution to significant cumulative impacts to special-status plant and wildlife species would not be cumulatively considerable.

## Sustainable Forest Management Projects (Feedstock Acquisition)

### GSNR Biomass Only Thinning Projects and Third-Party Harvest Residuals

Sustainable Forest Management Projects, including GSNR biomass only thinning projects and third-party harvest residuals, in combination with other related projects and plans within the cumulative study area, could contribute to significant cumulative impacts to special-status species. Many special-status species have been adversely affected by historic and ongoing habitat loss across their range. Other special-status species have extremely limited ranges or narrow habitat requirements; thus, loss of habitat function could further constrain the species range. However, implementation of PDFs and mitigation measures would reduce the proposed project's contribution to this impact. PDFs require pre-field desk reviews and as-needed focused/protocol surveys prior to commencement of biomass only thinning projects to identify special-status species and implementation of measures to avoid these species and their habitat. If avoidance is not feasible, **MM-BIO-1** through **MM-BIO-4** require the project proponents to fully compensate for such species and/or habitat impacts. Thus, with implementation of PDFs and mitigation measures, the proposed project would mitigate any project-level impacts to less than significant. Other related projects would comply with similar requirements, such as those set forth by the federal ESA, CESA, timber harvest plans, and USFS management directives. Therefore, the project's contribution would **not be cumulatively considerable**.

## Wood Pellet Production

### Lassen Facility

Past development of the Lassen site was part of the larger development of the Big Valley floor for primarily agricultural uses since the early 1900s. These past development activities resulted in the removal of natural lands that provided habitat prior to settlement.

As stated in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, no cumulative projects were identified relative to the proposed Lassen Facility. The County has no active development applications within Big

Valley. No similar projects are proposed within the County. As such, cumulative impacts to special-status plant and wildlife species are not anticipated, and there would be **no cumulative impact.**

### Tuolumne Facility

Past development of the Tuolumne site was facilitated by a new railroad route through the region in the late 1800s and a subsequent increase in lumber operations through the 1960s. A portion of the site operated as a sawmill since the early 1960's and then as a wood processing mill, which ceased operations in 2020. These past activities resulted in the removal of natural lands that provided habitat prior to settlement.

Construction of the proposed Tuolumne Facility site, in combination with other similar projects and plans in the region, could contribute to significant cumulative impacts to special-status species. An estimated 260 acres of undeveloped land in the County would be permanently converted as a result of construction at the Tuolumne Facility site (47 acres) and other cumulative projects (213 acres) (discussed in Chapter 3). However, implementation of mitigation measures would reduce the proposed project's contribution to this impact. **MM-BIO-9** through **MM-BIO-14** require focused/protocol surveys to identify special-status species and implementation of measures to avoid these species and their habitat. If avoidance is not feasible, **MM-BIO-1** and **MM-BIO-2** require the project proponents to fully compensate for such impacts. With implementation of mitigation measures, the proposed project would mitigate any project-level impacts to less than significant. Therefore, the project's contribution would **not be cumulatively considerable**.

## Transport to Market

### Port of Stockton

The Port of Stockton is located in a highly urbanized area surrounded by dense development. The Port site lacks suitable habitat for special-status plants, and habitat for special-status wildlife is present, but of poor quality. Special-status aquatic species potentially occurring in the Stockton Deepwater Channel (San Joaquin River) would not be affected because no new facilities would be constructed in or over the San Joaquin River, and pellet transport to cargo ships would occur in a sealed and contained system that would prevent pellets from dropping into the river. Special-status wildlife species with a potential to be affected by activities at the Port site include burrowing owl, Swainson's hawk, white-tailed kite, and loggerhead shrike. These species are typically found in annual grassland, agricultural, shrubland, oak woodland, and/or riparian habitat. Burrowing owl, Swainson's hawk, and white-tailed kite prefer habitat proximate to expansive foraging habitat.

Past development of the Port site was spurred by construction of the San Joaquin River shipping channel between 1933 and 1940 and the U.S. Navy purchasing Rough and Ready Island in 1944. Prior to development, and by 1927, most of Rough and Ready Island was cultivated fruit orchard. These past activities resulted in the removal of natural lands that provided habitat prior to settlement.

Construction and operation of the proposed Port site, in combination with other similar projects in the region, could contribute to a significant cumulative impact to special-status species. There would be an estimated 54 acres of undeveloped land permanently converted as a result of construction at the Port site (16 acres) and other cumulative development projects (38 acres) (discussed in Chapter 3). Land to be converted is generally fragmented and of poor quality for many special-status species due to regular disturbance and existing development. Approximately 2,490 acres of natural habitat for special-status species and approximately 26,165 acres of foraging and nesting habitat for Swainson's hawk and other nesting raptors would remain intact within 5 miles of the Port site. Further,

implementation of mitigation measures would reduce the proposed project's contribution to this impact. **MM-BIO-18** through **MM-BIO-21** require focused/protocol surveys to identify special-status species and implementation of measures to avoid these species and their habitat. If avoidance is not feasible, **MM-BIO-1** and **MM-BIO-2** require the project proponents to fully compensate for such impacts. With implementation mitigation measures, the proposed project would mitigate any project-level impacts to less than significant. Therefore, the project's contribution would **not be cumulatively considerable**.

The project's contribution to significant cumulative impacts to riparian habitat or other sensitive natural communities would not be cumulatively considerable.

## Sustainable Forest Management Projects (Feedstock Acquisition)

### GSNR Biomass Only Thinning Projects and Third-Party Harvest Residuals

Sustainable Forest Management Projects, including GSNR biomass only thinning projects and third-party harvest residuals, in combination with other related projects and plans within the cumulative study area, could contribute to a significant cumulative loss of riparian habitat or other sensitive natural communities. However, implementation of PDFs and mitigation measures would reduce the proposed project's contribution to this impact. PDFs require pre-field desk reviews and focused surveys prior to commencement of biomass only thinning projects to identify, characterize, and delineate sensitive natural communities and measures to avoid these resources. If avoidance is not feasible, **MM-BIO-3** requires the project proponents to fully compensate for such impacts. The proposed project would mitigate any cumulative contribution to less than significant. Therefore, the project's contribution would **not be cumulatively considerable**.

## Wood Pellet Production

### Lassen Facility

As stated in Chapter 3, no cumulative projects were identified relative to the proposed Lassen Facility. The County has no active development applications within Big Valley. No similar projects are proposed within the County. As such, **no cumulative impacts** to sensitive natural communities would occur.

### Tuolumne Facility

As discussed above, construction of the wood processing facility at the Tuolumne site would avoid all riparian habitat and other sensitive natural communities. As such, **no cumulative impacts** to sensitive natural communities would occur.

## Transport to Market

### Port of Stockton

The Port site is composed primarily of disturbed or developed land cover, with only two small patches of riparian habitat dominated by invasive plants. The project's impact to riparian habitat would be very minimal and would have a very minor incremental effect upon riparian habitat in the surrounding area. The proposed project, in combination with other cumulative projects within the region, would not result in significant cumulative impacts and the project's contribution would **not be cumulatively considerable**.

The project's contribution to significant cumulative impacts to protected wetlands would not be cumulatively considerable.

## Sustainable Forest Management Projects (Feedstock Acquisition)

### GSNR Biomass Only Thinning Projects and Third-Party Harvest Residuals

Sustainable Forest Management Projects, including GSNR biomass only thinning projects and third-party harvest residuals, in combination with other similar projects and plans within the cumulative study area, could contribute to a cumulative loss of protected wetlands in the Working Area. However, implementation of PDFs and mitigation measures would reduce the proposed project's contribution to this impact. PDFs require pre-work surveys prior to commencement of biomass only thinning projects to identify and delineate aquatic resources for avoidance. If avoidance is not feasible, **MM-BIO-4** requires the project proponents to fully compensate for such impacts. The proposed project would mitigate any cumulative contribution to less than significant. Therefore, the project's contribution **would not be cumulatively considerable**.

## Wood Pellet Production

### Lassen Facility

As stated in Chapter 3, no cumulative projects were identified relative to the proposed Lassen Facility. The County has no active development applications within Big Valley. No similar development projects are proposed within the County. As such, **no cumulative impacts** to protected wetlands would occur.

### Tuolumne Facility

The proposed project would permanently convert approximately 2.5 acres of aquatic resources at the Tuolumne Facility site (a very minor fraction of the estimated 970 acres of similar aquatic resources mapped within 5 miles of the site boundary [USFWS 2024a]). The other cumulative projects in the County (discussed in Chapter 3) do not involve permanent loss of protected wetlands or other aquatic resources. Therefore, cumulative impacts to protected wetlands would be less than significant and the project's contribution **would not be cumulatively considerable**.

## Transport to Market

### Port of Stockton

Based on preliminary design, the proposed project could permanently convert an estimated 2.5 acres of potentially jurisdictional aquatic resources at the Port site, including two constructed ditches and one seasonal wetland. The other cumulative projects in the region (within 5 miles of the Port site) (discussed in Chapter 3) either do not propose the permanent removal of aquatic resources (Port of Stockton and USACE 2022; Port of Stockton 2023) or the impact is currently unknown (Port of Stockton 2021b). Construction at the Port site and other cumulative projects in the region could permanently convert an estimated 177 acres (less than 1%) of aquatic resources, with approximately 30,328 acres of mapped aquatic resources remaining in the region (USFWS 2024a). Therefore. the proposed project, in combination with other cumulative projects in the region, would not result in significant cumulative impacts and the project's contribution **would not be cumulatively considerable**.

### 3.3.4.4 Mitigation Measures

With implementation of the PDFs described in Section 2.4 and other discipline mitigation measures (e.g., PDF-GEO-1 through -6), the proposed project could still result in potentially significant impacts to biological resources. Common to All Phases (Feedstock Acquisition, Wood Pellet Production, Transport to Market)

MM-BIO-1 Compensate for Mortality, Injury, Disturbance, or Unavoidable Loss of Special-Status Plants. If avoidance of take of plants species that U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), and/or U.S. Forest Service (USFS) list as rare, endangered, threatened, or candidate is not possible, GSNR will sufficiently compensate for such impacts. GSNR will initiate consultation with USFWS, CDFW, and/or USFS, as appropriate based on the identified species. Depending on whether the species are state and/or federally listed, the following steps will be associated with consultation and implementation of mitigation.

Federal Listed Species: If the proposed action may affect only federally listed species or critical habitat, and the action has a federal nexus (via other federal agency permit, funding, or approvals), consultation pursuant to Section 7 of the Federal Endangered Species Act (FESA) would apply. Under FESA Section 7, GSNR will need to prepare a Biological Assessment (BA) to assist the USFWS or USFS in its determination of the project's effect on species and/or critical habitat. If the action is not likely to adversely affect the listed species, no further mitigation is necessary.

If the action is likely to adversely affect a listed species, then the USFWS or USFS will prepare a Biological Opinion (BO). The conclusion of the BO will state whether or not the proposed action is likely to: 1. Jeopardize the continued existence of the listed species; and/or 2. Result in the destruction or adverse modification of critical habitat that appreciably diminishes the value of critical habitat as a whole for the conservation of the listed species. If the action is reasonably certain not to jeopardize the continued existence of the listed species or diminish the value of critical habitat as a whole for the species, then the BO will include an incidental take statement with the BO. Incidental take is subject to the terms and conditions provided in the incidental take statement. Terms and conditions included within a typical BO include:

- Monitoring
- Worker environmental awareness program (WEAP) training
- Minimization of construction-related impacts
- Preconstruction clearance surveys
- Weed management and monitoring
- Compensation for loss of habitat
- Protection of lands in perpetuity
- Mitigation ratios for impacts (e.g., no less than 1:1 mitigation for suitable habitat)
- Permanent protection and management of compensation lands
- Costs to acquire and manage lands
- Financial assurances

If the action has no associated federal action, permitting pursuant to FESA section 10(a)(1)(B) will apply. A Habitat Conservation Plan (HCP) will be prepared by GSNR and an application for an Incidental Take Permit (ITP). An applicant-prepared HCP will include, at a minimum, the following measures:

- Preservation (via acquisition or conservation easement) of existing habitat
- Enhancement or restoration of degraded or former habitat
- Creation of new habitat
- Establishment of buffer areas around existing habitats
- Restrictions to access

Both State and Federal Listed Species: If a plant species is listed by both FESA and the California Endangered Species Act (CESA), Fish and Game Code Section 2080.1 allows an applicant who has obtained a federal incidental take statement (FESA Section 7 consultation) or a federal ITP (FESA Section 10(a)(1)(B)) to request that the Director of CDFW find the federal documents consistent with CESA via a consistency determination per Section 2080.1 of CESA. If a consistency determination is issued, no further authorization or approval is necessary under CESA. If a consistency determination is not feasible, the process for "State Only Listed Species," as described below, will be implemented.

State Listed Species: For species that are listed by CDFW, but not the USFWS, as endangered, threatened, candidate, or a rare plant, and where take would occur, GSNR will apply for a State ITP under Section 2081(b) of the Fish and Game Code. When an ITP is issued, included terms and conditions will ensure that the items 1 through 5 below are met.

1. The authorized take must be incidental to an otherwise lawful activity.
2. The impacts of the authorized take must be minimized and fully mitigated.
3. The measures required to minimize and fully mitigate the impacts of the authorized take:
    a. Are roughly proportional in extent to the impact of the taking on the species;
    b. Maintain the GSNR's objective to the greatest extent possible; and
    c. May be successfully implemented by GSNR.
    d. Adequate funding is provided to implement the required minimization and mitigation measures and monitor compliance with the effectiveness of the measures.
4. Issuance of the permit will not jeopardize the continued existence of the CESA-listed species.

Non-Listed Rare Species: For rare species that are not listed by the USFWS or CDFW, GSNR will implement a Compensatory Mitigation Plan (Plan), prepared by a qualified botanist, that outlines at least one or a combination of the following:

- The protection, through land acquisition or a conservation easement, of land that supports an equal or greater number of plants of similar health; and/or,
- The creation of a new population on suitable unoccupied habitat through the salvage and relocation or propagation of impacted plants, or acquisition of similar plants/seed from local

genetic stock, at no less than 1:1 mitigation ratio. Plant relocation, propagation, or establishment will be subject to the following requirements:

- The Plan will be prepared by a qualified biologist and include at a minimum: (1) seed/propagule collection methods, (2) identification of receiver sites or locations for relocated or propagated plants and rationale for their selection, (3) success criteria for population establishment, including a not-to-exceed threshold for invasive species cover, (4) 5 years of maintenance and monitoring, (5) the adaptive management approaches that would be used to evaluate monitoring results and adjust management actions, if necessary, and (6) financial assurances for the funding of special-status plant mitigation.

MM-BIO-2 Compensate for Mortality, Injury, or Disturbance and Loss of Habitat Function for Special-Status Wildlife. If avoidance of take of wildlife species that U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), and/or U.S. Forest Service (USFS) list as rare, endangered, threatened, or candidate is not possible, GSNR will sufficiently compensate for such impacts. GSNR will initiate consultation with USFWS, CDFW, and/or USFS, as appropriate based on the identified species. Depending on whether the species are state and/or federally listed, the following steps will be associated with consultation and implementation of mitigation.

Federally Listed Species: If the proposed action may affect only federally listed species or critical habitat, and the action has a federal agency nexus, then consultation pursuant to Section 7 of the Federal Endangered Species Act (FESA) would apply. Under FESA Section 7, GSNR will need to prepare a Biological Assessment (BA) to assist the USFWS or USFS in its determination of the project's effect on species and/or critical habitat. If the action is not likely to adversely affect the listed species, no further mitigation is necessary.

If the action is likely to adversely affect a listed species, then the USFWS or USFS will prepare a Biological Opinion (BO). The conclusion of the BO will state whether or not the proposed action is likely to: 1. Jeopardize the continued existence of the listed species; and/or 2. Result in the destruction or adverse modification of critical habitat that appreciably diminishes the value of critical habitat as a whole for the conservation of the listed species. If the action is reasonably certain not to jeopardize the continued existence of the listed species or diminish the value of critical habitat as a whole for the species, then the BO will include an incidental take statement with the BO. Incidental take is subject to the terms and conditions provided in the incidental take statement. Terms and conditions included within a typical BO include:

- Monitoring
- Worker environmental awareness program (WEAP) training
- Minimization of construction-related impacts
- Preconstruction clearance surveys
- Weed management and monitoring
- Compensation for loss of habitat
- Protection of lands in perpetuity
- Mitigation ratios for impacts (e.g., no less than 1:1 mitigation for suitable habitat)
- Permanent protection and management of compensation lands

- Costs to acquire and manage lands
- Financial assurances

If the action has no federal agency nexus, permitting pursuant to FESA Section 10(a)(1)(B) will occur. A Habitat Conservation Plan (HCP) will be prepared by GSNR and an application for an Incidental Take Permit (ITP). An applicant-prepared HCP will include, at a minimum, the following measures:

- Preservation (via acquisition or conservation easement) of existing habitat
- Enhancement or restoration of degraded or former habitat
- Creation of new habitat
- Establishment of buffer areas around existing habitats
- Restrictions to access

Both State and Federal Listed Species: If a species is listed by both FESA and the California Endangered Species Act (CESA), Fish and Game Code Section 2080.1 allows an applicant who has obtained a federal incidental take statement (FESA Section 7 consultation) or a federal ITP (FESA Section 10(a)(1)(B)) to request that the Director of CDFW find the federal documents consistent with CESA via a consistency determination per Section 2080.1 of CESA. If a consistency determination is issued, no further authorization or approval is necessary under CESA. If a consistency determination is not feasible, the process for "State Only Listed Species," as described below, will be implemented.

State Listed Species: For species that are listed by CDFW, but not the USFWS, as endangered, threatened, candidate, or a rare species, and where take would occur, GSNR will apply for a State ITP under Section 2081(b) of the Fish and Game Code. When an ITP is issued, included terms and conditions will ensure that the items 1 through 5 below are met.

1. The authorized take must be incidental to an otherwise lawful activity.
2. The impacts of the authorized take must be minimized and fully mitigated.
3. The measures required to minimize and fully mitigate the impacts of the authorized take:
    a. Are roughly proportional in extent to the impact of the taking on the species;
    b. Maintain GSNR's objective to the greatest extent possible; and
    c. May be successfully implemented by GSNR.
4. Adequate funding is provided to implement the required minimization and mitigation measures and monitor compliance with the effectiveness of the measures.
5. Issuance of the permit will not jeopardize the continued existence of the CESA-listed species.

Non-Listed Rare Species: For rare species that are not listed by the USFWS or CDFW, GSNR will implement a Compensatory Mitigation Plan (Plan), as-needed and prepared by a qualified biologist, through at least one or a combination of the following:

- Preserving existing species habitat outside of the treatment area in perpetuity; this may entail purchasing lands and/or mitigation credits from a CDFW- and/or USFWS-approved entity in sufficient quantity to offset the residual significant impacts to habitat.
- Restoring or enhancing existing species habitat within or outside of the treatment area (e.g., decommissioning roads, installing perching or roosting structures, or removing movement barriers or other existing features that are adversely impacting the species).

Prior to finalizing the Plan, GSNR will consult with any applicable responsible agencies to ensure that the Plan will satisfy responsible agency requirements (e.g., permits and approvals):

- For California Fully Protected Species, GSNR will submit the Plan to CDFW for review and comment.
- For other special-status wildlife species, GSNR may consult with CDFW and/or USFS regarding the availability and applicability of compensatory mitigation and other related technical information.

MM-BIO-3 Compensate for Unavoidable Loss of Sensitive Natural Communities and Oak Woodlands. If significant impacts to sensitive natural communities or oak woodlands cannot feasibly be avoided, GSNR will sufficiently compensate for such impacts. Compensation shall include:

- A qualified botanist will conduct a pre-construction survey to identify and quantify the number of plants that could be potentially removed or disturbed within the sensitive natural community or oak woodland. The botanist will prepare a mitigation plan to address implementation and monitoring requirements to ensure that project activities would result in no net loss of habitat functions and values and to offset the loss of any vegetation/plants to be removed or disturbed. The plan will contain, at a minimum: goals and objectives; a description of the extent of plants/vegetation to be removed or disturbed; plant collection, propagation, and planting methods; locations on site in which the plants will be transplanted; monitoring methods and timing; invasive species eradication methods; interim and final success criteria/performance standards; measures to be taken in the event that the propagation and planting is not successful; identification of responsible entities; and reporting requirements. The plan will be approved by the appropriate County. Propagation and planting will occur at a minimum 1:1 basis to ensure no net loss of the sensitive natural community or oak woodland.
- Natural areas temporarily impacted by project activities will be restored with appropriate native vegetation. Restored areas will be identified and determined to feasibly support the proposed native revegetation to adequately mitigate project impacts. Feasibility of native revegetation is primarily based on suitable soils, slopes, and aspect as well as the presence of similar native vegetation adjacent to the proposed mitigation areas.

MM-BIO-4 Compensate for Unavoidable Loss of Wetlands and Other Aquatic Resources. If temporary or permanent loss of protected wetlands and other aquatic resources cannot feasibly be avoided, GSNR will implement the following actions:

- Prior to project activities, GSNR will coordinate with the appropriate USACE district and RWQCB regional staff to assure conformance with permitting requirements of Section 401 and 404 of the Clean Water Act and the Porter–Cologne Water Quality Control Act. Prior to activity within CDFW-jurisdictional lake or streambed or associated riparian habitat, GSNR will coordinate with the appropriate CDFW regional staff to assure conformance with California Fish and Game Code Section 1600 permitting requirements.
- As part of the permit application process, GSNR will sufficiently mitigate to ensure no-net-loss of waters at a minimum of 1:1 with establishment or re-establishment for impacts on aquatic resources as a part of an overall strategy to ensure no net loss, or at a higher ratio if establishment or re-establishment mitigation is not available. Final mitigation ratios and credits will be a minimum of 1:1 and determined in consultation with USACE, RWQCB and/or CDFW based on agency evaluation of current resource functions and values and through each agency's respective permitting process.
- Should applicant-sponsored mitigation be implemented, a mitigation and monitoring plan (Plan) will be prepared in accordance with resource agency guidelines and approved by the agencies in accordance with the proposed permits. The Plan will include but is not limited to a conceptual planting plan including planting zones, grading, and irrigation, as applicable; a conceptual planting plant palette; a long-term maintenance and monitoring plan; annual reporting requirements; proposed success criteria; legal and funding mechanisms; and parties responsible for long-term management and monitoring of the restored or enhanced habitat. Any off-site applicant-sponsored mitigation shall be conserved and managed in perpetuity.

### Lassen Facility Site (Only)

MM-BIO-5 Worker Environmental Awareness Program at the Lassen Facility Site. GSNR will require crew members and contractors to receive worker environmental awareness program (WEAP) training from a qualified biologist prior to project commencement. The training will describe the appropriate work practices necessary to effectively implement all relevant mitigation measures and to comply with applicable environmental laws and regulations regarding biological resources. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats present or with the potential to occur in the work area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during work activities to leave the area unharmed and to report encounters to the project biologist. The project biologist will immediately contact USFWS, USFS, and/or CDFW (as appropriate) if a special-status species is encountered and cannot leave the site on its own (without being handled). All attendees of the training will be required to sign a log documenting attendance and completion of the training.

MM-BIO-6 Nesting Bird Surveys and Avoidance at the Lassen Facility Site. Tree and vegetation removal at the Lassen Facility site will be conducted outside of the nesting season (February through September) as feasible. If not feasible, the following measures will be implemented to avoid or minimize impacts to nesting birds:

- A qualified biologist shall conduct a pre-construction survey for nesting birds no more than 7 days prior to vegetation or structure removal or ground-disturbing activities conducted during

the nesting season (February through September). The survey shall cover the limits of construction and suitable nesting habitat within 500 feet for raptors and 100 feet for other nesting birds, as feasible and accessible.

- If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance shall typically range from 50 to 500 feet and shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground-disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers, and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.
- If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities.
- If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be halted until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the birds have fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.

MM-BIO-7 Compensatory Mitigation Plan for the Permanent Loss of Wetlands and Other Aquatic Resources at the Lassen Facility Site. The project applicant will compensate for the permanent loss of wetlands and other aquatic resources anticipated from facility construction. Compensatory mitigation to ensure no net loss of aquatic resources at a minimum of 1:1 ratio shall be achieved through one or a combination of the following (in order of priority):

- Based on site soil, hydrology, and watershed characteristics, the southern portion of the Lassen Facility site could support approximately 47.8 acres of seasonal wetland (APNs 001-270-026, 001-270-029, and 013-040-013; WRA 2024c). Thus, GSNR will:
  - Implement on-site applicant-sponsored 1:1 mitigation in accordance with an agency-approved Wetland Mitigation and Monitoring Plan (Plan). The Plan will be prepared by a qualified biologist or similar in accordance with resource agency guidelines and submitted to the relevant resource agencies (e.g., USACE, RWQCB, and CDFW) for review and approval. The Plan will include at a minimum: a conceptual planting plan including planting zones, grading, and irrigation, as applicable; a conceptual planting plant palette; a long-term maintenance and monitoring plan; annual reporting requirements; proposed success criteria; legal and funding mechanisms; and parties responsible for long-term management and monitoring of the restored or enhanced habitat. On-site applicant-sponsored mitigation shall be conserved and managed in perpetuity.
- Purchase mitigation credits from an agency-approved wetlands mitigation bank or pay an agency-approved in-lieu fee.

## Tuolumne Facility Site (Only)

MM-BIO-8 Worker Environmental Awareness Program at the Tuolumne Facility Site. GSNR will require crew members and contractors to receive worker environmental awareness program (WEAP) training from a qualified biologist prior to project commencement. The training will describe the appropriate work practices necessary to effectively implement all relevant mitigation measures and to comply with applicable environmental laws and regulations regarding biological resources. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats present or with the potential to occur in the work area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during work activities to leave the area unharmed and to report encounters to the project biologist. The project biologist will immediately contact USFWS, USFS, and/or CDFW (as appropriate) if a special-status species is encountered and cannot leave the site on its own (without being handled). All attendees of the training will be required to sign a log documenting attendance and completion of the training.

MM-BIO-9 Special-Status Plant Focused/Protocol Surveys and Avoidance at the Tuolumne Facility Site. According to CDFW (2018), plant communities dominated by short-lived perennials and annuals may require multiple surveys to adequately document baseline conditions. Focused rare plant surveys were conducted at the site in May 2021. Since construction at the Tuolumne site will occur more than 3 years from the date the rare plant surveys were last conducted, GSNR will take the following actions:

- A qualified RPF or botanist will conduct protocol-level surveys for special-status plant species prior to initiation of ground-disturbance. Six non-listed special-status plant species will be targeted during the survey: Beaked clarkia (*Clarkia rostrate),* Tuolumne button-celery (*Eryngium pinnatisectum*), spiny-sepaled button-celery (*Eryngium spinosepalum*), forked hare-leaf (*Lagophylla dichotoma),* veiny monardella (*Monardella venosa),* and Patterson's navarretia (*Navarretia paradoxiclara*). The survey will follow the most current and relevant agency survey protocols and guidelines for special-status plants (e.g., CDFW 2018; USFWS 2000; CNPS 2001). The protocol surveys will be conducted in suitable habitat that could be affected by the project and timed to coincide with the blooming or other appropriate phenological period of the target species (as determined by a qualified RPF or botanist), or all species in the same genus as the target species will be assumed to be special-status.
- Should rare plants be documented within 50 feet of the construction footprint, the following actions will be implemented to avoid and minimize impacts to individual plants:
- Wherever feasible, adjustments will be made to the limits of grading boundaries to confine work to avoid populations of special-status plants by at least 50 feet or as otherwise determined by a qualified botanist and in consideration of the type and extent of ground disturbance, potential for indirect impacts following ground disturbance activities, topography, and other factors.
- Prior to construction activities, a qualified botanist will flag or fence the location of special-status plant populations and the corresponding avoidance setback. This flagging will be in addition to, and distinguished apart from, any required construction boundary fencing. The

construction contractor will be responsible for maintaining the flagging through the duration of construction. The flagging (or similar) will be removed immediately following construction.

- If avoidance of rare plants is not feasible, a Rare Plant Salvage and Translocation Plan will be prepared by a qualified botanist prior to implementation. The Rare Plant Salvage and Translocation Plan will be approved by the County and/or CDFW and will include, at a minimum, the following components: identification of occupied habitat to be preserved and removed; identification of on-site or off-site preservation, restoration, enhancement, or translocation locations; methods for preservation, restoration, enhancement, and/or translocation; goals and objectives; replacement ratio and success standard of 1:1 for impacted to established acreage; a monitoring program to ensure mitigation success; adaptive management and remedial measures in the event that the performance standards are not achieved; and financial assurances and a mechanism for conservation of any mitigation lands required in perpetuity.

MM-BIO-10 Nesting Bird Surveys and Avoidance at the Tuolumne Facility Site. Tree and vegetation removal at the Tuolumne Facility site will be conducted outside of the nesting season (February through September) as feasible. If not feasible, the following measures will be implemented to avoid or minimize impacts to nesting birds:

- A qualified biologist shall conduct a pre-construction survey for nesting birds no more than 7 days prior to vegetation or structure removal or ground-disturbing activities conducted during the nesting season (February through September). The survey shall cover the limits of construction and suitable nesting habitat within 500 feet for raptors and 100 feet for other nesting birds, as feasible and accessible.
- If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance shall typically range from 50 to 500 feet and shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground-disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers, and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.
- If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities.
- If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be halted until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the birds have fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.

MM-BIO-11 Northwestern Pond Turtle Protection at the Tuolumne Facility Site. Northwestern pond turtles have been documented in the perennial pond in the northern portion of the Tuolumne site. Thus, GSNR will take the following actions:

- No ground-disturbance will be permitted within 1,640 feet (500 meters) of suitable aquatic habitat for northwestern pond turtle during the turtle overwintering period from October to March.
- No ground-disturbance will be permitted within 656 feet (200 meters) of aquatic habitat occupied by northwestern pond turtle.
- GSNR will implement applicable Best Management Practices (BMPs) for northwestern pond turtle in accordance with the most recent and agency-accepted guidelines available at the time of project implementation (e.g., Department of Defense (DOD) Legacy Resource Management Program 2020 and Oregon Department of Fish and Wildlife 2015).
  - If ground-disturbance within 1,640 feet (500 meters) of suitable aquatic habitat from October to March or 656 feet (200 meters) of occupied aquatic habitat is not feasible GSNR will consult with USFWS on appropriate measures to identify and avoid take of any northwestern pond turtles nesting in the construction footprint as part of its federally listed species consultation described under MM-BIO-2. These measures may include all or a combination of the following to avoid take of nesting pond turtles: Qualified biologists shall conduct visual encounter surveys for pond turtle nests or evidence of nesting from May to June prior to any ground disturbance within the above buffers. A minimum 50-foot-radius exclusion zone shall be established around any pond turtle nests or suspected nests found during the visual encounter surveys using high-visibility fencing. The exclusion zone shall remain in effect until the biologist has verified that the nest is no longer active.
  - Occupied aquatic habitat shall be isolated from adjacent upland nesting habitat within the construction footprint before April in the year of construction. The intent of this measure is to ensure that once hatchling pond turtles leave their upland nests in April, no additional nests will be established in the construction footprint during the following season. Unclimbable, smooth fencing (e.g., Animex HDPE#2 material or wooden fencing) will be installed at the interface between aquatic and upland habitat. The fencing will be maintained between its installation and project start with regular monitoring (1 to 2 hours of observation every monitoring period) to ensure that turtles and other special-status species are not being entrapped by the fencing.

MM-BIO-12 Tricolored Blackbird Protection at the Tuolumne Facility Site. Wetlands and riparian areas in the northern portion of the Tuolumne site provide nesting habitat for tricolored blackbird. Thus, the GSNR will take the following actions:

- As feasible, vegetation removal activities will be conducted outside of the nesting season for tricolored blackbird (estimated to be March through June), and ground disturbance at the site will avoid suitable nesting habitat and areas within 50 to 300 feet of suitable nesting habitat.
- A qualified biologist will conduct a pre-construction survey for nesting tricolored blackbirds no more than 7 days prior to vegetation or structure removal or ground-disturbing activities conducted during the species' nesting season (estimated to be March through June). The survey will be conducted in accordance with MM-BIO-10.
- If an active tricolored blackbird nesting colony is encountered during the pre-construction survey, the GSNR will postpone any work with a potential to impact the colony and implement MM-BIO-2 as appropriate.

- Tricolored blackbird will be included in the worker environmental awareness program, which will educate staff on the presence of special-status wildlife species and ways to avoid and minimize impacts.

MM-BIO-13 Habitat Assessment, Focused Surveys, and Avoidance of California Red-legged Frog and California Tiger Salamander at the Tuolumne Facility Site. The Tuolumne facility site is located within the known geographic range of California red-legged frog and California tiger salamander. Thus, GSNR will take the following actions:

- To determine if any aquatic habitat features in the northern portion of the site are occupied by California red-legged frog, a qualified biologist will conduct a single breeding season survey in accordance with USFWS' Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005). After the survey, the biologist will report the results to the appropriate USFWS office to determine if additional surveys are warranted. If the survey is negative and the USFWS determines that further surveys are unnecessary because the site is unoccupied by California red-legged frog, no additional actions would be necessary.
- If the California red-legged frog survey results are inconclusive and the USFWS determines that additional surveys are necessary, the biologist will conduct up to seven additional breeding surveys in accordance with USFWS (2005). If these surveys are negative, the site will be assumed to be unoccupied by California red-legged frog and no additional actions would be necessary.
- If California red-legged frogs are found occupying any aquatic features at any time during the above surveys, MM-BIO-2 would be implemented. Compensatory mitigation for impacts on California red-legged frog habitat will be provided at a minimum 2:1 ratio. Replacement habitat will be in-kind and located on site, if feasible.
- To address uncertainty on the status of California tiger salamander in the site vicinity, a qualified biologist will prepare a formal site assessment for California tiger salamander in accordance with USFWS' and CDFW's Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (USFWS and CDFG 2003). If the site assessment determines and USFWS and CDFW agree that California tiger salamander occurrence on the site is not expected, no additional actions would be necessary.
- If the site assessment and/or USFWS or CDFW determine that formal surveys are needed to determine California tiger salamander presence or absence on the site, GSNR may conduct multi-year aquatic larval and upland drift fence surveys in accordance with USFWS and CDFW (2003), or assume that California tiger salamanders are present and mitigate accordingly as part of the Section 7 consultation process described under MM-BIO-2.
- If California tiger salamanders are found occupying the site during surveys or are assumed present, compensatory mitigation for impacts on California tiger salamander habitat will be provided at a minimum 2:1 ratio. Replacement habitat will be in-kind and located on site, if feasible.

MM-BIO-14 Native Bat Roost Protection at the Tuolumne Facility Site. Riparian vegetation and various human-made structures at the Tuolumne site may provide roosting habitat for native bats. Thus, GSNR will take the following actions:

- If feasible, any structure demolition and tree removal activities will be conducted outside of the bat maternity season (March 1 – August 31) to avoid potential impacts to maternity colonies.
- If structure demolition and tree removal activities must occur during the bat maternity season, a qualified biologist will conduct a pre-construction survey for maternity roosts within 14 days prior to construction. The survey will include a visual inspection of potential roosting features (bats need not be present) and presence of guano in the construction footprint and within 50 feet. Potential roosting features found during the survey will be flagged or marked.
- If bats (individuals or colonies) are detected and cannot be completely avoided, GSNR will implement measures to safely evict bats under the direction of a qualified biologist. If individuals cannot be safely evicted due to factors such as lack of alternative roosting sites, as determined by the qualified bat biologist, ground-disturbing activities within a specified distance of the roost (specified distance to be determined by the qualified biologist, based on surroundings and vulnerability of roost site, etc.) will be postponed or halted until conditions are suitable for safe eviction or the roost has vacated naturally.

MM-BIO-15 Native Tree Protection at the Tuolumne Facility Site. The project applicant will minimize damage to existing native trees on the Tuolumne Facility site from construction activities and potential soil compaction in the root zone. GSNR or construction contractor(s) will implement the below measures in addition to those required for compliance with the goals and policies in the Natural Resources Chapter of the Tuolumne County General Plan.

- No construction vehicles, construction equipment, mobile offices (e.g., trailer), or materials will be permitted within the driplines of any native trees to be retained by the project.
- If work or temporary traffic must proceed within the driplines, one of the following techniques will be followed: (1) place 6–12 inches of mulch in the work or traffic area; (2) place at least 4 inches of mulch in the work or traffic area and then place sheets of 0.75-inch-thick plywood or road mats with 4-inch-thick layer of mulch; or (3) place 4 to 6 inches of gravel with staked geotextile fabric beneath.
- Soil surface removal greater than 1 foot will not be permitted within the driplines of retained trees. No cuts will occur within 5 feet of their trunks.
- To the extent feasible, earthen fill greater than 1 foot deep will not be placed within the driplines of retained trees, and no fill will be placed within 5 feet of their trunks.
- Trenching will not occur within the driplines of retained native trees. If it is absolutely necessary to install trenches within the driplines of preserved trees, the trench will be either bored or drilled, but not within 5 feet of the trunk.

MM-BIO-16 Invasive Plant Control at the Tuolumne Facility Site. To prevent the spread of non-native and invasive plant species and pathogens, the project will implement the following measures:

- The contractor will clean all construction vehicles and equipment prior to entering undeveloped portions of the site (overland travel).
- Rock, sand, and any other material used for erosion control purposes will originate from a weed-free source if available. Refer to the following sources for more information:
  - https://www.cal-ipc.org/solutions/prevention/weedfreeforage/
  - https://www.cal-ipc.org/solutions/prevention/weedfreegravel/

- Areas temporarily disturbed by construction will be revegetated and reseeded. Revegetation will incorporate local native species to the extent practicable or sterile non-native species to reduce the spread of invasive plants in the project area. Seed collection source and species diversity will be selected to maintain the genetic integrity and diversity of native plants used for revegetation.

## Port Site (Only)

MM-BIO-17 Worker Environmental Awareness Program at the Port Site. GSNR will require crew members and contractors to receive worker environmental awareness program (WEAP) training from a qualified biologist prior to project commencement. The training will describe the appropriate work practices necessary to effectively implement all relevant mitigation measures and to comply with applicable environmental laws and regulations regarding biological resources. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats present or with the potential to occur in the work area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during work activities to leave the area unharmed and to report encounters to the project biologist. The project biologist will immediately contact USFWS, USFS, and/or CDFW (as appropriate) if a special-status species is encountered and cannot leave the site on its own (without being handled). All attendees of the training will be required to sign a log documenting attendance and completion of the training.

MM-BIO-18 Nesting Bird Surveys and Avoidance at the Port Site. Tree and vegetation removal at the Port site will be conducted outside of the nesting season (February through September) as feasible. If not feasible, the following measures will be implemented to avoid or minimize impacts to nesting birds:

- A qualified biologist shall conduct a pre-construction survey for nesting birds no more than 7 days prior to vegetation or structure removal or ground-disturbing activities conducted during the nesting season (February through September). The survey shall cover the limits of construction and suitable nesting habitat within 500 feet for raptors and 100 feet for other nesting birds, as feasible and accessible.
- If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance shall typically range from 50 to 500 feet and shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground-disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers, and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.
- If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities.
- If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be halted until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by

construction. Appropriate measures may include a no-disturbance buffer until the birds have fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.

MM-BIO-19 Protocol-Level Surveys for Swainson's Hawk at the Port Site. A qualified biologist will conduct surveys for Swainson's hawk prior to ground-disturbing activities at the Port site, if undertaken during the Swainson's hawk nesting season (March 1 – August 31). The surveys will be conducted in accordance with the Swainson's Hawk Technical Advisory Committee (TAC) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (TAC 2000). The survey will cover the limits of construction and suitable nesting habitat within 500 feet, to the extent feasible.

- If an active nest is observed in the survey area, construction within 500 feet of the nest will be delayed until young hawks have fledged and are independent of the nest, as determined by a qualified biologist. The qualified biologist, in consultation with CDFW, may reduce the 500-foot buffer based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the nest. Construction within 500 feet of the nest may reinitiate once all young have fledged and are no longer dependent upon the nest.
- If no active nests are identified during the survey no additional action is needed.

MM-BIO-20 Protocol-Level Surveys for Burrowing Owl at the Port Site. A qualified biologist will conduct surveys for burrowing owl within 30 days prior to ground-disturbing activities at the Port site. The survey will cover the limits of ground disturbance and potentially suitable nesting habitat within 300 feet, to the extent feasible. If ground-disturbing activities are delayed, then additional surveys will be conducted such that no more than 7 days elapse between the survey and ground-disturbing activities. If no potential burrowing owl nests are detected during the survey, no additional actions are needed, and ground-disturbing activities may proceed.

- If nesting burrowing owls are observed during the survey, ground-disturbing activities within 300 feet of occupied burrows will be delayed until young owls have fledged and are independent of the burrow, as determined by a qualified biologist. The qualified biologist may reduce the 300-foot buffer based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the burrow. Once all young have fledged and are no longer dependent upon the nest burrow, the burrow exclusion procedure described below will be implemented prior to resuming construction activities in the area.
- If overwintering burrowing owls are observed in or adjacent to the construction footprint during the survey, construction will be postponed until the qualified biologist can fully implement a California Department of Fish and Wildlife-approved burrow exclusion plan (to be prepared by the qualified biologist). The exclusion plan will be conducted in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). Once owls have been successfully excluded and unoccupied burrows evacuated, construction in the area may proceed.
- If no active nests or overwintering burrowing owls are identified during the survey no additional action is needed.

MM-BIO-21 Native Bat Roost Protection at the Port Site. Riparian vegetation and various human-made structures at the Port site may provide roosting habitat for native bats. Thus, GSNR will take the following actions:

- If feasible, any structure demolition and tree removal activities will be conducted outside of the bat maternity season (March 1 – August 31) to avoid potential impacts to maternity colonies.
- If structure demolition and tree removal activities must occur during the bat maternity season, a qualified biologist will conduct a pre-construction survey for maternity roosts within 14 days prior to construction. The survey will include a visual inspection of potential roosting features (bats need not be present) and presence of guano in the construction footprint and within 50 feet. Potential roosting features found during the survey will be flagged or marked.
- If bats (individuals or colonies) are detected and cannot be completely avoided, GSNR will implement measures to safely evict bats under the direction of a qualified biologist. If individuals cannot be safely evicted due to factors such as lack of alternative roosting sites, as determined by the qualified bat biologist, ground-disturbing activities within a specified distance of the roost (specified distance to be determined by the qualified biologist, based on surroundings and vulnerability of roost site, etc.) will be postponed or halted until conditions are suitable for safe eviction or the roost has vacated naturally.

### 3.3.4.5 Significance After Mitigation

Impact BIO-1a The project may have a substantial adverse effect, either directly or through habitat modifications, on special-status plant species, or substantially reduce the number or restrict the range of a rare or endangered plant.

**MM-BIO-1**, **MM-BIO-9**, and **MM-BIO-16** would reduce the potential for substantial adverse effect on special-status plant species as a result of the proposed project, such that potentially significant impacts would be reduced to **less than significant**.

Impact BIO-1b The project may have a substantial adverse effect, either directly or through habitat modifications, on special-status wildlife species, or substantially reduce the number or restrict the range of a rare or endangered animal.

**MM-AES-1**, **MM-BIO-2**, **MM-BIO-8**, **MM-BIO-10** through **MM-BIO-14,** and **MM-BIO-17** through **MM-BIO-20** would reduce the potential for substantial adverse effect on special-status wildlife species as a result of the proposed project, such that potentially significant impacts would be reduced to **less than significant**.

Impact BIO-2 The project may substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community.

**MM-BIO-1**, **MM-BIO-2**, and **MM-BIO-8** through **MM-BIO-16** would reduce the potential for substantial adverse effect on existing fish or wildlife populations and/or plant or animal communities as a result of the proposed project, such that potentially significant impacts would be reduced to **less than significant**.

Impact BIO-3 The project may have a substantial adverse effect on riparian habitat or other sensitive natural communities.

**MM-BIO-3** would reduce the potential for substantial adverse effect on riparian habitat or other sensitive natural communities as a result of the proposed project, such that potentially significant impacts would be reduced to **less than significant**.

Impact BIO-4 The project may have a substantial adverse effect on federally or state-protected wetlands.

**MM-BIO-4**, **MM-BIO-5**, **MM-BIO-7**, **MM-BIO-8,** and **MM-BIO-17** would reduce the potential for substantial adverse effect on federally or state protected wetlands and other aquatic resources as a result of the proposed project, such that potentially significant impacts would be reduced to **less than significant**.

Impact BIO-5 The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

**MM-BIO-6, MM-BIO-8**, **MM-BIO-10**, **MM-BIO-14**, **MM-BIO-17**, **MM-BIO-18**, and **MM-BIO-21** would reduce the potential for substantial adverse effects to the movement of native fish or wildlife, established wildlife corridors, or native wildlife nursery sites as a result of the proposed project, such that potentially significant impacts would be reduced to **less than significant**.

Impact BIO-6 The project may conflict with local policies or ordinances protecting biological resources?

The proposed project may conflict with any local policies or ordinances protecting biological resources, specifically preservation of oak habitat at the Tuolumne site. Implementation of **MM-BIO-3**, **MM-BIO-15**, and **MM-BIO-16** would reduce the impact to **less than significant**.

Impact BIO-7 The project may conflict with the provisions of an adopted HCP or NCCP, or other approved local, regional, or state conservation plans.

**MM-BIO-2**, **MM-BIO-3**, and **MM-BIO-4** would reduce the potential for conflict with the provisions of the MSJCP at the Port of Stockton site, such that potentially impacts would be reduced to **less than significant**.

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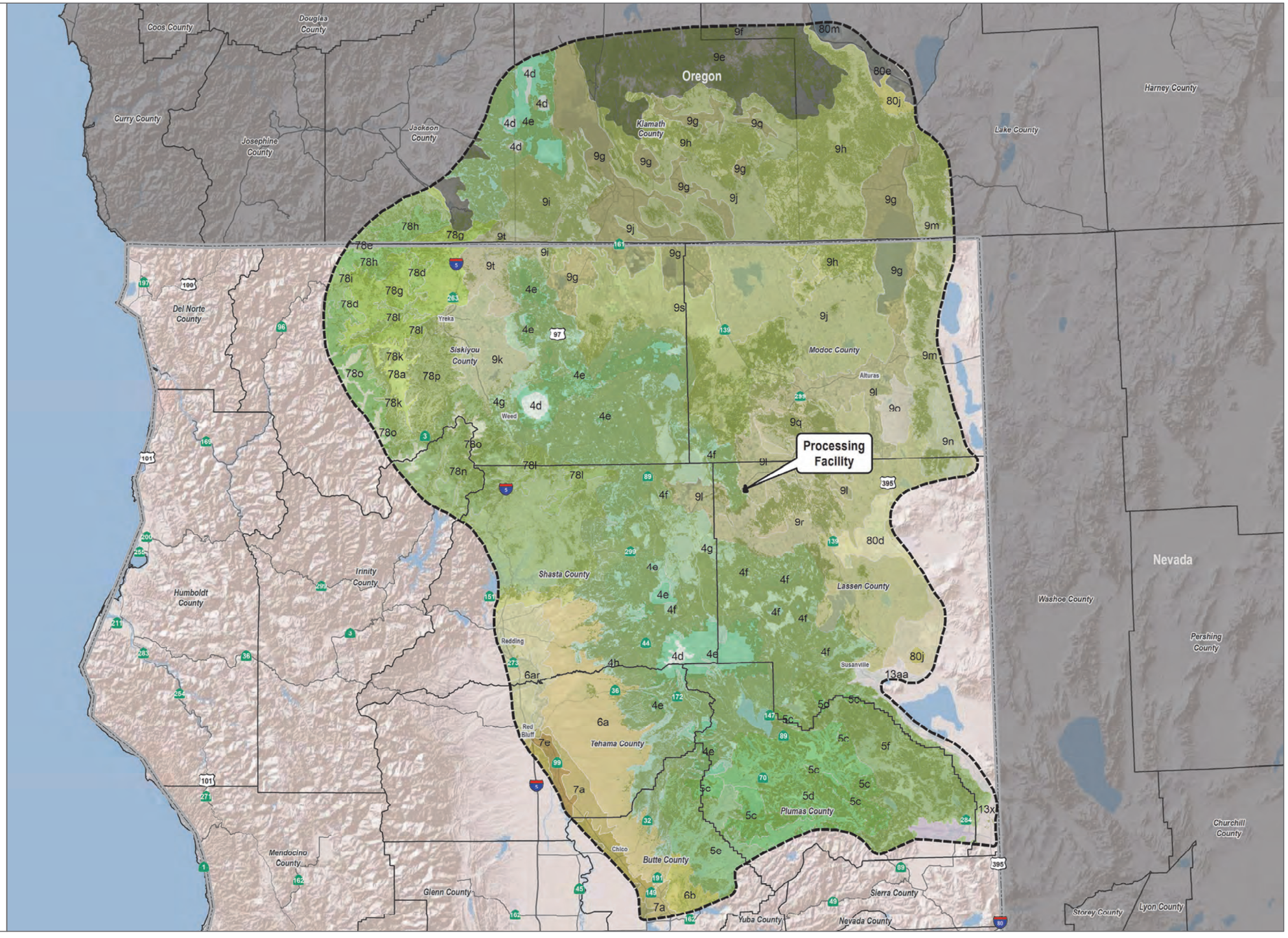
- Potential Feed Stock Area
- Forest Management Area (Timber Lands)
- County Boundary

**EPA Level IV Ecoregion**

- 13aa Sierra Nevada-Influenced Semiarid Hills and Basins
- 13ab Sierra Valley
- 13h Lahontan and Tonopah Playas
- 13x Sierra Nevada-Influenced Ranges
- 4d Cascade Subalpine/Alpine
- 4e High Southern Cascades Montane Forest
- 4f Low Southern Cascades Mixed Conifer Forest
- 4g California Cascades Eastside Conifer Forest
- 4h Southern Cascades Foothills
- 5c Northern Sierra Upper Montane Forests
- 5d Northern Sierra Mid-Montane Forests
- 5e Northern Sierra Lower Montane Forests
- 5f Northeastern Sierra Mixed Conifer-Pine Forests
- 6a Tuscan Flows
- 6ar Upper Sacramento River Alluvium
- 6b Northern Sierran Foothills
- 6e Tehama Terraces
- 6f Foothill Ridges and Valleys
- 78a Rogue/Illinois/Scott Valleys
- 78d Serpentine Siskiyous
- 78e Inland Siskiyous
- 78g Klamath River Ridges
- 78h Border High-Siskiyous
- 78i Western Klamath Low Elevation Forests
- 78k Eastern Klamath Low Elevation Forests
- 78l Eastern Klamath Montane Forests
- 78m Marble/Salmon Mountains-Trinity Alps
- 78n Scott Mountains
- 78o Klamath Subalpine
- 78p Duzel Rock
- 7a Northern Terraces
- 7b North Valley Alluvium
- 7c Butte Sink/Sutter and Colusa Basins
- 7e Sacramento/Feather Riverine Alluvium
- 80d Pluvial Lake Basins
- 80g High Lava Plains
- 80j Semiarid Uplands
- 9g Klamath/Goose Lake Basins
- 9h Fremont Pine/Fir Forest
- 9i Southern Cascades Slope
- 9j Klamath Juniper Woodland/Devils Garden
- 9k Shasta Valley
- 9l Pit River Valleys
- 9m Warner Mountains
- 9n High Elevation Warner Mountains
- 9o Likely Tableland
- 9p Modoc/Lassen Juniper-Shrub Hills and Mountains
- 9q Adin/Horsehead Mountains Forest and Woodland
- 9r Adin/Dixie Low Hills
- 9s Modoc Lava Flows and Buttes
- 9t Old Cascades




SOURCE: Bing Maps 2023, EPA 2023

DUDEK

0 12.5 25 Miles

FIGURE 3.3-1

Working Area - Northern California - Ecoregions

Golden State Natural Resources Forest Resiliency Demonstration Project

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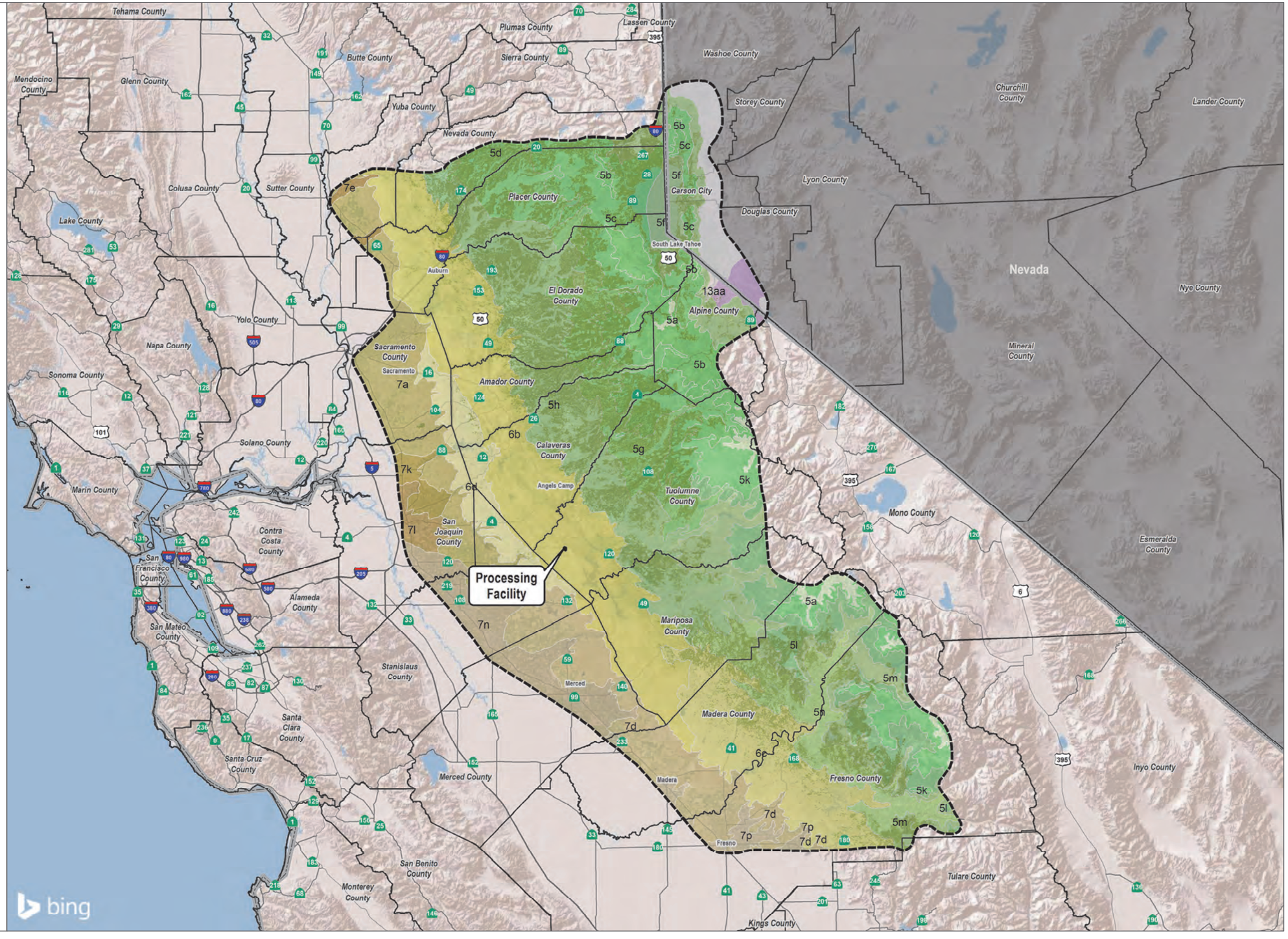
- Potential Feed Stock Area
- Forest Management Area (Timber Lands)
- County Boundary

**EPA Level IV Ecoregion**

- 13aa Sierra Nevada-Influenced Semiarid Hills and Basins
- 13x Sierra Nevada-Influenced Ranges
- 13y Sierra Nevada-Influenced High Elevation Mountains
- 5a Sierran Alpine
- 5b Northern Sierra Subalpine Forests
- 5c Northern Sierra Upper Montane Forests
- 5d Northern Sierra Mid-Montane Forests
- 5e Northern Sierra Lower Montane Forests
- 5f Northeastern Sierra Mixed Conifer-Pine Forests
- 5g Central Sierra Mid-Montane Forests
- 5h Central Sierra Lower Montane Forests
- 5k Southern Sierra Subalpine Forests
- 5l Southern Sierra Upper Montane Forests
- 5m Southern Sierra Mid-Montane Forests
- 5n Southern Sierra Lower Montane Forest and Woodland
- 6b Northern Sierran Foothills
- 6c Southern Sierran Foothills
- 6d Camanche Terraces
- 7a Northern Terraces
- 7d Southern Hardpan Terraces
- 7e Sacramento/Feather Riverine Alluvium
- 7j Delta
- 7k Lodi Alluvium
- 7l Stockton Basin
- 7n Manteca/Merced Alluvium
- 7p Granitic Alluvial Fans and Terraces




SOURCE: Bing Maps 2023, EPA 2023

DUDEK

0 12.5 25 Miles

FIGURE 3.3-2

Working Area - Central Sierra Nevada - Ecoregions

Golden State Natural Resources Forest Resiliency Demonstration Project

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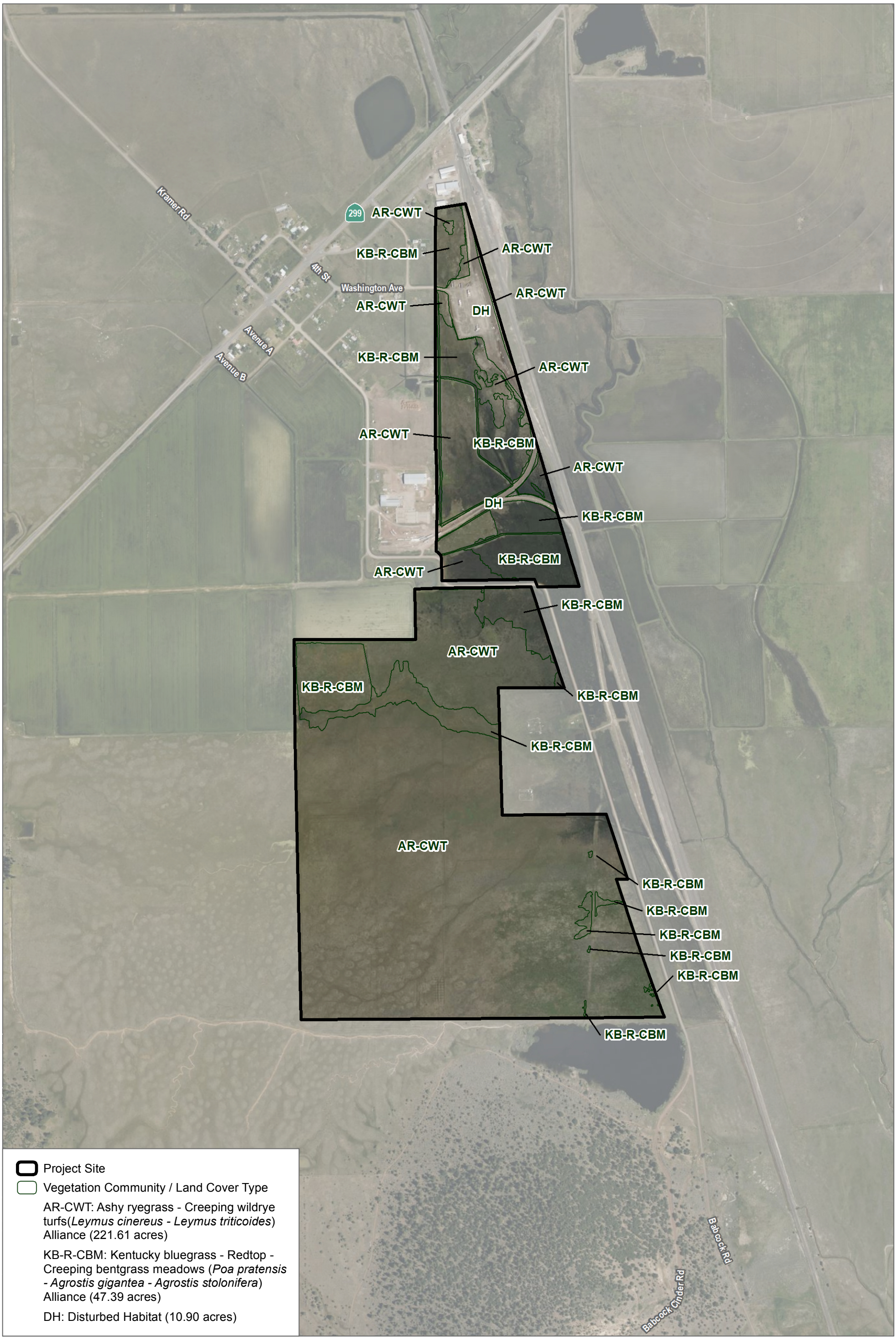


SOURCE: Bing Maps 2021, Open Street Map 2019, FRAP 2015

DUDEK

0 405 810 Feet

**FIGURE 3.3-3**

Lassen Facility - Vegetation Communities and Land Cover Types

Golden State Natural Resources Forest Resiliency Demonstration Project

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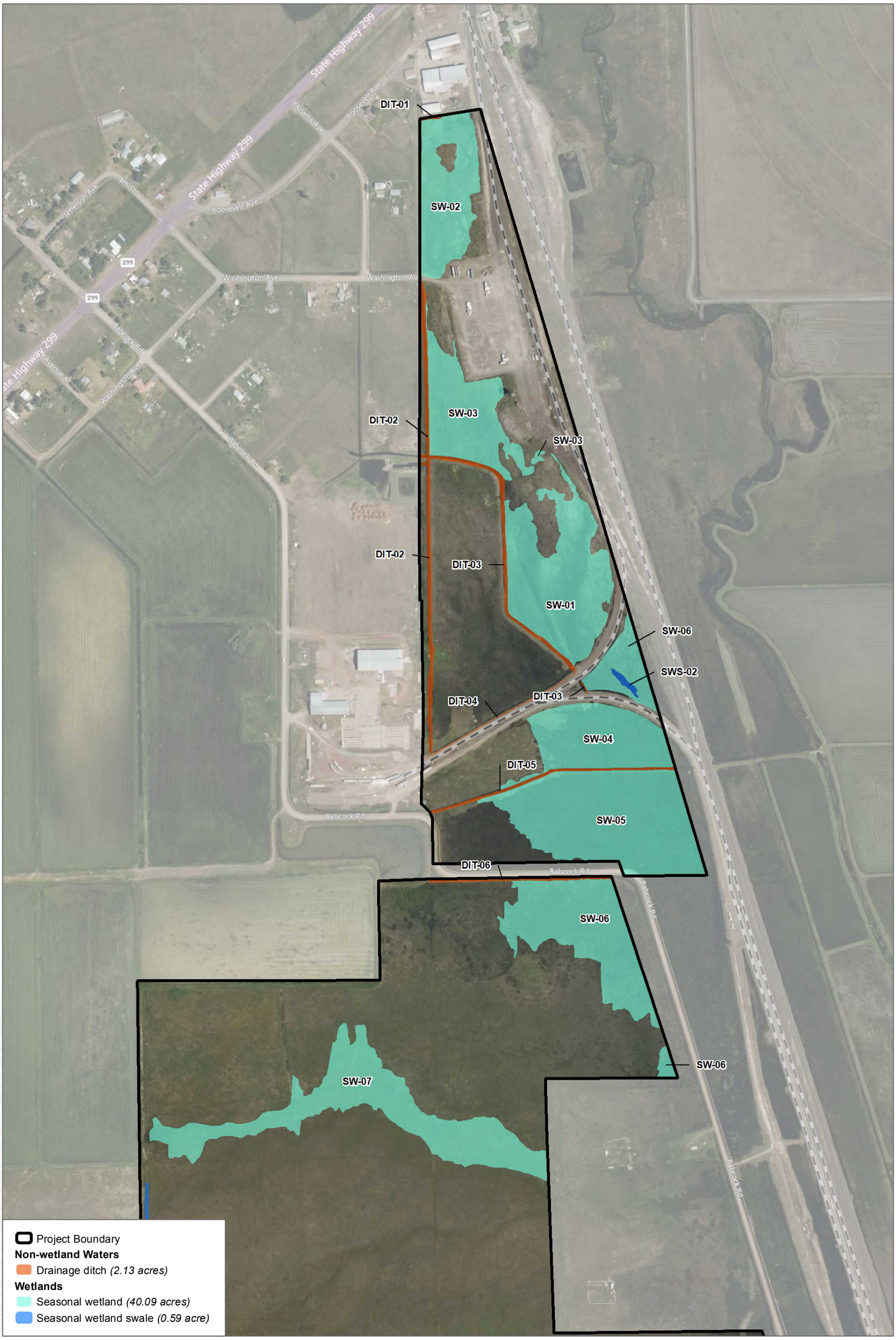


SOURCE: Bing Maps 2024

DUDEK

0 200 400 Feet

**FIGURE 3.3-4A**

Lassen Facility - Aquatic Resources

Golden State Natural Resources Forest Resiliency Demonstration Project

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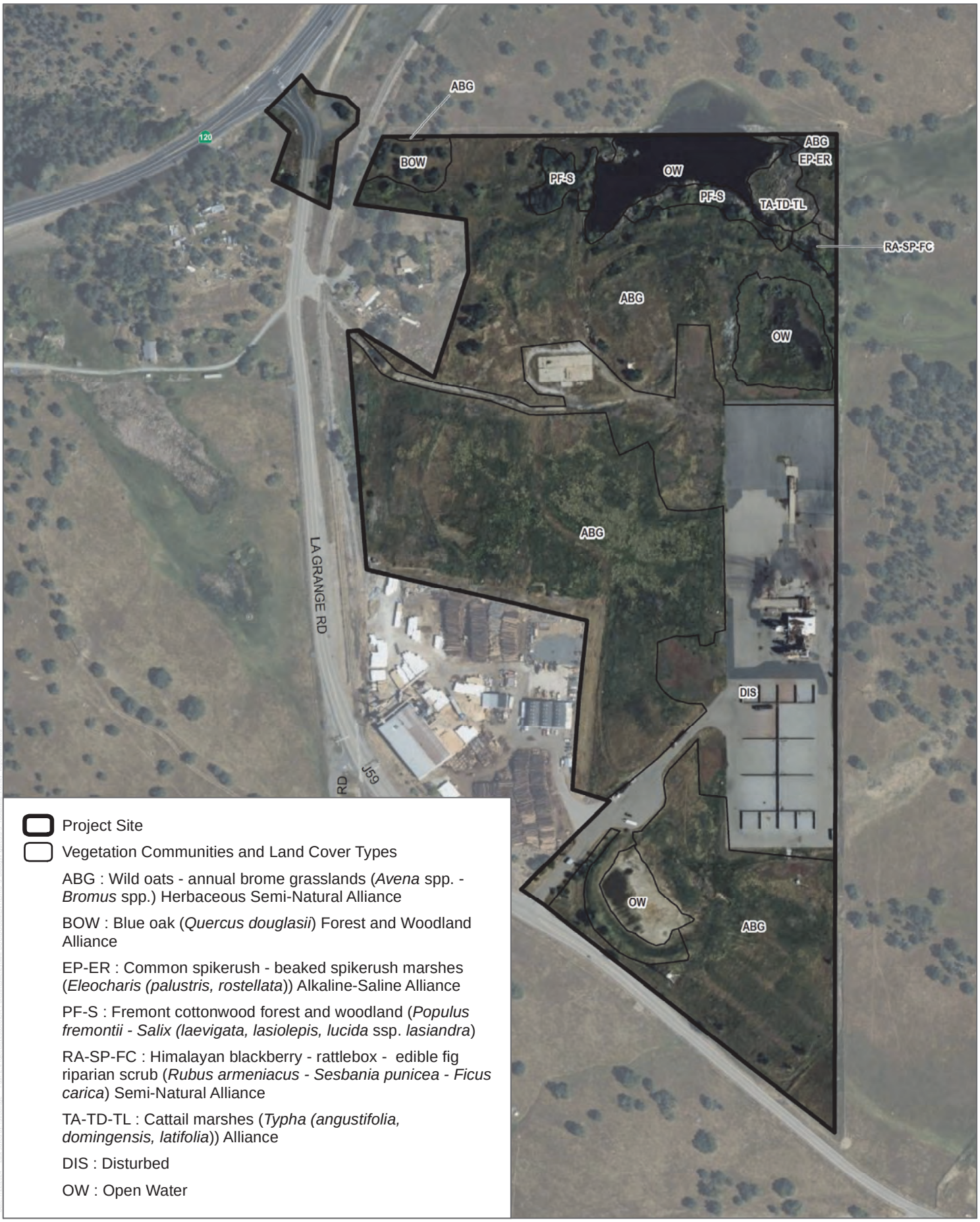


SOURCE: Bing Maps Sept 2015 - Mar 2017

DUDEK

0 175 350 Feet

FIGURE 3.3-5

Tuolumne Facility - Vegetation Communities and Land Cover Types

Golden State Natural Resources Forest Resiliency Demonstration Project

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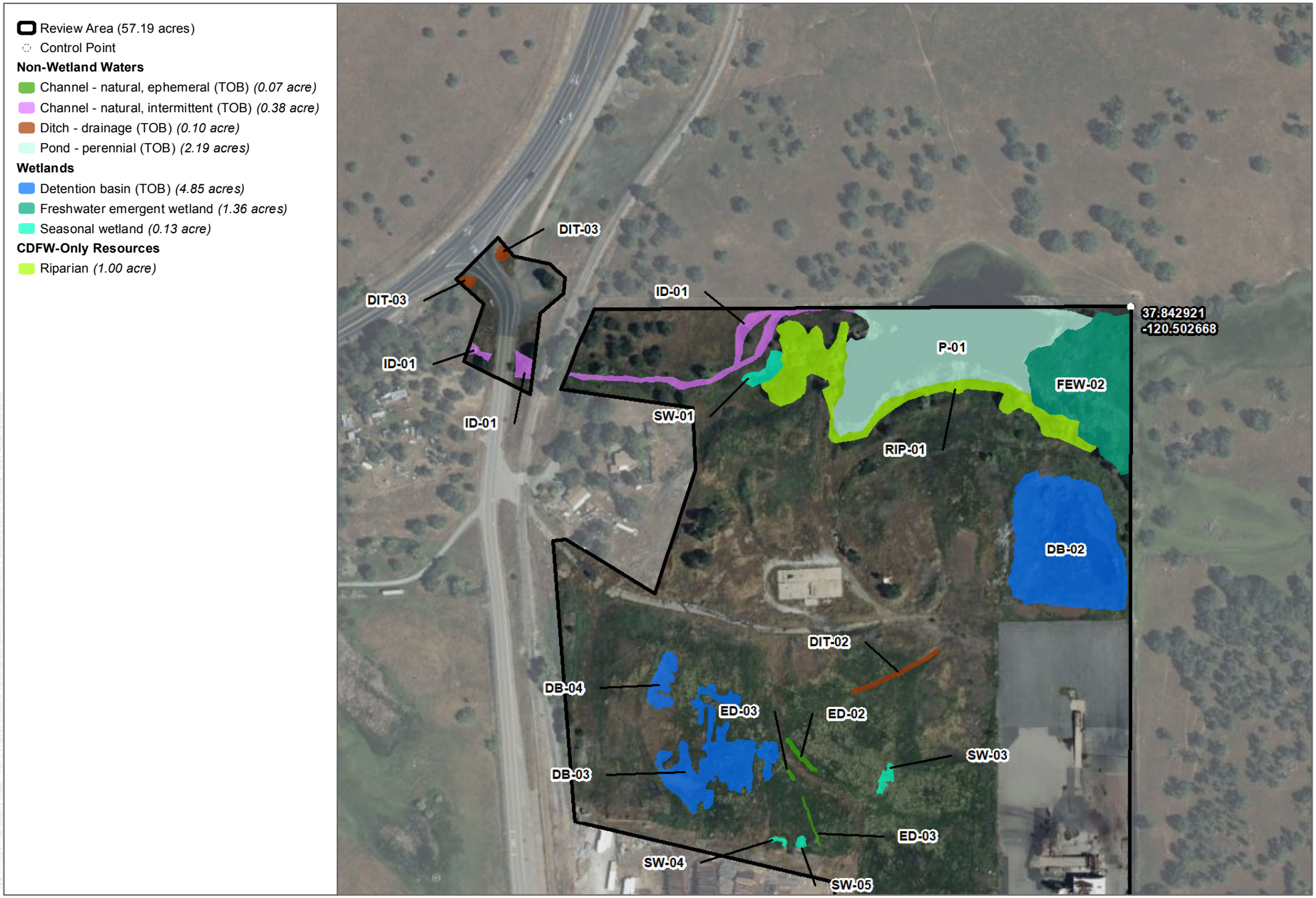


SOURCE: ESIR Imagery 2023, OpenStreetMap

DUDEK

0 150 300 Feet

**FIGURE 3.3-6A**

Tuolumne Facility - Aquatic Resources

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: ESIR Imagery 2023, OpenStreetMap

DUDEK

0 150 300 Feet

**FIGURE 3.3-6B**

Tuolumne Facility - Aquatic Resources

Golden State Natural Resources Forest Resiliency Demonstration Project

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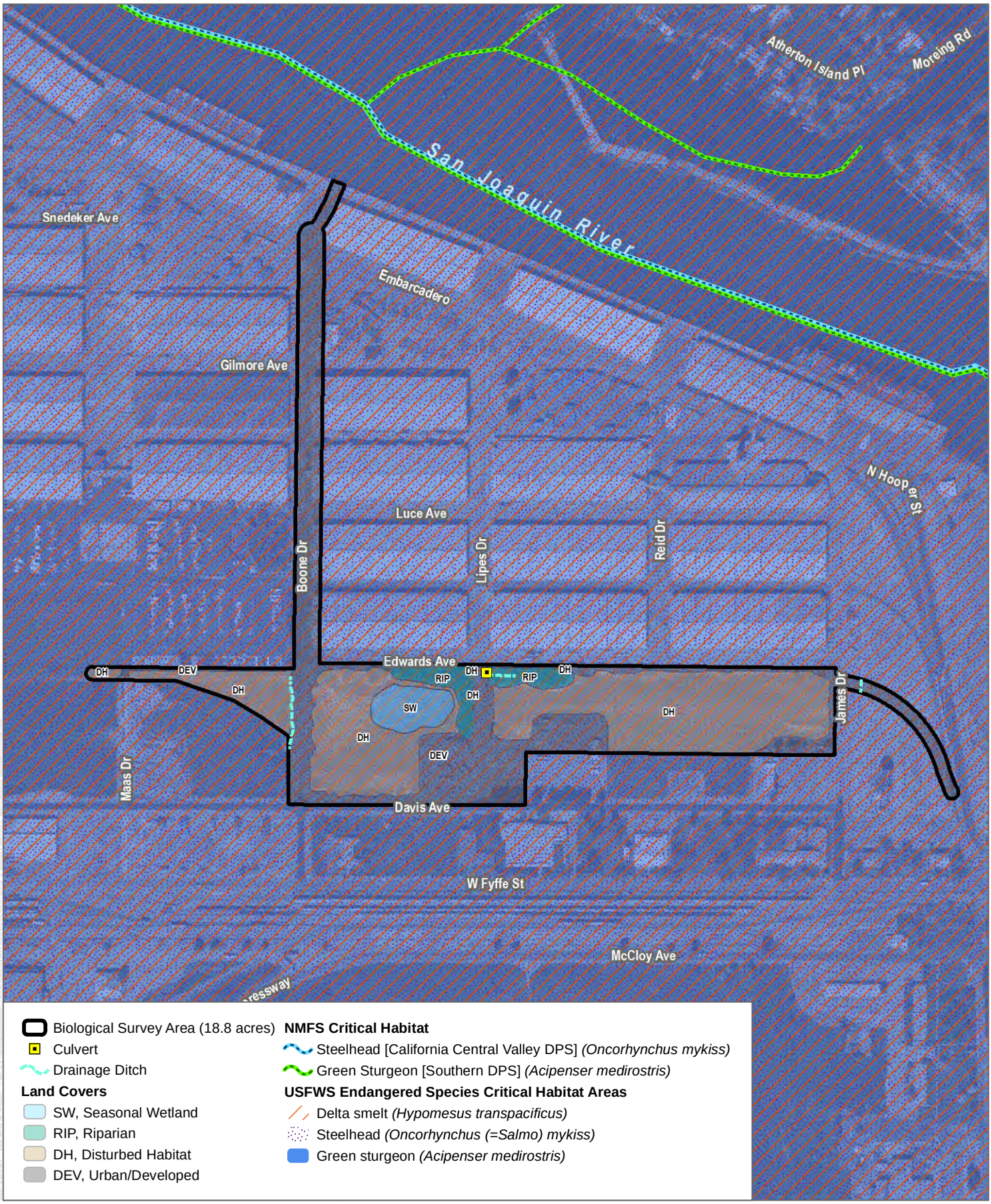


SOURCE: Bing Maps 2023, NOAA 2023, USFWS 2024, San Joaquin County 2021

DUDEK

0 250 500 Feet

FIGURE 3.3-7

Port of Stockton - Biological Resources

Golden State Natural Resources Forest Resiliency Demonstration Project

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Oregon

Nevada

Lassen Site

Tuolumne Site

Haul Routes

Forest Management Area (National Forests)

Natural Landscape Blocks

Higher cost to ecological areas

Lower cost to ecological areas

SOURCE: ESRi 2023; Bing Imagery 2023; USFS 2023; CDFW 2020

DUDEK

0 32,500 65,000 Feet

FIGURE 3.3-8

# Working Area - Wildlife Connectivity

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 3.4 Cultural Resources

This section of the EIR evaluates potential impacts to cultural resources associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing cultural resources conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California (Port of Stockton), and evaluates the potential for project-related impacts to cultural resources, considering proposed project design features that could reduce or eliminate associated impacts. Cultural resources are defined as prehistoric or historic-period archaeological resources, historic-period architectural resources, and historic period engineering features, including canals and railroad resources. This section also evaluates tribal cultural resources (TCRs), which are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that is listed or determined to be eligible for listing in the national or state register of historical resources or listed in a local register of historic resources.

## 3.4.1 Environmental Setting

### 3.4.1.1 Sustainable Forest Management Projects (Feedstock Acquisition)

The study area for cultural resources (archaeology and historic built environment) for the Feedstock Acquisition is undertaken at the programmatic level and is illustrated on Figures 2-1, Working Area (Lassen) and 2-2, Working Area (Tuolumne). The study area includes an extensive portion of California ranging from the Sacramento Valley located in Northern California to other areas of the state commonly referred to as the Sierras to the San Joaquin Valley. Due to the extent of the study area and the programmatic nature of the proposed work, preparation of site-specific studies would be impracticable at this time; however, the project design features (PDFs) require specified studies and avoidance measures in connection with each individual sustainable forest management project under this program. Subsequent processes are discussed in Section 3.4.4.1, Impact Analysis Methodology. Information in this section is limited to high-level cultural resources contextual information in the programmatic study area.

#### General Prehistoric Context

Various attempts to parse out information provided through recorded archaeological assemblages throughout California for the past 13,000 years have led to the development of numerous cultural chronologies. Some of these are based on geologic time, most are interpreted through temporal trends derived from archaeological assemblages, and others are interpretive reconstructions. The spatial extent and detail of these chronologies is also highly variable, with detail chronologies developed in some areas based on substantial numbers of radiocarbon dates, while other areas rely on cross-dating of stylistically distinct artifact styles or cultural patterns. However, each of these chronologies describes essentially similar trends in assemblage composition and cultural succession, with varying degrees of detail. California's archaeological assemblage composition is generally accepted as falling within the following overarching patterns: Paleoindian period, Archaic period, Emergent/Prehistoric period, and Ethnohistoric period.

#### General Ethnohistoric Period

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first written records of the Native American communities

throughout California come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century. The principal intent of these researchers was to record the precontact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005:32) by recording languages and oral histories. Ethnographic research did demonstrate that traditional cultural practices and beliefs survived among local Native American communities.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006:34). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007). At present more than 200 Native American contacts are on the NAHC list. Native American tribal communities are anticipated to be important participants in the development of future Sustainable Forest Management Projects.

## Historic Period Context

The study area includes some of California's original 27 counties, which are Butte, Calaveras, El Dorado, Lassen, Mariposa, Modoc, Plumas, Sacramento, San Joaquin, Siskiyou, Shasta, Tehama, Trinity, and Tuolumne counties. These counties share common historical themes such as mining, logging, ranching and agriculture.

The Sierras contained the rich ore deposits and was at the heart of California's gold rush, having been first discovered in El Dorado County at Sutter's Mill in Coloma, California (Starr 2005:78–79). The discovery of gold ushered California into statehood. Mining operations could be found throughout the Sierras and along the American, Sacramento, and Feather rivers in northern California making mining the dominate industry during California's early years of Statehood. Large portions of the study area are occupied by national forests including the El Dorado, Klamath, Lassen, Modoc, Plumas, and the Shasta. The readily available supply of lumber promoted the lumber industry, which fed the burgeoning development of cities, towns, and railroads. Logging operations were enhanced by the various railroads allowing for the transportation to the mills for processing (Copren n.d.:4; Lassen County 2024).

Many emigrants who arrived in California during the Gold Rush saw opportunities in more stable livelihoods such as ranching and farming and decided to stay in the Sacramento and San Joaquin Valleys rather than travel to gold fields. As mining waned, agriculture became the prominent industry for many of the counties in the study area. Grain production, vineyard cultivation, and orchards of fruit and nut trees could be found in just about all the counties in the study area (Tehama County Resource Conservation District 2006; Lassen County 2024; Shasta County Historical Society 2024; El Dorado County Historical Museum 2024; Amador County 2016:I-16). Lands not being cultivated were used for sheep and cattle grazing. By the 1860s, cattle population in California reached 1 million head and 40 percent was in the San Joaquin Valley (Burcham 1982). The completion of the Transcontinental Railroad in 1876 enticed more people to come to California by offering affordable rail fares and promises of fertile agricultural land. The arrival of the railroad also introduced transportation of agricultural products to large distribution centers throughout the United States and ensured the predominance of the Central Valley agricultural

industry for over the next century. By 1879, the agricultural industry employed more people than mining (Starr 2005:110). Throughout the 20th century and into the 21st century the agricultural industry remains a critical industry throughout the study area. In the 20th and 21st centuries, agriculture remained and important industry in the Sacramento Valley and Northern California region. Alfalfa hay, grain hay, barley, walnuts, almonds, olives being some of the most prolific agricultural products of the area (County of Modoc 2021; Tehama County 2019).

### Tribal Cultural Resources

The study area for TCRs for the Feedstock Acquisition is illustrated on Figures 2-1 and 2-2. The study area includes an extensive portion of California ranging from the Sacramento Valley located in Northern California to other areas of the state commonly referred to as the Sierras to the San Joaquin Valley. Due to the extent of the study area and the programmatic nature of the proposed work, cultural resources, including TCRs are considered at the programmatic level. Subsequent cultural resources work will be required as individual Sustainable Forest Management Projects are developed, site specific analysis and consultation will be undertaken. Subsequent processes are discussed in section 3.4.4.1, Impact Analysis Methodology.

## 3.4.1.2 Northern California (Lassen) Facility

Dudek cultural resources specialists in archaeology and historic era-built environment conducted technical studies of the Lassen Facility site proposed for production of wood pellets. Information in this section is based on and summarized from the following technical studies:

- Archaeological Resources Inventory Report for Forest Resiliency Program Project, Lassen Site, Lassen County, California. Prepared for Golden State Finance Authority. Prepared by Dudek. Included as Appendix D1.
- Built Environment Inventory and Evaluation Report for Golden State Natural Resources Forest Resiliency Demonstration Project, Northern California (Lassen) Facility, Lassen County, California. Prepared for Golden State Finance Authority. Prepared by Dudek. Included as Appendix D2.

The effort to identify cultural resources in the Lassen Facility Project Area included a records search and a review of the archaeological, ethnographic, and historical literature; a Native American Heritage Commission (NAHC) Sacred Lands File Search; examination of historic maps; historical research; and field surveys. The following section provides abbreviated archaeology and built environment contexts, the methods used to identify cultural resources, and inventory and evaluation findings for the Lassen Facility regarding cultural resources.

### Setting and Area of Potential Impacts

The Lassen site is shown in Figure 2-4, Project Site (Lassen). The project site is located in a rural setting, surrounded by widely scattered rural development and open space generally composed of cropland, sagebrush scrub, and wet meadow. The community of Nubieber is immediately northwest of the project area. A majority of the project site and surrounding area is undeveloped, though several structures are present in the northern portion project site and a track yard and water tower are present just north of the center of the project site. The Burlington Northern Santa Fe Railway Company railroad line parallels the eastern boundary of the project site and several railroad spurs intersect the area.

The Area of Potential Impact (API) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of a cultural resource. Determination of the API is influenced by a

project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (Title 36 Code of Federal Regulations Section 800.16[d]).

The archaeological API is the maximum area of potential ground disturbance resulting from Project activities and includes the entirety of the approximately 290-acre site (see Figure 2, Area of Potential Impacts, in Appendix D1). The estimated maximum depth of disturbance is 15 feet below the existing ground surface.

The built environment API follows the maximum possible area of potential effects (direct and indirect) resulting from the proposed Project (see Figure 2, Project Site: Project Area and Built Environment API, in Appendix D2). The API includes all areas where Project activities are proposed. It also includes properties historically associated with the Project site that contain buildings and structures at least 45 years of age (constructed on or before 1976) that could be subject to indirect effects, including alteration of setting, noise, and construction-related vibration. The adjacent railroad line was included, as the line will be used to transport the product to market. These properties constitute the indirect API. Together, the combination of direct and indirect impacts is referred to throughout the remainder of this report as the Project API. In consideration of all potential effects to built environment properties, the Project API encompasses the extent of the proposed Project footprint and the associated buildings and structures of the railroad line, historically the Great Northern and Western Pacific (GNWP) Railroad's The Inside Gateway, Bieber Station. The railroad is now part of the Burlington Northern Santa Fe (BNSF) Rail line, but for the purpose of this report, it will be referred to by its historic name, GNWP.

The API contains two property groupings, Property. 1, Big Valley Lumber Company Site, and Property. 2, the GNWP Railroad: The Inside Gateway, Bieber Station, and Associated Properties. No other buildings or structures located within the API are known to be 45 years of age and/or rise to the level of consideration for formal evaluation under National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) criteria as part of assessing potential effects to historic properties for this Project.

## Archaeological Context

California's archaeological assemblage composition is generally accepted as falling within the following overarching patterns: Paleoindian period, Archaic period, Emergent/Prehistoric period, and Ethnohistoric period. The most broadly applicable chronology for Northeastern California follows a similar framework, although elements of chronologies from the adjacent Plateau and Great Basin culture areas do play a more prominent role than elsewhere in California. Recent attempts to synthesize the various local and regional chronological schemes in the region have resulted in the following proposed cultural periods for northeastern California: Early Holocene (5000+ cal BC), Post-Mazama (5000-3000 cal BC), Early Archaic (3000-1500 cal BC), Middle Archaic (1500 cal BC – cal AD 700), Later Archaic (cal AD 700-1400), Terminal Prehistoric (cal AD 1400- contact).

A full prehistoric archaeological context is provided within Appendix D1.

## Ethnohistoric Period (post-AD 1750)

The following ethnohistoric context is provided to help ground the considerations with regard to Tribal Cultural Resources for the Lassen Facility. The region surrounding the project site falls within the Achumawi tribal territory during the ethnohistoric period (Appendix D1). The Achumawi and their southern neighbors the Atsugewi—sometimes referred to together as the Pit River groups— occupied a large portion of northeastern California encompassing the Pit River drainage from the Big Bend and Montgomery Creek in the west to Goose Lake to the Warner Mountains in the east and from Mount Shasta and Goose Lake in the North to Mount Lassen and Eagle Lake in the south. The Achumawi territory can be broadly broken into two distinct ecological zones. The western,

downriver portion of the territory consists of wooded intermountain canyons and valley while the eastern, upriver portion of tribal territory consists of drier, higher elevation valleys with the plateau-basin ecology with the sagebrush and juniper, jackrabbit, and elk more associated with eastern Oregon and northwestern Nevada.

Together, Achumawi and Atsugewi make up the Palaihnihan language family, which is in turn a part of the larger Hokan language phylum (Appendix D1). Achumawi is comprised of a total of nine local dialects spoken along the Pit River (Appendix D1). The nine dialects form two dialectical clusters which conform more or less with the division between the ecological zones encompassed by the Achumawi tribal territory. Groups speaking the "downriver" dialects—Madesiwi, Itsatawi, Ilmawi, and Achumawi (proper)—occupy the intermountain canyons and valleys in the western portion of Achumawi territory and "upriver" dialects—Atwamsini, Astariwawi, Kosalektawi, Hammawi, and Hewisedawi—occupy the drier and higher elevation valleys to the east (Appendix D1). The dialect spoken in the immediate vicinity of the project area, was Atwamsini (also referred to as Atwamwi) spoken by the Big Valley Achumawi living in Big Valley which includes the areas surrounding Bieber and Nubieber (Appendix D1).

Although the area encompassed by the Achumawi tribal territory is quite large, habitation was concentrated in productive areas along streams and drainages, lakes, meadows, and marshes with much of the surrounding areas only occasionally visited for hunting or gathering but not settled (Appendix D1). Seasonal transhumance was commonplace, with winters spent in more densely populated settlements along rivers or valleys followed by dispersal in pursuit of various resources during the summer months (Appendix D1). Traditional features of the winter villages were small houses constructed from bark with sloping roofs over shallow excavations, and one or more larger semi-subterranean "sweat houses" (Appendix D1).

The Achumawi subsistence strategy was centered on fishing, hunting, and collecting vegetative resources, although the focal resources varied according to the local ecology. In the west-central portion of the territory, along the Pit River, the population was at its most dense and subsistence practices were most like the typical California pattern with a reliance on acorns, salmon, and deer as the staple foods. Further east— where oaks and salmon were scarce— the subsistence pattern was more similar to that of the plateau basin groups; root crops, particularly epos and cams, were the primary gathered food, non-anadromous fish were taken from local waterways, and the seasonally available waterfowl were a more substantial portion of the diet (Appendix D1). Common material goods included the sinew-backed bows and arrows, ground stone tools for processing vegetal foods, twined basketry, nets for fish and game, and many goods made from fibrous plants (Appendix D1). One practice unique to the region was the extensive use of pit traps for the taking of animals, particularly deer. Deer were caught with concealed pits excavated to a depth of two to three yards along deer trails (Appendix D1).

Sociopolitical organization also varied geographically, with western groups organized into autonomous tribelets while eastern groups formed hereditary bands (Appendix D1). In both cases the basic social unit functioned as an autonomous political unit but were socially connected with neighboring groups through intermarriage and common languages and dialect.

## Historic Period Context

Post-contact history for the State of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Lassen County was never part of the efforts by the Spanish or Mexican to colonize California. Most of Spanish period settlement occurred in coastal areas, in Central and Southern California. Extensive land grants were later established in the interior areas of California during the Mexican Period. However, there is no indication any Mexican Ranchos were established in

Lassen County. Rather, the area was a significant residential and resource procurement area for the Achumawi (also Achomawi), Modoc, and Pit River Native American peoples (Appendix D1).

## Euroamerican Settlement and Establishment of Lassen County

While Euroamericans were settling throughout California by the mid-1840s, little development is shown in Lassen County. The 1868 General Land Office (GLO) original survey map shows there are no Euroamerican settlements in Nubieber, and a single road, Fort Bidwell Road, is noted to the southwest of the API (Appendix D1).

One Euroamerican settler in the area was Peter Lassen, Lassen County's namesake. In 1839, Lassen emigrated to Oregon's Willamette Valley before relocating to California in 1840. In 1844, just 3 years before Mexico ceded California to America, Mexican Governor Manuel Micheltorena granted Lassen the 22,206-acre Bosquejo Rancho, located to the southwest of the API (Appendix D1).

In 1850, Lassen sold portions of Rancho Bosquejo. In 1856, Lassen and Isaac Newton Roop gathered a quorum intent on creating a new territory. As a result of this gathering, the Territory of Nataqua was founded with Roop as the secretary and recorder and Lassen as surveyor. In 1859, Lassen was killed. In 1864, portions of Plumas and Shasta Counties were appropriated to form Lassen County. The town grew slowly as small towns were established in the 1870s and 1880s (Appendix D1).

## Development of the Town of Nubieber

Nubieber, where the Project API is located, developed later in the county's history. In 1929, Byron S Greenwood purchased approximately 900 acres 2.5 miles from the Town of Bieber in Lassen County. The first residents of Nubieber were ranchers. To encourage settlement, Greenwood advertised that railroad workers could purchase any unsold Nubieber lot for half price (Appendix D1).

The Great Northern and the Western Pacific officially joined on November 10, 1931. After the Project area was developed with the railroad, Nubieber's business district expanded dramatically. The business district continued to develop. In 1933, another fire decimated the town's business district (Appendix D1).

Nubieber survived its initial years because of business generated by the railroad. Freight loading and shipments through Nubieber further increased when the mills of the Stockton Box Co., the Big Valley Lumber Company, the Caldwell Mill, and the Red River Lumber Company relocated to Nubieber. Despite the influx of lumber companies, Nubieber's population struggled to grow. In 1940, Greenwood traded all unsold lots to E.L. Robertson in exchange for a 60-room apartment building in San Francisco. Nubieber's population never grew, and the outer roads fell into disuse (Appendix D1).

Great Northern operated the railroad and Bieber Station until the 1970s when Burlington Northern purchased the line and station. By 1999, only two mills remained. In 2001, the Big Valley Lumber Mill, which owned and operated the western portion of the API, was the last sawmill in Nubieber. When the Big Valley Lumber Mill closed, Nubieber's population was enumerated at 100 people. In 2021, Nubieber was home to 19 residents (Appendix D1).

## Railroad Development in Lassen County/History of the API

The Western Pacific Railway Company (Western Pacific Railroad Company after 1916) was founded in San Francisco in 1903 under the direction of George J. Gould. The Western Pacific thrived as a passenger and freight line and rapidly developed transportation infrastructure across California. The Great Northern Railroad was founded

in 1889 by James J. Hill, who purchased and merged three railroad companies: the St. Paul and Pacific Railroad; St. Paul, Minneapolis, and Manitoba Railway; and the Montana Central Railroad. In the early 1900s, Western Pacific joined forced with the Great Northern Railroad company to expand into northeastern California (Appendix D1).

In 1927, the Great Northern reached an agreement with the Southern Pacific to operate trains on Southern Pacific tracks in southern Oregon and Northern California. In 1929, Arthur Curtiss James, a railroad financier, negotiated a joint line. The Great Northern and Western Pacific companies began talks to purchase the right-of-way from the Northern California–based McCloud River Railroad and local logging companies. In June 1930, the Interstate Commerce Commission approved the sale, and the companies began working towards the junction point in Nubieber, California (Appendix D1).

The Great Northern reached Nubieber in September of 1931 and constructed Bieber Station directly east of the railway. On the west side of the tracks, the Great Northern developed a track yard and several support structures (some of which remain in the API). On November 10, 1931, the Western Pacific reached Nubieber, completing the rail line known as The Inside Gateway. The railroads connected the region to statewide and national markets. Commercial and residential development boomed in Nubieber during the early 1930s (Appendix D1).

The Inside Gateway venture did not pan out as expected for Great Northern, Western Pacific, and the town of Nubieber. Passenger service on the GNWP Railroad never went into effect, hindering Nubieber's development. Shortly after the railroad began carrying freight, the Western Pacific sold their interest in the joint line to the Great Northern for trackage rights on the Bieber-Hambone line, which the company never used. The Great Northern continued to operate the railroad and Bieber Station until 1970, when the company merged with the Chicago, Burlington, and Quincy Railroad Company; the Northern Pacific Railway Company; and the Spokane, Portland, and Seattle Railway to create the Burlington Northern Railroad company. Burlington Northern continued to operate the former GNWP Railroad line until 1996. In 1996, Burlington Northern merged with the Atchison, Topeka, and Santa Fe Railway to become the BNSF Railway Company, which continues to operate the railroad that runs through Nubieber (Appendix D1).

## Methods and Identification of Cultural Resources

### CHRIS Records Search

The California Historical Resources Information System (CHRIS) repository covers the region in which the API is located. The North Central Information Center contains records for Lassen County while maintaining the official records of California Historical Resources Information System searches from previous cultural resources studies and recorded cultural resources for their respective areas. On September 30, 2021, at the request of Dudek, North Central Information Center staff conducted a records search at the North Central Information Center, California State University Chico, for the API. The records search consulted the California Historical Resources Information System base maps of previously recorded cultural resources and previously conducted cultural resources studies for the API and all areas within 1 mile thereof. Additional sources of information, including previously conducted cultural resources surveys and historic maps (U.S. Geological Survey and General Land Office), were selectively reviewed to determine areas with a high potential for the presence of historic- and prehistoric-period sites.

### Summary of Archaeological Records Search Results

A records search was completed for the project API and a 1-mile buffer by staff at the NEIC at California State University Chico on September 30, 2021. The records search identified 3 previous studies performed within the

records search area, none of which intersect the API (Appendix D1). The records search did not identify any previously recorded cultural resources within the API. Eleven cultural resources have been recorded within 1 mile of the API. These include 9 prehistoric lithic scatters, one prehistoric habitation site, and one historic era site with razed structure foundations and residential refuse.

### Summary of Built Environment Specific Records Search Results

The records search identified three previous studies performed within the records search area, none of which intersect the API and none of which include built environment properties. The record search also identified 10 previously recorded sites within 1 mile of the API. Based on these reports, no previously recorded built environment resources were found to be located within the API or within 1 mile of the API. For a list of previous archeological studies performed within the records search area, please refer to the Archaeological Resources Inventory Report for the Golden State Natural Resources, Gould Site, Lassen County, California (Archaeological Report) (Appendix D1).

### Additional Building Development and Archival Research

Dudek conducted additional background research to identify the presence of other historic-era built environment properties that were not identified through the CHRIS record search sited within and adjacent to the proposed project area. This research included a search of the Built Environment Resources Directory (BERD), which identified no resources that overlapped the Project API and no resources adjacent to the Project API within 1 mile. Dudek also reviewed historic aerial photographs, historic newspapers, and historic Sanborn maps in addition to conducting archival research at the following repositories:

- California State Library
- Lassen County Historical Society
- Lassen County Assessor's Office
- Lassen Library District
- University of California, Davis
- Big Valley Museum of Lassen County
- Lassen County Building Department

## Tribal Coordination

The NAHC was contacted by Dudek staff on September 28, 2021 to request a search of its Sacred Lands File. The NAHC responded on November 4, 2021 indicating that no Native American resources on file with the NAHC fall within the project API (Confidential Appendix B of Appendix D1). The NAHC provided a list of Native American tribal contacts who may have additional knowledge relating to cultural resources in the area. Golden State Finance Authority did not receive any tribal requests for notification under Assembly Bill 52 (AB 52) prior to release of the Draft Environmental Impact Report, and therefore the formal requirements of AB 52 were not triggered for this project. However, in accordance with the Native American Heritage Commission, Tribal Consultation Under AB 52: Requirements and Best Practices, GSFA initiated "non-AB 52 tribal consultation" by sending outreach notices and offers to meet and confer to each of the Tribes listed on the NAHC contact list for the Lassen, Tuolumne, and Stockton sites. The results of those meetings and collaboration have informed the information, analyses, and management strategies in this chapter.

## Field Methods

### Archaeology

Dudek archaeologists Nicholas Hanten and Gregory Wada conducted an intensive-level pedestrian survey of the northern, approximately 65-acre, portion of the project API October 15, 2021. Dudek archaeologists Elizabeth Sivell and Michael Mendiola conducted an intensive-level pedestrian survey of the remaining southern portion of the API on April 24, 2024. Both surveys used standard archaeological procedures and techniques (as outlined in Research Methods in Appendix D1). All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory.

During the 2021 survey, ground surface visibility was low (approximately 5%–20%) over much of the API due to vegetation ranging from 10 to 40 centimeters in height. Photos 1 and 2 show representative conditions within the API at the time of survey. Several areas within the API have been previously disturbed by development of the Big Valley Lumber Company Site and the adjacent Great Northern and Western Pacific railway. Soils outside of the developed portion of the API appeared to be relatively undisturbed, although some areas exhibited signs of cracking from alternating wet and dry conditions that could have caused mixing in the upper levels of the soil. Surface visibility was also low (varying from approximately 0%–50%) during the 2024 survey due to dense vegetation and standing water.

Four previously unrecorded historic-era resources (LG-NH-1, GSNR-ES-001, GSNR-ES-002, and GSNR-ES-003) were discovered and recorded during the pedestrian survey.

### Built Environment

Dudek Architectural Historian Erin Jones conducted a pedestrian survey of the API for historic built environment resources on September 21, 2021. The survey entailed walking the exteriors of all buildings and structures within Project API; documenting each building with notes and photographs; specifically noting character-defining features, spatial relationships, and observed alterations; and examining any historic landscape features on the property and adjacent parcels with properties that appeared more than 45 years old and appeared historically associated with the subject property. Dudek documented the fieldwork using field notes, digital photography, close-scale field maps, and aerial photographs. Photographs of the subject property were taken with a digital camera. All field notes, photographs, and records related to the current study are on file at Dudek's office in Sacramento, California (Appendix D2).

## Results of Identification and Evaluation Efforts

### Archaeology

#### LG-NH-1

One previously unrecorded historic-era resource was located and recorded during the 2021 archaeological survey. LG-NH-1 is a moderately dense historic-era refuse scatter comprised of more than 200 cans of various types and 100 clear and green glass bottle fragments, several bricks, concrete pipe fragments, a metal post set in a concrete base, and other miscellaneous refuse. The site is located to the south and west of a small bank at the southern extent of a graded area adjoining the track yard, approximately 60m south of the water tower. Artifacts are generally concentrated close to the bank; however, artifacts are scattered over the field to the south and east suggesting

some degree of secondary dispersion of the deposit. In total, the site covers an area of approximately 65m by 35m in size, with an area of 2100 $m^2$.

The most common types of can in the assemblage are sanitary cans of various sizes (corrugated and smooth-sided) and flat-top beverage cans, however several oval and rectangular meat and fish cans, one tobacco can, and one cone top beverage can were also recorded. Several of the fish cans are embossed "NORWAY/NORVEGE" or "MONERE_/CAL USA." In addition to non-diagnostic glass fragments, glass bottle necks, bases, and several complete or nearly complete bottles and jars were recorded, including several wine and liquor bottles. Six maker's marks were identified on complete bottles or sufficiently intact bottle base fragments including marks from the Owens Illinois Glass Co., Hazel-Atlas Glass Co,, W.J. Latchford Co., and what is possibly a Thatcher Glass Manufacturing Co. mark. In addition, three bottles were recorded with embossed "Gallo Flavor Guard" branding of various forms as was a sidewall fragment of a clear glass Coca-Cola bottle. Several other cans and bottles were also embossed with text (see Appendix D1 for details).

Diagnostic artifacts in the assemblage suggest that the site likely results from multiple depositional events, with the earliest deposit of materials dating to the late 1930s or early 1940s and later material dating to the early 1960s. The earlier component is evident from the presence of three Owens-Illinois Glass Co. "Diamond-OI" maker's marks which was adopted in 1929 and phased out between 1954 and 1966 (Appendix D1). Single digit manufacturing codes on two of these bottles indicate production dates of 1936 and 1937. The W.J. Latchford Co. maker's mark is also consistent with this timeframe, as the "L-in-oval" mark was used 1925-1939 (Appendix D1), and the bottle is embossed "WINE OVAL" at the heel, indicating production after the end of Prohibition in 1933. Evidence for a post-1958 component is provided by two green-glass Gallo "Flavor Guard" bottle bases. The Gallo Glass company began using the "Flavor-Guard" embossing after 1958, and the format of embossing on one of the bottles is consistent with the earliest configuration produced by the Gallo Glass Co (Appendix D1). Several other green glass wine bottle fragments are present in the assemblage, suggesting that additional Gallo bottles are in the assemblage although additional maker's marks were not discovered during survey. The character of the can assemblage is also consistent with these dates as sanitary cans and flat-top beverage cans would have been common during this same period and the assemblage lacks can types that would have been indicative of earlier or later periods, such as pull tab cans.

Sufficient documentation was gathered through archaeological inventory efforts to evaluate this resource for NRHP and CRHR listing, for which the site was assessed to be not eligible. To be eligible for listing in the CRHR/NRHP, a site must have "yielded, or [have] the potential to yield, information important to the prehistory or history of the local area, California, or the nation" (PRC Section 5024.1; 14 CCR 4852). The site is not substantially associated with any specific significant events locally, regionally, or nationally (Criterion A/1); is not directly associated with the lives of any important people locally, regionally, or nationally (Criterion B/2); does not contain architecture (Criterion C/3); and, beyond the attributes captured through recordation, does not have the potential to yield information locally, regionally, or nationally (Criterion D/4). Refuse scatters of this type are common throughout the region, and the site does not represent a "unique" resource as defined under CEQA. Any data potential associated with site intersecting the API has been exhausted through recordation. As such, this resource is not eligible for listing in the NRHP/CRHR, and impacts/effects that would occur through planned project disturbances would be less than significant.

### GSNR-ES-001

Discovered and recorded during the 2024 archaeological survey, GSNR-ES-001 is a small historic-era refuse scatter consisting of five cans and one clear glass bottle. This resource located at the top of the southwest side of an

earthen mound, covering an area of approximately 70 $m^2$. The artifact assemblage includes five cans with interlocking seems, three of which are sanitary cans and two are round food cans. The glass bottle is complete with an intact metal screw top lid. The bottle base includes an Anchor Hocking maker's mark ("anchor-H") which was in use from 1937 to 1968, although its use may have persisted until as late as 1980 (Appendix D1).

Sufficient documentation was gathered through archaeological inventory efforts to evaluate this resource for NRHP and CRHR listing, for which the site was assessed to be not eligible. To be eligible for listing in the CRHR/NRHP, a site must have "yielded, or [have] the potential to yield, information important to the prehistory or history of the local area, California, or the nation" (PRC Section 5024.1; 14 CCR 4852). The site is not substantially associated with any specific significant events locally, regionally, or nationally (Criterion A/1); is not directly associated with the lives of any important people locally, regionally, or nationally (Criterion B/2); does not contain architecture (Criterion C/3); and, beyond the attributes captured through recordation, does not have the potential to yield information locally, regionally, or nationally (Criterion D/4). Refuse scatters of this type are common throughout the region, and the site does not represent a "unique" resource as defined under CEQA. Any data potential associated with site intersecting the API has been exhausted through recordation. As such, this resource is not eligible for listing in the NRHP/CRHR, and impacts/effects that would occur through planned project disturbances would be less than significant.

### GSNR-ES-002

Discovered and recorded during the 2024 archaeological survey, this resource consists of a historic-era refuse scatter comprised of two concentrations (C1 and C2) of cans, glass and ceramic fragments. The resource covers an area of approximately 938 $m^2$ situated in an open field. Each concentration contains more than 50 artifacts including sanitary cans with church key opening, food cans with key-wind openings, clear, amber, and opalescent milk glass fragments, and ceramic fragments. Two diagnostic artifacts were identified during survey, a complete clear glass bottle with a marker's mark of an "S" inside a circle and a complete wide mouth amber glass bottle with an Owens-Illinois maker's mark and "Abbot Lab, Made in U.S." embossed on the base. The maker's marks indicate that the assemblage dates between 1929 to 1960 (Appendix D1).

Sufficient documentation was gathered through archaeological inventory efforts to evaluate this resource for NRHP and CRHR listing, for which the site was assessed to be not eligible. To be eligible for listing in the CRHR/NRHP, a site must have "yielded, or [have] the potential to yield, information important to the prehistory or history of the local area, California, or the nation" (PRC Section 5024.1; 14 CCR 4852). The site is not substantially associated with any specific significant events locally, regionally, or nationally (Criterion A/1); is not directly associated with the lives of any important people locally, regionally, or nationally (Criterion B/2); does not contain architecture (Criterion C/3); and, beyond the attributes captured through recordation, does not have the potential to yield information locally, regionally, or nationally (Criterion D/4). Refuse scatters of this type are common throughout the region, and the site does not represent a "unique" resource as defined under CEQA. Any data potential associated with site intersecting the API has been exhausted through recordation. As such, this resource is not eligible for listing in the NRHP/CRHR, and impacts/effects that would occur through planned project disturbances would be less than significant.

### GSNR-ES-003

Discovered and recorded during the 2024 archaeological survey, this resource is a historic-era refuse scatter comprised of cans and clear and amber glass fragments covering an area of approximately 282 $m^2$. There are no diagnostic artifacts within the site, however the cans show a significant weathering and are consistent with the

other historic-era assemblages nearby. Notable non-diagnostic artifacts in the assemblage include a clear glass bottle base with a circular suction scar at its center. There is also a ceramic fragment with rounded edge with holes on one side and a swirling/petal shaped pattern on the opposite side. Sufficient documentation was gathered through archaeological inventory efforts to evaluate this resource for NRHP and CRHR listing, for which the site was assessed to be not eligible. To be eligible for listing in the CRHR/NRHP, a site must have "yielded, or [have] the potential to yield, information important to the prehistory or history of the local area, California, or the nation" (PRC Section 5024.1; 14 CCR 4852). The site is not substantially associated with any specific significant events locally, regionally, or nationally (Criterion A/1); is not directly associated with the lives of any important people locally, regionally, or nationally (Criterion B/2); does not contain architecture (Criterion C/3); and, beyond the attributes captured through recordation, does not have the potential to yield information locally, regionally, or nationally (Criterion D/4). Refuse scatters of this type are common throughout the region, and the site does not represent a "unique" resource as defined under CEQA. Any data potential associated with site intersecting the API has been exhausted through recordation. As such, this resource is not eligible for listing in the NRHP/CRHR, and impacts/effects that would occur through planned project disturbances would be less than significant.

## Built Environment

Dudek recorded and evaluated two properties that contain historic era (over the age of 45 at the time of survey) buildings and structures located in the API. These properties are the Big Valley Lumber Company Site (Property 1) and Great Northern and Western Pacific Railroad: The Inside Gateway, Bieber Station, and Associated Properties (Property 2). Locational information for these properties is illustrated in figures presented in the technical report prepared for this project site and can be found in Appendix D2.

### Property 1, Big Valley Lumber Company Site

#### Property Description

Components that comprise the Big Valley Lumber Company Site are located within the current legal parcel boundaries of APN 001-270-087, 001-313-001, and 001-304-001. Note that these parcels are not part of the project site, but Property 1 is historically connected to the development of the overall site. Figure 4 of Appendix D2 shows specific locations of the 8 buildings associated with the Big Valley Lumber Company Site. The buildings are currently in use as a light-industrial buildings associated with the local logging industry. The subject property currently comprises eight components including five buildings and three structures. The subject property is bordered to the north by Lassen State Highway (State Route 299), to the west by a wire mesh fence supported by vertical wood posts, and to the east by the BNSF Railroad line, which was established by the Great Northern Railroad and Western Pacific Railroad companies in 1931. The property has two access points; the first may be accessed via a gate at the eastern terminus of Rosevelt Avenue, a short, paved road that deviates from Lassen State Highway. The second entrance is located at the eastern terminus of unpaved Washington Avenue. Aside from the buildings and structures listed in Table 3.4-1, the undeveloped areas of the site are covered in annual grasses and forbs.

**Table 3.4-1. Summary of Buildings and Structures of Property. 1, Big Valley Lumber Company Site**

| Letter Identifiers for Buildings and Structures | Property. 1. Big Valley Lumber Company's Buildings and Structures | Build Date |
|---|---|---|
| 1A | Storage Barn A | c. 1970 |
| 1B | Storage Barn B | c. 1950 |

**Table 3.4-1. Summary of Buildings and Structures of Property. 1, Big Valley Lumber Company Site**

| Letter Identifiers for Buildings and Structures | Property. 1. Big Valley Lumber Company's Buildings and Structures | Build Date |
|---|---|---|
| 1C | Warehouse | c. 1950 |
| 1D | Propane Shelter | c. 1996 |
| 1E | Concrete Masonry Unit Structure | c. 2007 |
| 1F | Storage Barn C | c. 1970 |
| 1G | Shed | c. 2007 |
| 1H | Silo | c. 1950 |

## NRHP/CRHR Evaluations

### Period of Significance

A site visit, archival research, and a review of historic aerial photography indicates that the Big Valley Lumber Company, sited at 551000 Rosevelt Ave, was established in c. 1960 and was adapted and used for the following 30 years in a light industrial manner. Accordingly, the period of significance is defined as the establishment period of c. 1960.

### Significance Evaluations

In consideration of Property. 1's history and requisite integrity, Dudek recommends the subject property is not eligible for listing in the NRHP and CRHR based on the following significance evaluation and in consideration of national and state eligibility criteria:

NRHP Criterion A: associated with events that have made a significant contribution to the broad patterns of our history.

CRHR Criterion 1: is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Big Valley Lumber Company developed the subject property from c. 1960 to 1993 before the Gould Family Trust obtained ownership in the early 2000s and improved upon the existing facilities. Big Valley Lumber Company established its Nubieber Reload Station in c. 1960. The reload station, one of several owned by Big Valley Lumber Company, did not play a significant role in the relevant historic context of lumber production and processing in Nubieber and Lassen County. The Lassen County timber industry thrived in the early 1930s, leading the Great Northern and Western Pacific railroad companies to establish the GNWP Inside Gateway and partner with Nubieber lumber companies, including Big Valley Lumber Company. When the Big Valley Lumber Company took ownership of the subject property in c. 1960, the site continued to serve as a ubiquitous light-industrial property associated with the lumber industry. The property represents the continued development of the lumber industry in the county during the twentieth century.

Property. 1 was part of the local and regional lumber industry in Nubieber and Lassen County from c. 1960 to 2001, decades after the industry's initial establishment and economic rise in the area. Although Big Valley Lumber

Company utilized the Nubieber Reload Station as the last lumber-associated operation in Nubieber, the company did not make a significant contribution to the broad patterns of local history and cultural heritage. Big Valley Lumber Company's Nubieber Reload Station was a late example of lumber reload stations owned by Big Valley Lumber Company in Lassen County and indicates the company's continued investment in the lumber industry in the region. For these reasons, the subject property is recommended not eligible under NRHP Criterion A or CRHR Criterion 1.

NRHP Criterion B: associated with the lives of significant persons in our past.

CRHR Criterion 2: is associated with the lives of persons important in our past.

To be found eligible under Criterion B/2, the property has to be directly tied to an important person and the place where that individual conducted or produced the work for which they are known. Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and the subject property. The timber site represents the efforts of many individuals, rather than the significant work of a single important individual. Therefore, the subject property is not known to have any historical associations with people important to the nation's, state's, or county's past. Due to a lack of identified significant associations with important persons in history, the subject property is recommended not eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

CRHR Criterion 3: embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

In order for the subject property to meet NRHP eligibility requirements under Criterion C/CRHR, it must embody the distinctive characteristics of a type, period, or method of construction; demonstrate the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components lack individual distinction. The subject property buildings are ubiquitous and prefabricated industrial buildings that are considered utilitarian and do not represent a particular style of architecture. These are relatively common buildings that can be found at various industrial/manufacturing sites throughout the country. Furthermore, the buildings and structures are not known to be the work of an important architect, builder, engineer, or designer, and are not known to have been built using an innovative construction technique. Additionally, the buildings do not embody distinctive characteristics of a type, period, or method of construction. Archival research failed to indicate the designer or architect of these buildings, and due to the ubiquitous style, they are very unlikely to be the work of a master and do not possess high artistic value. Consequently, the subject property is recommended not eligible under NRHP Criterion C or CRHR Criterion 3.

NRHP Criterion D: have yielded, or may be likely to yield, information important in history or prehistory.

CRHR Criterion 4: has yielded, or may be likely to yield, information important in prehistory or history.

This report was limited to historical resources that are part of the built environment. Criterion D generally applies to archaeological resources but may apply to a built environment resource in instances where a resource may contain important information about such topics as construction techniques or human activity. This is unlikely to

be true for Property 1. Therefore, the property is not recommended eligible as a built environment resource under Criterion D.

Please see the Archaeological Report, Appendix D1, for information on archaeological resources in the API.

### Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (NPS 1997) states that the integrity of a property is based upon the historical significance and character defining features of that property, and that "only after significance is fully established can you proceed to the issue of integrity." Upon conclusion that the subject property, historically sited as 551000 Rosevelt Avenue, does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

## Property 2, The GNWP Railroad: The Inside Gateway, Bieber Station, and Associated Properties

### Property Description

The GNWP Railroad: The Inside Gateway, Bieber Station, and Associated Properties (Property. 2) are located in Nubieber, California. The associated 15 buildings, structures, and features are located within the current legal parcel boundaries of APNs ,001-270-086, 001-270-079, 001-370-003, 001-400-003, and 001-490-002. See Figure 5 of Appendix D2 for specific building locations. The facility currently carries the address of 653-800 Washington Avenue. Table 3.4-2 identifies the components associated the railroad within the API.

**Table 3.4-2. Summary of Property. 2: GNWP Railroad Buildings, Structures, and Features**

| Letter Identifiers for Associated Attributes | Property. 2. Attributes Associated with the GNWP Railroad | Date Constructed |
|---|---|---|
| 2A | Segment of the Great Northern and Western Pacific Railroad and Spur Lines | 1931 |
| 2B | Water Tower | 1931 |
| 2C | Track Yard | 1931 |
| 2D | BNSF Railroad Administrative Office | c. 1995 |
| 2E | Railroad Depot | c. 1970 |
| 2F | Metal Storage Containers | c. 2001 |
| 2G | Shipping Container Storage Building | 2005 |
| 2H | Mechanical Infrastructure | c. 2019 |
| 2I | Shipping Container Storage Building | c. 2019 |
| 2J | Railroad Lodging | c. 1939 |
| 2K | Ditch K | c. 1939 |
| 2L | Ditch L | c. 1939 |
| 2M | Ditch M | c. 1939 |
| 2N | Electrical Shed | c. 2016 |
| 2O | Shed | c. 2010 |

## NRHP/CRHR Evaluations

### Period of Significance

A site visit, archival research, and a review of historic aerial photography indicates that Property. 2, in Nubieber, California, was established in 1931. The subject property is the site of the confluence of the Great Northern and Western Pacific railroads and was celebrated at the time of its completion. The period of significance is defined as its completion date, its most significant historic period, 1931.

### Significance Evaluations

In consideration of Property. 2's requisite integrity, Dudek recommends the subject property is not eligible for listing in the NRHP and CRHR based on the following significance evaluation and in consideration of national and state eligibility criteria:

NRHP Criterion A: associated with events that have made a significant contribution to the broad patterns of our history

CRHR Criterion 1: is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

At the local level, Property. 2 was instrumental to the early growth and development of the City of Nubieber as the confluence of the Great Northern and Western Pacific railroads. The establishment of the railroad played a critical role in the early planning, development, and initial growth of Nubieber. While the subject property is of historic age and does represent a significant site for both Nubieber and the Great Northern and Western Pacific Railroads, the property no longer retains integrity to convey its significance. One of the most notable elements of integrity that is lost is the integrity of setting. Significant demolition of primary buildings, including the original depot building; the removal of original railroad spurs; introduction of new buildings; and changes in use all impact the property's ability to convey significance from its time as a 1931 hub of transportation and commerce. The subject property also lacks temporal cohesiveness due to the demolition and addition of buildings since its initial construction.

The loss of this overall integrity of setting adversely affects the subject property, as this collection of buildings and structures is no longer able to convey its shared history. Additionally, the change in setting from an active railroad depot to a lumber processing property has also greatly impacted the integrity of feeling, association, and setting of railroad-related properties on the site. In summary, Property. 2 is not able to convey its association with significant events occurring within the context of Nubieber, nor is it able to convey its significance within the broad patterns of history of the Great Northern and Western Pacific Railroad lines in Lassen County, the State of California, or the nation. Accordingly, Dudek recommends the subject property is not eligible under NRHP/CRHR Criterion A/1.

NRHP Criterion B: associated with the lives of significant persons in our past.

CRHR Criterion 2: is associated with the lives of persons important in our past.

To be found eligible under Criterion B/2, the property must be directly tied to an important person and the place where that individual conducted or produced the work for which they are known. Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and the subject property. Property. 2 represents the collective efforts of many individuals, rather than the work of any single individual. Therefore, the subject property is not known to have any historical associations with people

important to the nation's, state's, or county's past. Due to a lack of identified significant associations with important persons in history, the subject property is recommended ineligible under NRHP Criterion B or CRHR Criterion 2.

NRHP Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

CRHR Criterion 3: embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

Property. 2 is composed of ubiquitous and prefabricated industrial buildings that are considered utilitarian and do not represent a particular style of architecture. These are relatively common buildings that can be found at various rail-related, industrial, and manufacturing sites throughout the country. Furthermore, the buildings and structures are not known to be the work of an important architect, builder, engineer, or designer, and are not known to have been built using an innovative construction technique. Additionally, the buildings do not embody distinctive characteristics of a type, period, or method of construction. Archival research failed to indicate any designers or architects of these buildings, and due to the ubiquitous style, they are unlikely to be the work of a master and do not possess high artistic value. Consequently, the subject property is recommended not eligible under NRHP Criterion C or CRHR Criterion 3.

NRHP Criterion D: have yielded, or may be likely to yield, information important in history or prehistory.

CRHR Criterion 4: has yielded, or may be likely to yield, information important in prehistory or history.

This report was limited to historical resources that are part of the built environment. Criterion D generally applies to archaeological resources but may apply to a built environment resource in instances where a resource may contain important information about such topics as construction techniques or human activity. This is unlikely to be true for Property. 2. Therefore, the built environment components of the subject property are recommended not eligible under Criterion D.

Please see the Archaeological Report, Appendix D1, for information on archaeological resources in the API.

### Integrity Discussion

Property 2 was analyzed against the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. The site retains its integrity of location, as it has not been moved. However, the integrity of setting has been compromised with the demolition of adjacent buildings, new constructions, and substantial changes in use. This change of use, from an active railroad depot to a lumber shipping site, has adversely affected the site's integrity of setting, feeling, and association. Much of the integrity of design, materials, and workmanship is lost, as replacement materials have been added throughout since its completion in 1931, including replacement of the historic depot building and demolition of many of the original rail related infrastructure. As a result, the integrity of feeling is not intact, as the subject property is unable to convey the feeling of a 1931 railroad depot. Historic association is defined as the direct link between an important historic event and a historic property. The subject property is unable to show its historic association when observing the site, as the majority of the property's historic features and character has not survived to the present day. The subject property does not possess integrity to convey its significance to its temporal period.

### Eligibility Summary

Property 1, the Big Valley Lumber Company Site is not eligible for listing in the NRHP or the CRHR, due to a lack of historical associations and architectural merit. As such, the Big Valley Lumber Company Site is not a historical resource under CEQA.

Property 2, the GNWP Railroad: The Inside Gateway, Bieber Station, and Associated Properties was found not eligible for listing in the NRHP or the CRHR due to a lack of integrity and is therefore not considered a historical resource under CEQA.

### Tribal Cultural Resources

The effort to identify TCRs at the Lassen Facility project site included, as described above, a records search and a review of the archaeological, ethnographic, and historical literature; a Native American Heritage Commission (NAHC) Sacred Lands File Search; tribal engagement; examination of historic maps; historical research; and field surveys. No TCRs have been identified within the project site.

## 3.4.1.3 Central Sierra Nevada (Tuolumne Facility) Site

Dudek cultural resources specialists in archaeology and historic era-built environment conducted technical studies of the Tuolumne Facility site proposed for production of wood pellets. Information in this section is based on and summarized from the following technical studies:

- Cultural Resources Inventory Report for the Forest Resiliency Program Project SPI Keystone, Tuolumne County, California. Prepared for Golden State Finance Authority. Prepared by Dudek. January 2022. Included as Appendix D3.
- Built Environment Inventory and Evaluation Report for Golden State Natural Resources Forest Resiliency Demonstration Project, Central Sierra Nevada (Tuolumne) Site Tuolumne County, California. Prepared for Golden State Finance Authority. Prepared by Dudek. May 2021, and Revised in July 2023. Included as Appendix D4.

The effort to identify cultural resources in the Tuolumne Facility Project Area included a records search and a review of the archaeological, ethnographic, and historical literature; a Native American Heritage Commission (NAHC) Sacred Lands File Search; examination of historic maps; historical research; and field surveys. The following section provides abbreviated archaeology and built environment contexts, the methods used to identify cultural resources, and inventory and evaluation findings for the Tuolumne Facility regarding cultural resources.

### Setting and Area of Potential Impacts

The proposed Tuolumne wood pellet processing site is located at 12001 La Grange Road approximately 10 miles southwest of the community of Jamestown, in Tuolumne County, California, and in the western foothills of the Sierra Nevada Mountain Range (see Figure 2-7, Project Location (Tuolumne)). The Tuolumne site is located immediately southeast of the junction of State Route 108 and La Grange Road.

The API is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. Determination of the API is influenced by a project's setting, the scale and nature of the undertaking, and the different kinds of impacts that may result from the proposed project.

The archaeological API is the maximum area of potential ground disturbance resulting from project activities and includes the entirety of the approximately 59-acre project site, as well as an additional 8 acres historically associated with the mill, for a total of 66.5 acres (see Figure 2, Project API, in Appendix D3). The estimated maximum depth of disturbance is 15 feet below the exiting ground surface.

Delineation of the API for Built Environment follows the maximum possible API (direct and indirect) resulting from the proposed Project (see Figure 2 of Appendix D4). As such, the API slightly extends outside the proposed Project site boundary and encompasses Property 1's historic boundary, which was comprised of four APNs including 063-190–056, 063-350-004, 063-350-005, and 063-190-051 (69.86 acres); and Property 2, a segment of the Sierra Railroad – Mainline, Keystone Segment which ran 0.5 miles. Although not located directly within the proposed Project footprint, the railroad segment is included in the built environment API because there are potential uses for the railroad being considered in the development of this Project. Two properties are include in the API and discussed in detail in this study. Property 1 consists of the following APNs (063-190-056, 063-350-004, 063-350-005, and 063-190-051). Historically, the mill property was one single parcel that encompassed all of the above-listed current APNs. Property 2 is the Sierra Railroad – Mainline, Keystone Segment, located about 10 miles southeast of Jamestown in rural Tuolumne County, south of the intersection of State Highway 108/120 and La Grange Road. There is no APN assigned to Property 2.

## Archaeological Context

### Prehistoric Era

The most recent attempt to develop a cultural chronology for the Central Sierras involved the analysis of single component archaeological assemblages from Alpine, Amador, Calaveras, and Tuolumne Counties to develop an internally-consistent chronology for the region based on radiocarbon dates, obsidian hydration analyses, a projectile point typology based on metrical attributes, and diagnostic shell beads. The resulting chronology consists of five periods: the Early Archaic (11,500-7,000 calibrated years before present [cal BP]), the Middle Archaic (7,000-3,000 cal BP), the Late Archaic (3,000-1,100 cal BP), the Recent Prehistoric I (1,100-610 cal BP), and Recent Prehistoric II (610 cal BP to 100 BP). A full prehistoric archaeological context is provided within Appendix D3.

### Ethnohistoric Period (post-AD 1750)

The following Ethnohistoric overview is included here as a baseline academic summary to provide context for Tribal Cultural Resources discussions. During the ethnographic period in California, the foothills of central and southern Sierra Nevada were occupied by various Miwok, Western Mono (or Monache), and Foothill Yokut speaking groups (Appendix D3). The region surrounding the Project API would have been in Sierra Miwok tribal territory during the ethnohistoric period (Appendix D3). This group inhabited the western foothills of the Sierra Nevada Mountains, roughly bounded by the eastern plains of the Central Valley to the west, the Cosumnes River to the north, the Sierra crest to the east, and the Chowchilla River to the south. Ethnographic work writes of a relatively high population of indigenous inhabitants in this region, with the early work of Stephen Powers in the 1870s noting that, when accounting for all of the discrete groups, the Miwok were "by much the largest nation in California, both in population and in extent of territory" (Powers 1877, in Appendix D3).

The language spoken by the Sierra Miwok is one of the five classified languages of the Miwok family, with several distinct regional dialects, all of which derived their linguistic roots from a common Penutian stock. The language falls into two distinct branches: Western Miwok, which is subdivided into Coast and Lake Miwok, and Eastern Miwok, which includes Bay, Plains, and Sierra Miwok. Lexostatistical calculations suggest that the two branches of the

Miwok language began to diverge at approximately 500 BC (Appendix D3). Sierra Miwok is further subdivided into three distinct dialects: Northern Sierra Miwok, Central Sierra Miwok, and Southern Sierra Miwok—with Central Sierra Miwok would have been spoken in the vicinity of the API. The extent to which these Sierra Miwok dialects reflect regional differences in socio-political factors is unknown as the dialects were not named and lacked sociopolitical correlates (Appendix D3).

Subsistence and settlement practices among the Sierra Miwok included a reliance on acorns as a staple food and a seasonal transhumance with occupation of permanent or semi-permanent lower elevation residential bases during the winter months and more dispersed high elevation temporary camps during the summer. Each permanent winter residence was occupied by a nena, a group of patrilineally related families, that served as the primary social and political unit of the societies (Appendix D3). Decisions on where to locate settlements were largely predicated on the timing of acorn procurement but were also influenced by seasonal temperature and weather patterns. In the late spring and summer months, small groups and families generally dispersed into higher elevations to hunt game and pursue roots, greens, and pine nuts, among others. Beginning in late summer and fall, groups began aggregating into moderately sized villages (e.g., 10-15 people) at or below the snow line, at which point acorns were collected and stored for consumption through the winter.

The intensive exploitation of acorn is a unique aspect of the California culture area and requires specialized technologies and extensive processing in order to be incorporated as a major component of the diet. Abundant and seasonally reliable, they store well and require very little search and procurement time, however, they entail an enormous amount of processing time. Because of their high tannic acid content—which can be poisonous in large doses— acorns must be ground into meal and leached to be consumed in bulk. As in the rest of the state, mortars and pestles were the primary means of processing acorns, in the Sierra Nevada in particular, the abundant bedrock outcrops present throughout the region were utilized as bedrock mortars for acorn processing (Appendix D3). Acorn crops were generally collected in fall, after falling from the tree, and stored for use over the winter and early spring. While the preferred species of oak varied regionally and across the state, black oak (Q. kelloggii), blue oak (Q douglasii), and interior live oak (Q. wislizeni) tended to be staples of subsistence across the Sierras.

## Historic Period Context

### Historical Overview of Tuolumne County

#### Spanish Period (1769–1822)

European exploration into Central California and what would later become Tuolumne County began in 1602 with a Spanish envoy mission into Monterey Bay by Sebastián Vizcaíno. Don Gaspar de Portolá, the Governor of Baja, embarked on a voyage in 1769 to establish military and religious control over the area. In July of 1769, Padre-Presidente Franciscan Fr. Junípero Serra, founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823, including Mission Santa Cruz. In 1777, San José became the first pueblo or town settlement in Spanish California, located on the eastern bank of the Guadalupe River and the closest mission to Tuolumne County. The area remained agriculturally based with early colonists planting corn, beans, wheat, hemp and flax and in addition to setting out small vineyards and orchards. In 1810, a civil war had erupted in Mexico (Appendix D3).

### Mexican Period (1822–1848)

After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants. The secularization of the Missions meant that all communal mission property was placed in a trust with the intention of being returned to the local Native American population. Extensive land grants were established in the interior during this period. Tuolumne County remained relatively cut-off from the secularization and colonization occurring in the coastal cities of San Jose and Monterey. Few accounts of the County from pre-1848 survive rather the area was a significant residential and resource procurement area for the Central Sierra Miwok (Appendix D3)

### American Period (1848–Present)

The Mexican American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period. Tuolumne was designated as 1 of the 27 original counties of California in 1850. In Tuolumne County, historic activity began soon after the widely publicized discovery of gold in 1848. By the Gold Rush period (1848–1855), the Central Sierra Miwok's territory had been intruded on several times and the number of tribes reduced. Villages were either abandoned or had their inhabitants forcibly removed, leading to the consolidation of many villages over time (Appendix D3).

After the discovering of gold in the area by either Benjamin F. Wood in Jamestown or on Mormon Creek by a group of Mormons, miners invaded the region. By the mid-1860s the mining industry in the County leveled off and many families moved to other settlements resulting in the County's population decreasing by nearly 50% between 1860 and 1870. Starting in the late 1880s, mining technology advanced and there was an infusion of foreign capital into the County allowing for a second Gold Rush. Along with mining and agriculture, the timber industry emerged as a dominant force in the County (Appendix D3).

The timber industry provided the momentum needed to develop the Sierra, Sugar Pine, West Side, and Cherry Valley railways. The Sierra Railroad, incorporated in 1897, extended from Oakdale to Tuolumne and hauled a variety of things including lumber, ore, passengers, agricultural products, and livestock. The Sierra Railroad between 1893 and 1920 was closely associated with the quartz mining era in California that peaked in Tuolumne County during this time (Appendix D3).

The presence of the Sierra Railroad allowed large mills to develop to cut lumber for local use and exportation. The West Side Flume and Lumber Company, later renamed the West Side Lumber Company, reincorporated in 1899, and the Standard Lumber Company, incorporated in 1901, were the County's two largest lumber operations opening planning mills and box factories. The Sierra Railroad had connections to the Santa Fe and Southern Pacific railroads in Oakdale allowing it to be part of the national rail network (Appendix D3). By World War I, the mines once again became inactive with many people moving to the San Francisco Bay Area to work in war-related industries. The start of World War II put a stop to the mining industry in the area with the federal government ordering all mines to close in 1942 (Appendix D3).

Tuolumne County experienced several decades of growth between 1970 and 1990 with the population increasing from 22,169 to 48,456. The lumber industry in Northern California has been on a steady decline since the 1980s, with 119 lumber mills present in 1987 decreasing to 59 by 1999. By 2000, the population leveled off with the County retaining its tight knit reputation established early in its history (Appendix D3).

## History of the API

The area that encompasses the API, known as Keystone, began development in 1898 when the Sierra Railroad rerouted away from its original mainline from Don Pedro to go around the Keystone Area. The new route was chosen to avoid boxcar buildups created by a lack of siding trackage built to allow some train cars or boxcars to move off the side, while others stayed on the track. This new line ran parallel to the original mainline and offered both passenger and freight travel. By the 1920s, Sierra's mainline stations Arnold, Paulsell, Keystone, and Black Oak were retired as passenger stops (Appendix D3).

Between the 1920s and the early 1960s, the project area remained undeveloped with the Sierra Railroad (Property 2) running along the property's western boundary. In 1963, Sequoia Pine Mills Inc., a subsidiary of Great Western Lumber Company of Downey began developing the site on La Grange Road just off Highway 108 as a lumber mill. The company's total investment in the development of the property was $750,000 including the construction of a temporary office. The company maintained their headquarters and lumber manufacturing facilities at Keystone until 1969 when the Fibreboard Corporation acquired Sequoia Pine Mills, Inc. for shares of common stock. Throughout the 1960s, Fibreboard purchased many of the lumber mills in Tuolumne County and had a large presence in the area. By 1969, two single-family Ranch style residences had been constructed in the northwest corner of the property located at 12055 and 12051 La Grange Road. These two residences were likely used as housing for managers and workers at the Keystone mill. Also, in 1969 the company sponsored the first passenger train on the Sierra line since 1963 on a trip from Jamestown to Sonora (Appendix D3).

The Fibreboard Corporation had their headquarters in Walnut Creek, California, and besides wood products, the corporation had interests in synthetic building materials, industrial insulation, and ski resorts. In October 1990, a permit was issued to allow the construction of a bark processing plant at Keystone. The Keystone plant operated as a typical bark processing plant, which generates decorative bark and mulch products for landscaping from conifers processed through a sawmill. By the mid-1990s, the company owned two sawmills, plywood plant, and a bark plant in Standard, Chinese Camp, and Keystone. Fibreboard at the time was the largest private employer in Tuolumne County. Despite the business's success, the industry's survival was threatened by environmental restrictions and bureaucratic bottlenecks in the U.S. Forest Service. Timber profits decreased by 1995 with $12.7 million compared to $18.5 million the year before. The company's stock jumped 28% in June 1995 after the announcement that it was "exploring the possible sale" of its Wood Products division based in Tuolumne County, including its mill at Keystone (Appendix D3).

In 1994, Fibreboard's Keystone property was subdivided, creating a separate parcel for its bark processing plant. This plant is currently occupied by American Wood Fibers at 12015 La Grange Road and operates as a producer of specialty forestry products including large and small animal bedding, wood shavings, industrial wood flour, premium wood pellet products, firewood, soil and compost. Throughout the 1990s, the property had multiple buildings constructed on site to facilitate the plant's production including a warehouse, storage buildings, offices, and garages (Appendix D3).

By 1995, the company sold its Wood Products Group to SPI, the deal included 76,000 acres of timberland and all of the operating facilities at Standard, Chinese Camp, and Keystone in Tuolumne County and Red Bluff in Tehama County for $245 million. Keystone continued to be used as a bark processing plant by SPI as the only decorative bark plant owned the company at the time. SPI maintained ownership of the mills at Standard, Chinese Camp, and Keystone and continued to thrive due to owning trees on 1.5 million privately owned acres throughout California. In 2011, two years after closing its Standard mill because of tight lumber supply and weak demand, the 91-year old mill reopened as a sawmill employing 110 people. In Tuolumne County, SPI employed 256 people, including 122

at the cedar fencing plant near Chinese Camp and 24 people at the Keystone landscaping bark plant. In 2014, SPI's Keystone parcel was subdivided again with the division of two single-family residential parcels from the main parcel along La Grange Road. Keystone remained as SPI's only bark plant until 2020, when the company opened the Lincoln Bark Plant in Lincoln California and Sonora Bark Plant in Sonora, California. By the end of 2020 on-site operations had ceased (Appendix D3).

## Methods and Identification of Cultural Resources

### CHRIS Records Search

Staff at the Central California Information Center performed a records search for the API and a 1-mile buffer surrounding the API on December 10, 2020. Results of the cultural resources records search indicated that 11 previous cultural resources studies have been conducted within 1 mile of the Project area between 1979 and 2019. Of these, one study intersects a portion of the API. Information Center records indicate that a total of four previously recorded cultural resources fall within 1 mile of the Project area. A comprehensive records search is presented in and appended to the "Cultural Resources Inventory Report for the Forest Resiliency Program Project SPI Keystone, Tuolumne County, California" (Appendix D3). One of the previously documented built environment resource, the Sierra Railroad – Mainline, Keystone Segment (P-55-000347) came back in the records search results and described below (Appendix D3).

Results of the cultural resources records search indicated that 11 previous cultural resources studies have been conducted within one mile of the Project API. Of these, one study intersects the Project API.

### Summary of Archaeological Specific Records Search Results

Information Center records indicate that a total of four previously recorded cultural resources fall within one mile of the Project API; one of these resources (P-55-000347) discussed above, intersects the Project API. The remaining three archeological resources recorded in the surrounding one-mile area include a multi-component site that contains both historic era refuse and features, as well as a prehistoric habitation site; one additional prehistoric habitation site; and a historic era wall.

### Summary of Built Environment Specific Records Search Results

#### P-55-000347

P-55-000347 has been recommended for the NRHP as part of the Sierra Railroad Historic District. However, it is unclear if the property was ever formally listed. The Sierra Railroad – Mainline and its components including Sierra Road, Paulsell Station, Cooperstown Road, Keystone, Chinese Station/Montezuma, Woods Creek, Sullivan Creek, Standard, Black Oak Road, and Ralphs Station were evaluated in 2008 by JRP Historical Consulting LLC. The Sierra Railroad – Mainline begins in Oakdale (Stanislaus County) on the south side of East H Street, between South Sierra and South Yosemite Avenues, and follows a generally easterly route into Tuolumne County passing through communities of Jamestown, Sonora, and Standard before terminating in Tuolumne City. Currently the status is listed as, "Eligible (3D) Appears eligible for listing in the National Register as a contributor to a district that has been fully documented according to OHP [Office of Historic Preservation] instructions and appears eligible for listing" (Appendix D4).

### Additional Building Development and Archival Research

Dudek conducted additional background research to identify the presence of other historic-era built environment properties that were not identified through the CHRIS record search sited within and adjacent to the proposed project area. This research included a search of the Built Environment Resources Directory (BERD), which identified no resources that overlapped the Project API and no resources adjacent to the Project API within 1 mile. Dudek also reviewed historic aerial photographs, historic newspapers, and historic Sanborn maps in addition to conducting archival research at the following repositories:

- Tuolumne County Library
- Tuolumne County Historical Society
- California State Railroad Museum Library
- Tuolumne County Public Works Request for Records

### Tribal Coordination

The NAHC was contacted by Dudek on January 18, 2021 to request a search of the Sacred Lands File. The NAHC responded on February 4, 2021 indicating that the search failed to identify any Native American resources in the vicinity of the project. The NAHC provided a list of Native American tribal contacts who may have additional knowledge relating to cultural resources in the area. Golden State Finance Authority did not receive any tribal requests for notification under Assembly Bill 52 (AB 52) prior to release of the Draft Environmental Impact Report, and therefore the formal requirements of AB 52 were not triggered for this project. However, in accordance with the Native American Heritage Commission, Tribal Consultation Under AB 52: Requirements and Best Practices, GSFA initiated "non-AB 52 tribal consultation" by sending outreach notices and offers to meet and confer to each of the Tribes listed on the NAHC contact list for the Lassen, Tuolumne, and Stockton sites. The results of those meetings and collaboration have informed the information, analyses, and management approach, in this chapter.

## Field Methods

### Archaeology

Dudek archaeologist Ross Owen conducted an intensive-level pedestrian survey of the Project API on January 13, 2021. The survey was conducted to identify and record any cultural resources that may occur in the Project API and used standard archaeological procedures and techniques (as outlined in Field Methodology in Appendix D3).

The Project API has been substantially altered since the development of a sawmill on the site in the 1970s. Large portions of the Project API consist of graded roadways and staging areas with retention basins, primarily along the eastern half. Ground visibility varied across the Project API, often obscured by dense grasses areas in the southeastern and western portions of the Project API, and by woodchips in the unpaved areas in the center of the Project API. The best visibility was along the northern edge of the Project, where sparse grasses and dry seasonal drainages afforded a 50% view of the ground surface. Areas of exposed soil along drainages and near rodent burrows were closely inspected. No historic-period or prehistoric cultural resources were identified during the cultural resources survey.

Dudek archaeologist Ross Owen, conducted auger tests in order to determine subsurface conditions within the project area. Nine 4-inch diameter augers were hand excavated with the project area. The purpose of auger testing

was to determine the potential for subsurface deposits yielding cultural materials within the project area. Surface conditions indicate the Project API generally consists of shallow loamy topsoil atop gravelly clay subsoil with fragments of weathered bedrock. Large areas of the API have been highly disturbed through grading, the development of retention basins and alterations to drainages. Soils profiles were variable, with a noted change in color and composition within the northern third of the Project API. In general, documented soils were observed to consist of a topsoil (A Horizon), represented by dark brown and very dark grayish brown loams (Munsell 10YR 3/2 and 3/3) terminating between 3-10cm below the surface (cmbs) and a subsoil (B Horizon), represented by dark yellowish brown clays (Munsell 10YR 4/4) with gravels and decomposing bedrock overlying metavolcanic and slate bedrock at 25-55cmbs. Soils within the northern portion of the Project API also consisted of a shallow soil profile, however there was an increase in clay content in both horizons and a notable change in coloration to a more reddish hue. No archaeological material or indications of subsurface deposits were identified throughout the course of testing. While significant soil disturbance has occurred within the footprint of the sawmill and retention basins, the soil profiles in the undeveloped areas within the Project API appear to be intact. Full testing results are found in Appendix D3.

### Built Environment

Dudek Architectural Historian Fallin Steffen, MPS, conducted pedestrian survey of the Project area for historic built environment resources on January 13, 2021. The survey entailed walking the exteriors of all buildings and structures within the Project area, documenting each building with notes and photographs, specifically noting character-defining features, spatial relationships, observed alterations, and examining any historic landscape features on the property. Dudek documented the fieldwork using field notes, digital photography, close-scale field maps, and aerial photographs. Photographs of the subject property were taken with a digital camera. All field notes, photographs, and records related to the current study are on file at Dudek's office in Sacramento, California (Appendix D4)

## Results of Identification and Evaluation Efforts

### Archaeology

No historic-period or prehistoric cultural resources were identified during the cultural resources survey.

### Built Environment

Dudek recorded and evaluated two properties that contain historic era (over the age of 45 at the time of survey) buildings and structures located in the API. These properties are the SPI Keystone Mill and Support Facilities (Property 1) and the Sierra Railroad – Mainline, Keystone Segment (Property 2). Locational information for these properties is illustrated in figures presented in the technical report prepared for this project site and can be found in Appendix D4.

## Property 1, SPI Keystone Mill and Support Facilities

### Property Description

The Project area is currently comprised of the abandoned SPI Keystone mill and support facilities located on APN 063-190-056 that is 58.56 acres. Historically, the mill was a much larger property that is defined for the purposes of this study as Property 1 (see Figure 4 of Appendix D4) and includes the following APNs:

- APN 063-190-056, abandoned SPI Keystone Mill located at 12001 La Grange Road
- APN 063-350-004, residence located at 12051 La Grange Road
- APN 063-350-005, residence located at 12055 La Grange Road
- APN 063-190-051, American Wood Fibers located at 12015 La Grange Road

The property includes 15 components including 8 buildings, 5 structures, and 2 foundations. Surrounding the property is a chain-link fence with additional chain-link fences around the two residential buildings and American Wood Fibers. The abandoned SPI Keystone mill has two access points from La Grange Road, including southwest access by a paved driveway and northwest access by paved road. The two residences and American Wood Fibers are located directly off La Grange Road. Around Component 9, Foundation, is a partially paved truck turnaround. To the north of the abandoned SPI Keystone mill buildings are two improved springs with concrete footings for a sluice dam. Open grass spaces are located to the south, west, and northwest of the abandoned SPI Keystone mill. South of the American Wood Fibers buildings is an area of log storage. Property 1 Site Map, identifies the location of the buildings and structures within the Project area and their functions (See Appendix D4).

The following list of known alterations was compiled through archival research, a review of previous subject property documentation, and during the course of the pedestrian survey. Unless indicated, the date of these alterations is unknown:

- Demolition of two buildings (Pre-1987)
- Construction of bark processing plant (1990)
- Property was subdivided creating a separate parcel where the bark processing plant operated (1994)
- Subdivided for separate two single family residential parcels (2014)
- Replacement and removal of fenestration
- Alteration of fenestration openings
- Reroofing
- Addition of security doors

### NRHP/CRHR Evaluations

In consideration of Property 1's lack of significant associations and compromised historical integrity, Property 1 is recommended not eligible for listing in the NRHP, CRHR, and County of Tuolumne Register of Cultural Resources under all criteria, based on the following significance evaluation.

NRHP Criterion A: associated with events that have made a significant contribution to the broad patterns of our history.

CRHR Criterion 1: is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Archival research indicates that the development of the property began in 1898 with the construction of the adjacent Sierra Railroad Keystone stop. Between the 1920s and the early 1960s, the property remained undeveloped with the Sierra Railroad running along the property's western boundary. In 1963, Sequoia Pine Mills, Inc. a subsidiary of Great Western Lumber Company of Downey, began developing the site as a lumber mill. The company maintained their headquarters and lumber manufacturing facilities at Keystone until 1969 when the Fibreboard Corporation acquired Sequoia Pine Mills, Inc. for shares of common stock and built the majority of the buildings on site, including two single-family ranch-style residences. Throughout the 1960s, Fibreboard purchased many of the lumber mills in Tuolumne County and had a large presence in the area. By the mid-1990s, the Fibreboard Corporation owned two sawmills, plywood plant, and a bark plant in Standard, Chinese Camp, and Keystone. In 1994, Fibreboard's Keystone property was subdivided, creating a separate parcel for its bark processing plant. In 1995, when the company sold its Wood Products Group to SPI, the deal included 76,000 acres of timberland and all of the operating facilities, including Keystone for $245 million. Keystone continued to be used as a bark processing plant by SPI as the only decorative bark plant owned by the company at the time until 2020.

In Tuolumne County the timber industry emerged as a dominant force as a response to the need for timbers to support the mines, build stamp mills, and construct buildings in the late 1880s. The presence of the Sierra Railroad allowed large mills to develop to cut lumber for local use and export out of the County. By 1900, the railroad industry for logging, passenger, and freight services generated more economic opportunities for the area. The Sierra Railroad, incorporated in 1897, extended from Oakdale to Tuolumne and hauled a variety of things including lumber, ore, passengers, agricultural products, and livestock. The start of World War II put a stop to the mining industry in the area with the federal government ordering all mines to close in 1942. The Sierra Railroad – Mainline was reconstructed with heavier rail to accommodate the postwar housing boom's demand of forest and mineral products. Tuolumne County experienced several decades of growth between 1970 and 1990, with the population increasing from 22,169 to 48,456. Despite the increase in population, the lumber industry in Northern California has been on a steady decline since the 1980s, with 119 lumber mills present in 1987 decreasing to 59 by 1999.

Property 1, despite being one of the last functional bark processing plants in Tuolumne County in the 2000s, does not represent one of the first lumber processing plants in the County nor is it one of the few plants that are still in operation. Property 1 developed decades after the rise of the lumber industry in the County, with the majority of the buildings on the property constructed circa 1969 by the Fibreboard Corporation. Additionally, archival research failed to indicate that the Keystone Plant was the focus of the Fibreboard Corporation or SPI's lumber processing in the area. Throughout the 1960s, the Fibreboard Corporation also purchased a number of the lumber mills in Tuolumne County, and there is no indication that their Keystone Plant was unique among those acquisitions. During SPI's ownership of the plant it was one of the smallest, employing only 24 people compared to the 122 at the cedar fencing plant near Chinese Camp. The plant operated as SPI's only bark processing plant between 1995 and 2020, but there is no indication that its existence made a significant contribution to the development of the County or the State for creating an innovative or unique method to process lumber.

Property 1 is not associated with any extraordinary event or events occurring within the context of the lumber processing industry nationally, at the state level, or locally in Tuolumne County that would distinguish it as significant. Moreover, research into the history of Property 1 revealed no evidence suggesting that the plant is associated with innovative bark processing techniques or a unique event or pattern of events considered historically significant. For these reasons, Property 1 does not appear eligible under NRHP Criterion A or CRHR Criterion 1.

NRHP Criterion B: associated with the lives of significant persons in our past.

CRHR Criterion 2: is associated with the lives of persons important in our past.

To be found eligible under Criterion B/2, the property has to be directly tied to an important person and the place where that individual conducted or produced the work for which he or she is known. Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and Property 1. The bark processing plant represents the collective efforts of many individuals, rather than the work of any single individual. Therefore, Property 1 is not known to have any historical associations with people important to the nation's or state's past. Due to a lack of identified significant associations with important persons in history, the plant does not appear eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

CRHR Criterion 3: embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

The majority of the remaining buildings and structures within the Property 1 site are ubiquitous and prefabricated industrial buildings that are considered utilitarian, and do not represent a particular style of architecture. These are relatively common buildings that can be found at various industrial/manufacturing plants throughout the country. Furthermore, the buildings and structures are not known to be the work of an important architect, builder, engineer, or designer, and are not known to have been built using an innovative construction technique. Additionally, the two adjacent Ranch style single-family residences constructed as part of the site's development circa 1969 do not embody distinctive characteristics of a type, period, or method of construction. Multiple alterations to both buildings, including replacement windows and doors, addition of a security door, and reroofing, have affected their ability to display as 1960s era homes. Archival research failed to indicate the designer or architect of these buildings, and due to the ubiquitous style, they are unlikely to be the work of a master and do not possess high artistic value. Consequently, Property 1 does not appear eligible under NRHP Criterion C or CRHR Criterion 3.

NRHP Criterion D: have yielded, or may be likely to yield, information important in history or prehistory.

CRHR Criterion 4: has yielded, or may be likely to yield, information important in prehistory or history.

There is no evidence to indicate that the subject property is likely to yield any additional information important to prehistory or history beyond what is already known. The subject property is also not associated with an archaeological site or a known subsurface cultural component. Therefore, Property 1 does not appear eligible under NRHP/CRHR Criterion D/4.

### Tuolumne County Statement of Significance

The County of Tuolumne County's criteria for designation of a cultural resource closely follow those criteria outlined for the NRHP and CRHR. Based on the above significance evaluations, and in consideration of Property 1's lack of significant associations, Property 1 is also recommended ineligible as a County of Tuolumne County cultural resource under any criteria.

1. **Exemplifies or reflects significant elements of Tuolumne County's cultural, social, religious, economic, political, engineering or architectural history.**

As stated in NRHP/CRHR Criterion A/1, Property 1 is not associated with any extraordinary event or events within the context of the lumber processing industry in Tuolumne County that would distinguish it as significant. Moreover, research into the history of Property 1 revealed no evidence suggesting that the plant is associated with innovative bark processing techniques or a unique event or pattern of events considered historically significant. For these reasons, Property 1 does not appear to be directly associated with events that have made a significant contribution to the development of lumber processing in the County. Therefore, the plant does not appear eligible under County Criterion 1.

2. **Identified with historic persons or with important local, state or national history.**

As stated in NRHP/CRHR Criterion B/2, archival research did not reveal an association between Property 1 and any persons who significantly contributed to the development of the county, state, or nation. Therefore, Property 1 does not appear eligible under County Criterion 2.

3. **Embodies distinguished architectural characteristics valuable for study or a period style or method of construction or is a valuable example of the use of indigenous materials or workmanship.**

As discussed in NRHP/CRHR Criterion C/3, Property 1's buildings and structures are ubiquitous and prefabricated industrial buildings that are considered utilitarian, and do not represent a particular style of architecture. Additionally, the two adjacent Ranch style single-family residences constructed as part of the site's development circa 1969 do not embody distinctive characteristics of a type, period, or method of construction. Multiple alterations to both buildings including replacement windows and doors, addition of a security door, and reroofing have affected their ability to display as 1960s era homes. Therefore, Property 1 does not appear eligible under County Criterion 3.

4. **Representative of a notable work of a master builder or architect.**

As discussed in NRHP/CRHR Criterion C/3, the buildings and structures at Property 1 are not known to be the work of a master builder or architect. Additionally, archival research failed to indicate the designer or architect of the two Ranch style single-family residences constructed on the property circa 1969. Therefore, the plant does not appear eligible under County Criterion 4.

### Integrity Discussion

In addition to meeting one or more of the above criteria, an eligible resource must retain integrity, which is expressed in seven aspects: location, design, setting, materials, workmanship, feeling, and association. All properties change over the course of time. Consequently, it is not necessary for a property to retain all of its historic physical features or characteristics. The property must retain, however, the essential physical features that enable it to convey its historic identity. In order to retain historic integrity, "a property will always possess several, and usually most, of the aspects" (Andrus and Shrimpton 2002). The following sections discuss the integrity of Property 1.

**Location:** All of the extant buildings and structures are sited on their original locations of construction in their original orientation, and therefore retain integrity of location

**Design:** The subject property retains diminished integrity of design. The essential elements of plan, structure, and style have remained largely intact over time. Despite this, several of the conscious decisions made during the original conception and planning of the property as a site with one industrial plant has been altered due to two

subdivisions affecting the essential element of space. Additionally, over time there has been a disruption in the original paths of circulation that makes it difficult to identify how the property was accessed during its original period of development. The demolition of certain buildings has also made it hard to determine the functionality of the site's processing from start to finish.

**Setting:** The subject property does not retain integrity of setting. Upon its completion circa 1969, the lumber processing plant displayed as one large industrial property with two single-family residences to the northwest. Due to subdivisions in 1994 and 2014 the character of the property no longer reads as one large property rather as four smaller properties. Additionally, throughout the 1990s multiple buildings were constructed on the American Wood Fibers site, which further impacted the property's ability to be identified as a 1960s era mill and original buildings were demolished. The relationship between buildings and other features including open space can no longer be recognized as its 1960s period of development. Additionally, the paths of circulation have been altered to the point that the property's original point of entry and access roads cannot be identified.

**Materials:** The subject property retains integrity of materials. Since the plant's development circa 1969, the physical elements dating from that period of construction have been retained with little replacement. The key exterior materials dating from the construction are existent, and replacements of windows and doors on the single-family residences have not significantly affected its integrity of materials for the property as a whole.

**Workmanship:** Similar to integrity of materials, the subject property retains integrity of workmanship. The physical evidence of skill required to construct the circa 1969 buildings and structures have been retained due to the lack of large-scale alterations to the property since its development circa 1969.

**Feeling:** The subject property does not retain integrity of feeling. The property is no longer able to express itself as a working bark processing plant constructed circa 1969. Due to the ubiquitous and utilitarian nature of the site it is unable to be dated to a certain period of time and therefore cannot express a historic sense of a particular time. Furthermore, changes to the setting over time and subdivision of the original parcels also contribute to the property's inability to convey integrity of feeling.

**Association:** Finally, the subject property does not retain integrity of association due to the lack of links between an important historic event or person and the property.

In summary, Property 1 retains integrity of location, materials, and workmanship with a diminished integrity of design. The subject property lacks integrity of setting, feeling, and association.

## Property 2, Sierra Railroad – Mainline, Keystone Segment

### Property Description

Property 2 is comprised of a 0.50-mile segment of the Sierra Railroad alignment (see Appendix D3, Figure 3). The Sierra Railroad's original mainline ran from Oakdale to Jamestown and was constructed in 1897. In 1900, the line was extended to Tuolumne City, totaling 56.2 miles in length. Most of the original standard gauge line is still in place and carries railroad traffic terminating just west of Standard. The railroad's Keystone Segment is located 10 miles southeast of Jamestown in rural Tuolumne County, south of the intersection of State Highway 108/120 and La Grange Road. The segment runs 0.5 miles in length at a height of 1 to 6 feet. The roadbed is carried on a berm at varying heights with the northern end at Highway 108/120 much larger than the southern end. Rails appear to

have the date stamp of 1929 constructed of wood ties, metal spikes, and a crushed stone roadbed. Property 2 does not display any noticeable changes since it was last evaluated in 2008. The railroad remains an active railway.

### NRHP/CRHR Statement of Significance Update

**The Sierra Railroad –** Mainline, including the Keystone Segment (P-55-000347) was previously recommended eligible under NRHP and CRHR Criterion A/1 as a contributor to the existing Sierra Railroad Historic District for its impact on the social and economic development in Tuolumne County. However, it is unclear if the property was ever formally listed. Currently, the status is listed as "Eligible (3D) Appears eligible for listing in the National Register as a contributor to a district that has been fully documented according to OHP instructions and appears eligible for listing." For the full evaluation, see the 2008 report titled *Second Addendum to Cultural Resources Inventory Report for the Yosemite Ranch Golf and Wetland Preserve Project at Yosemite Junction, Tuolumne County, California*, written by Laura Leach-Palm (Leach-Palm 2008). The 2008 JRP Historical Consulting Services report evaluated the Sierra Railroad under NRHP and CRHR criteria but did not provide an evaluation under local County of Tuolumne designation criteria. Therefore, the following provides an updated evaluation for the Keystone segment of the Sierra Railroad in consideration of local designation criteria.

### Tuolumne County Statement of Significance

The County of Tuolumne County's criteria for designation of a cultural resource closely follow those criteria outlined for the NRHP and CRHR. Based on the significance evaluation from the 2008 JRP Historical Consulting Services report, the Sierra Railroad – Mainline, Keystone Segment is recommended eligible for listing in the NRHP and CRHR. Given that the railroad segment remains largely unchanged since 2008 and continues to be an important part of the County's history, it is also recommended as eligible for the Tuolumne County Register of Cultural Resources under Criterion 1, based on the following significance evaluation.

1. **Exemplifies or reflects significant elements of Tuolumne County's cultural, social, religious, economic, political, engineering or architectural history.**

**The Sierra Railroad –** Mainline, Keystone Segment appears eligible under County Criterion 1 due to its enormous impact on the social and economic development in Tuolumne County. First, the railroad is closely associated with the quartz mining era in California that peaked in Tuolumne County between 1893 and 1920. The railroad eventually developed into a major transporter of lumber in the area to facilitate logging and milling operations. Beginning in 1914, the railroad also transported supplies of materials for the construction of major regional water resources including the City of San Francisco's O'Shaughnessy Dam in Hetch Hetchy Valley in 1923 and storage reservoirs for local irrigation districts formed behind the Don Pedro Dam in 1923 and Melones Dam in 1926. The railroad also transported passengers to towns along its alignment and connected with interregional transportation services at its Oakdale Station terminus. Therefore, due to the Sierra Railroad – Mainline, Keystone Segment's vital contributions to the economy and development of Tuolumne County, it appears eligible under County Criterion 1.

2. **Identified with historic persons or with important local, state or national history.**

**The Sierra Railroad –** Mainline, Keystone Segment does not appear eligible under County Criterion 2 for associations with significant individuals. Although individuals such as Thomas S. Bullock and William Crocker were involved in planning, financing, and designing the railroad, the railroad line does not retain integrity to their periods of association. Therefore, the railroad segment does not appear eligible under County Criterion 2.

3. **Embodies distinguished architectural characteristics valuable for study or a period style or method of construction or is a valuable example of the use of indigenous materials or workmanship.**

**The Sierra Railroad –** Mainline, Keystone Segment does not appear eligible under County Criterion 3 as embodying distinctive architectural characteristics of a period style or method of construction. Under this criterion, the proposed period of significance would be 1897 to 1900, the dates of initial construction of the railroad. As a result of the modifications to the line that occurred after the initial construction, the Sierra Railroad is more of a product of the 1910s and 1920s than 1900. Within this context, the railroad represents a late example of construction techniques that are not valuable for the study of railroad technology. Therefore, the railroad segment does not appear eligible under County Criterion 3.

4. **Representative of a notable work of a master builder or architect.**

**The Sierra Railroad –** Mainline, Keystone Segment, does not appear eligible under County Criterion 4. Archival research failed to identify the railroad's builder or architect and due to the type of resource as a method of transportation it is unlikely to be the work of a master. Therefore, the railroad segment does not appear eligible under County Criterion 4.

#### Character-Defining Features

The character-defining features associated with the Sierra Railroad – Mainline, Keystone Segment, are limited to its location, setting, original alignment, construction materials, and its ability to convey use a railroad alignment.

### Eligibility Summary

Property 1, SPI Keystone Mill and Support Facilities located on APN 063-190-056, is not eligible for listing in the NRHP, the CRHR, or the Tuolumne County Register of Cultural Resources due to a lack of historical associations and architectural merit. As such, Property 1 is not a historical resource under CEQA.

Property 2 which is a segment of the Sierra Railroad – Mainline, including the Keystone Segment (P-55-000347), is eligible for listing in the NRHP, CRHR, and Tuolumne County Register of Cultural Resources under Criteria A/1/1. Therefore, Property 2 is considered a historical resource under CEQA.

### Tribal Cultural Resources

The effort to identify TCRs at the Tuolumne Facility project site included, as described above, a records search and a review of the archaeological, ethnographic, and historical literature; a Native American Heritage Commission (NAHC) Sacred Lands File Search; tribal engagement; examination of historic maps; historical research; and field surveys. No TCRs have been identified within the project site.

## 3.4.1.4 Port of Stockton

### Setting and Area of Potential Impacts

Finished pellets would be transported by rail from both the Lassen and Tuolumne facilities to the Port of Stockton, California (see Figure 2-10, Port Location). The proposed GSNR facility would be located in the West Complex of the Port, formerly known as Rough and Ready Island. The Port of Stockton is an active deep-water port. In 2022, the Port had 278 vessel calls, received 38, 271 railroad cars, 4.4 mm tons of cargo, was the number one dedicated bulk/break-bulk port in California, and the fourth busiest port in the state (Port of Stockton 2024). The West Complex, also known as Rough and Ready Island, is a former naval communication station (NCS) (and previously,

a naval supply annex). The property was approved for transfer to the Port of Stockton in 1966 for the benefit of maritime trade. The property was transferred in 2000.

The API for cultural resources is the extent of area where proposed project activities will occur as indicated on Figure 2-11, Project Site Plan (Port).

## Archaeological Context

The following archaeological context for the region is summarized from the *Archaeological Resources Inventory Report for the Delta Dams Rodent Burrow Remediation Project at Clifton Court Forebay* by the Department of Water Resources by Dudek (Dudek 2021).

### Prehistoric Context

Various attempts to parse out information provided through recorded archaeological assemblages throughout California for the past 12,000 years have led to the development of numerous cultural chronologies. Some of these are based on geologic time, most are interpreted through temporal trends derived from archaeological assemblages, and others are interpretive reconstructions. The spatial extent and detail of these chronologies is also highly variable, with detailed chronologies developed in some areas based on substantial numbers of radiocarbon dates, while other areas rely on cross-dating of stylistically distinct artifact styles or cultural patterns. However, each of these chronologies describes essentially similar trends in assemblage composition and cultural succession, with varying degrees of detail. California's archaeological assemblage composition is generally accepted as falling within the following overarching patterns: Paleoindian Period, Archaic Period, Emergent/Prehistoric Period, and Ethnohistoric Period.

The archaeology and prehistory of the Central Valley, in particular, are not well understood. Early and widespread agricultural use of the valley floor has destroyed much of the bottomland archaeology, and siltation has most likely buried many resources well below the surface sediments. Much of the recovered archaeological material from the valley area is devoid of context, having been scavenged from the surface and placed in private collection. Despite these difficulties, a general chronological framework for the Central Valley has been developed. Like the general California chronology, the archaeological record of the Central Valley can be divided into the Paleoindian Period (11,550 to 8550 calibrated years [cal] BC), Archaic Period (8550 cal BC to cal AD 1100), Emergent Period (cal AD 1100 to 1750), and Ethnohistoric Period (post-AD 1769). The Archaic Period is further subdivided into three phases—the Lower Archaic (8550 to 5550 cal BC), Middle Archaic (5550 to 550 cal BC), and Upper Archaic (550 cal BC to cal AD 1100)—based on climatic and cultural variations (Bennyhoff and Fredrickson 1994; Groza et al. 2011; Rosenthal et al. 2007).

#### Paleoindian Period (ca. 11,550 to 8550 cal BC)

While few sites of Paleoindian age have been identified in the Central Valley, occupation is known to date to at least 11,000 years ago (e.g., Fenenga 1993; Fredrickson and Grossman 1977; Riddell and Olsen 1969; Siefkin 1999). Most of the evidence for a Paleoindian presence in the valley has been limited to surface finds of fluted projectile points, which are typically regarded by North American archaeologists as late Pleistocene early Holocene time markers. Numerous specimens of these fluted, concave base (Clovis or "Clovis-like") projectile points and other artifacts presumed to be Paleoindian in age (e.g., "humpies" and crescents) (see Fredrickson and Grossman 1977; Sampson 1991) have been collected from surface contexts in several locations in the Central Valley. Unfortunately, most of these discoveries have been made by amateur collectors, many of whom were collecting illegally, so virtually

no provenance has been provided for these artifacts. This has resulted in an enormous and irretrievable loss of data for understanding the Paleoindian Period in this region.

One of the most significant Paleoindian locations in this region is the Witt Site (CA-KIN-32) on the southwest shore of Tulare Lake, which contained fluted projectile points, scrapers, crescents, and Lake Mojave series points (Moratto 1984:81–82). The Witt Site, at an elevation of 192 feet, signifies a "major lake level for a considerable span of time" (Riddell and Olsen 1969: 121). Subsequent archaeological investigations conducted by Fenenga (1993) in the early 1990s near the Witt Site resulted in the recovery of additional fluted projectile points, as well as later types, indicating sustained occupation of the Tulare Lake Basin dating from the Paleoindian Period to contact. These and other isolated finds elsewhere in the Central Valley indicate an initial occupation of the region at the end of the Pleistocene and early Holocene.

### Archaic Period (8,550 cal BC to cal AD 1,100)

The Archaic Period in California is generally characterized by gradual development of specific regional adaptations and the proliferation and regional differentiation of subsistence strategies and tool types as people because increasingly sedentary, or at least reoccupied a greater number of locations with greater frequency, resulting in the formation of a larger number of regionally or functionally distinct sites. The Archaic Period in the Central Valley is subdivided into three phases—Lower Archaic, Middle Archaic, and Upper Archaic.

### Lower Archaic (8550 to 5550 cal BC)

As with the Paleoindian Period, Lower Archaic deposits in the Central Valley tend to be isolated finds lacking stratigraphic context. Stemmed projectile points, flaked stone crescents, and other distinctive flaked stone artifact types are associated with this period, several of which have been found in the vicinity of Tulare Lake (Fenenga 1992). It is believed that human subsistence during this period was based largely on the hunting of large game and fishing (Sutton 1997:12). Grinding implements, such as mortars, pestles, millingstones, and handstones, appear infrequently during this time in the archaeological record. Other types of artifacts in these assemblages include hand-molded baked clay net weights, Olivella and Haliotis shell beads and ornaments, and charmstones.

### Middle Archaic (5550 to 550 cal BC)

The onset of the Middle Archaic in Central California marked a substantial change in the climate, with warmer, dryer conditions resulting in the shrinking and eventual drying out of Tulare Lake, a phenomenon common among other Pleistocene Lakes throughout the western United States during this time. This also coincided with the formation of new wetland habitats as rising sea levels pushed inland, forming the Delta. These climatic processes resulted in substantially more stable landforms as fans and floodplains stabilized within the Delta, making buried Middle Archaic deposits much more common than those from the Early Archaic.

Middle Archaic sites are typified by the distinct adaptive pattern of more generalized and logistically organized subsistence practices and residential stability along river corridors (Rosenthal et al. 2007). While hunting, fowling, and fishing continue to be important aspects of subsistence, the prevalence of groundstone tools, including early examples of mortars and pestles, suggest an increased reliance on vegetal resources, likely the result of greater residential stability driving resource intensification (e.g., Basgall 1987). The continued importance of fishing is indicative in the adoption of new fishing technologies, including gorge hooks, composite bone hooks, and spears, along with abundant ichthyofaunal remains, identified at Middle Archaic sites in Contra Costa, Sacramento, and San Joaquin Counties (Heizer 1949; Rosenthal et al. 2007). Other artifact types characteristic of the period include

Olivella and Haliotis beads and other ornaments, distinctive spindle-shaped charmstones, cobble mortars, chisel-ended pestles, and large projectile points (implying use of the atlatl) (Moratto 1984:183; Sutton 1997:12).

### Upper Archaic (550 cal BC to cal AD 1100)

The transition to the Upper Archaic Period coincides with the onset of late Holocene environmental conditions, during which time the climate was markedly cooler, wetter, and more stable. The archaeological record from the Upper Archaic is better understood and represented, and is marked by an increase in cultural diversity, with numerous regional distinctions in burial posture, artifact styles, and other elements of material culture (Bennyhoff and Fredrickson 1994; Rosenthal et al. 2007).

The Upper Archaic record is marked by the development and proliferation of numerous bone tools and implements, as well as widespread production and trade of manufactured goods, including Olivella shell beads, Haliotis ornaments, and obsidian bifacial roughouts and ceremonial blades (Bennyhoff and Fredrickson 1994; Moratto 1984). Subsistence economies during the Upper Archaic focused on seasonally structured resources that could be harvested and processed in bulk, including acorns, salmon, shellfish, deer, and rabbits. The proliferation of mortars and pestles and archaeobotanical remains indicate that the first widespread reliance on acorns occurred during this period (Wohlgemuth 1996). Large, mounded village sites also first occurred in the Delta region during this period (Bennyhoff and Fredrickson 1994; Rosenthal et al. 2007).

On the whole, the Archaic Period in the Central Valley is characterized by increasing residential stability, cultural diversity, and subsistence intensification though time.

### Emergent Period (cal AD 1100 to Historic Contact)

The archaeological record for the Emergent Period is the most substantial and well-documented of any period in the Central Valley, and the assemblages and adaptations represented therein are the most diverse. The Emergent Period also marks the onset of cultural traditions consistent with those documented at European contact and the disappearance of several previous archaeological traditions. Large villages developed in areas of the Sacramento Valley, and the number of mound villages and smaller hamlets increased across the region. Subsistence economies during the Emergent Period were increasingly reliant on fishing and plant gathering, with increased subsistence intensification evident in the increased reliance on small seeds and a more diverse assortment of mammals and birds (Broughton 1994; Rosenthal et al. 2007). Perhaps the most notable technological change during the Emergent Period is the introduction of the bow and arrow, which replaced atlatl technology as the favored hunting implement sometime between AD 1100 and AD 1300 (Bennyhoff and Fredrickson 1994; Moratto 1984). The material record during the Emergent Period is also marked by the introduction of new Olivella bead and Haliotis ornament types, and eventually the introduction of Clamshell Disk beads (Groza et al. 2011; Moratto 1984; Rosenthal et al. 2007). The Emergent Period in general is marked by an increase in population size and the number of residential sites and villages throughout the region, with increasing regional variability and resource intensification.

### Ethnohistoric (post-AD 1750)

The history of Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims

and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century. The principal intent of these researchers was to record the pre-contact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005:32) by recording languages and oral histories within the region.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007).

Victor Golla has contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007). A large amount of variation within the language of a group represents a greater time depth than a group's language with less internal diversity. One method that he has employed is by drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla (2007) has observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates. This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

The project vicinity falls within the area occupied Yokuts speaking groups during the ethnohistoric period. These three languages form a branch ("Yok-Utian") of the Penutian linguistic group, with two distinct sub-branches: Yokuts, and the more closely related Costanoan and Miwok ("Utian") (Golla 2011). The Yok-Utian language group is believed to have originated in the Great Basin and been subsequently brought to California in two separate migration events, an initial Utian migration that reached the Delta region approximately 2,500 to 2,000 cal BC and a later Yokut migration, possibly as late as 600 to 700 cal AD (Golla 2007, 2011). Kroeber's (1959) interpretation of the ethnographic distribution of the major sub-dialects of the Yokut language suggests that the original diversification of Yokut speaking groups in California originated in the southern San Joaquin Valley and subsequently spread northward. Golla (2011) notes that the most specialized subdialects of Yokut, and thus presumably the oldest variants, are from the southern end of Yokut territory, suggesting that the Yokut language group likely originated in the vicinity of the Lower Kern River or Tehachapi Pass, with the language diversifying as it spread north along San Joaquin Valley and the southern Sierra Nevada foothills.

Ethnohistoric inhabitants of the area now representing the project vicinity would have likely spoken Tamukamne, a dialect of Delta (or Far Northern Valley) Yokuts centered approximately 15 miles west of Lathrop (Golla 2011:153). People speaking Delta Yokuts dialects occupied the lower course of the San Joaquin River from the Merced River east of Newman to the Delta sloughs north of Stockton. Little is known about Tamukamne, or any Delta Yokuts dialects, due to the effects of early missionization activities and Euro–American settlement, with the only linguistic documentation coming from late nineteenth- and early twentieth-century word lists. Despite the paucity of linguistic data, it appears that these dialects can be classified as Valley Yokuts on phonological and morphological grounds, though several portions of the language are non-cognate with other Yokuts dialects and word borrowing from the adjacent Miwok and Costanoan languages is evident (Golla 2011:154). The similarity between Delta Yokuts and

Valley Yokuts has generally led to the grouping of Delta Yokuts with the Northern Valley Yokuts in ethnographic works describing the ethnographic lifeways of the region.

Broadly defined, Northern Valley Yokuts refers to groups speaking several distinct dialects who inhabited the lower San Joaquin River watershed and its tributaries extending from Calaveras River in the north to approximately the large bend of San Joaquin River eastward near Mendota. The lower San Joaquin River meanders through the territory making bends, sloughs, and marshes full of tule reeds. Farther from the rivers and marshes, the valley floor would have been dry and sparely vegetated grassland with occasional stands of sycamores, cottonwoods, and willows along stream courses and groves of valley oaks where the soil was rich enough (Wallace 1978; Kroeber 1976). In contrast to the limited diversity of available plants, the fauna of the region was both plentiful and diverse on land and water. Fish, freshwater shellfish, migratory waterfowl, tule elk, pronghorn antelopes, and other smaller animals would all have been available and often seasonally abundant.

Northern Valley Yokuts habitation was most common and dense in areas situated in proximity to rivers and major tributaries, though the drier plains were occupied at lower density, more often on the east side of the river (Kroeber 1976). West of the river populations were much sparser and concentrated in the foothills on minor waterways. The concentration of the population near waterways is unsurprising given that many of the Northern Yokuts subsistence staples, particularly fish and waterfowl, would have been most available in these areas. The focus on fishing is seen in the material culture consisting of net sinkers and harpoons, likely used from rafts constructed from tule reed bundles (Wallace 1978). Gathered vegetable resources would also have been an important part of subsistence, particularly acorns, although tule roots and various seeds were also gathered. These vegetal resources would likely have been processed in portable mortars—often made from white oak although stone mortars were occasionally used (Kroeber 1976).

Due to abundant riverine resources, the Northern Valley Yokuts were generally sedentary, occupying the same locations year-round, though there were times of seasonal disbandment for harvesting wild plant resources such as acorns and seeds (Gayton 1948; Kroeber 1976). Principal settlements were perched atop low mounds on or near riverbanks, where their elevated position prevented inundation during seasonal flooding (Wallace 1978). Northern Valley Yokuts' dwellings were constructed of tule reed woven mats places over a pole frame oval or round structure. These structures were usually 25 to 40 feet in diameter and would belong to a single family (Wallace 1978). This is in contrast to the larger multifamily dwellings erected sometimes by the Southern Yokuts. In addition to dwellings, earth-covered ceremonial sweat lodges and larger ceremonial assembly chambers were constructed, with each community likely having one or more of these buildings (Wallace 1978).

As with most aspects of their lifeways, little can be said for certain about the political organization among the Northern Valley Yokuts, but it is believed that these groups were organized into tribes of as many as 300 individuals, guided by a head man or chief (Wallace 1978). Most members of the tribe congregated in a single principal settlement, although smaller hamlets of two or three houses also existed.

Based on the information about population density and settlement distribution, it is possible to conjecture that the total population of the Northern Valley Yokuts may have been quite large prior to European contact. However, the Northern Valley Yokut population saw sharp and devastating decline from disease and relocation to coastal missions nearly immediately after Spanish contact (Osborne 1992). This only increased with the large influx of cattle ranching and Anglo Americans after the gold rush (Osborne 1992).

## Historic Period Context

The following text is summarized from the *Rough and Ready Island Determination of Eligibility Report* prepared by Terracon Consultants in 2018 (Terracon 2018).

### Early American Period

Rough and Ready Island is said to have been named by a miner from an area of Nevada County, California, with the same name. The first permanent Euro-American settlement in the API was established by a Mr. Downie who reclaimed approximately 12 acres of tulle land to create his farm. By 1858, the Crozier Brothers had purchased Rough and Ready Island and implemented reclamation efforts and planted a fruit orchard. The Croziers left their property to W.C. Daggett, who inherited it upon Coziers' death. By 1895, the property was subdivided into 11 parcels of varying size, which was expanded to 13 by 1905. It was during this period that the Daggett Bridge was constructed on the south side of the island. By 1912, there were three bridges leading to the island. Daggett's property was eventually purchased by Albert Lindley, who promoted the development of Rough and Ready Island and was an influential advocate of creating the deep water channel. By 1927 most of Rough and Ready Island was being cultivated by Lindley and his partner A.R. Patrick (Terracon 2018:5–8).

### Rough and Ready Island, Early Industrial Development

In 1925, the city of Stockton approved General Obligation Harbor Bonds and efforts to construct a deep water channel by dredging the San Joaquin River began. Between 1933 and 1940, the US Government dredged the 30-foot-deep shipping channel that straightened the island's north boundary and catalyzed rapid industrialization. Initial development included the Stockton Public Oil Terminal, a petroleum storage and distribution facility comprised of pumps, refined petroleum tanks, three vehicular bridges, and the Belt Line Railroad with links to Santa Fe, Southern Pacific, and Western Pacific railways (Terracon 2018:7–8).

### Rough and Ready Naval Supply Annex and Naval Communication Station

In 1944, the US Navy purchased 1,310 acres of Rough and Ready Island from Lindley and demolished existing structures with the exclusion of the (extant) Lindley residence, where the couple continued to live until their deaths. In late 1944 and 1945, the Navy transformed the remaining farmland into the Naval Supply Annex Station, a military base complete with paved roads, vehicle and railroad bridges, new railroad spur lines, shipping facilities, utility infrastructure, administrative offices, an extensive warehouse district, and maintenance facilities. The Navy constructed the base to relieve supply congestion at the Oakland. The military base became operational in July 1945, a month before World War II's conclusion (Terracon 2018:8–10, 12).

Immediately after World War II, the Island's development slowed dramatically. However, with the onset of the Korean War, buildup at Rough and Ready Island began again in July 1950. Between 1950 and 1953, NSA Stockton operated on a 24-hour basis. After the Korean War, activity on the island slowed and in 1956, the base was manned by a residual force of maintenance and administration. Between 1956 and 1957, a communications facilities were installed to enhance new communication technology. The NCS, San Francisco operated as a tenant to the military supply base until the base was decommissioned in 1965. From 1965 to 1976, the communication facility on the island was knowns as NCS, San Francisco, Stockton. And then renamed NSC Stockton in 1976. Despite decommissioning the base, the US Navy retained the Island until 1996 (Terracon 2018:17–19).

### The Port of Stockton

The US Navy transferred the Jurisdiction of Rough and Ready Island to the Port of Stockton in 1996. The Port of Stockton has maintained warehouse and building space, which it rents to private tenants utilizing the Deep Water Channel. Commodities are loaded from ships to transit holds before being transferred to railcars. Since the Port of Stockton took ownership of the Island, two modern buildings have replaced historic-era structures and 20 Port structures have been demolished. As of 2018, the majority of warehouses at the Port of Stockton were occupied and used for their original purpose. The administration buildings, however, were largely vacant (Terracon 2018:20-23).

## Methods and Identification of Cultural Resources

### CHRIS Records Search

A supplemental records search of the CHRIS was requested for the API and a 1-mile buffer surrounding the API on May 31, 2023. The records search was conducted by staff at the Central California Information Center. The records search consulted the CHRIS base maps of previously recorded cultural resources and previously conducted cultural resources studies for the API and all areas within 1 mile buffer. Additional sources of information, including historic maps, and the various resources directories maintained by the CHRIS were consulted as part of the records search, Results are summarized below.

### Summary of Archaeological Specific Records Search Results

The records search identified four previous studies that intersect the API, conducted between 1996 and 1998. Another 17 previous studies were found within the 1-mile buffer. These studies were conducted between 1981 and 2018.

The records search did not identify any previously recorded archaeological resources within the API or within the 1-mile buffer.

### Summary of Built Environment Specific Records Search Results

The records search revealed that there were four previous cultural resources studies that intersect with the API. One was a Historic American Building Survey prepared for buildings associated with the Naval Supply Annex, and another was a protection plan for the NCS Station, Stockton.

### Previously Conducted Cultural Resource Studies

Results of the cultural resources records search indicated that 17 previous cultural resources studies have been conducted within 1 mile of the Project area between 1981 and 2018.

### Previously Recorded Cultural Resources

The records search results indicate that there are 16 resources within the API. Each of these resources pertain to the Rough and Ready Historic District (Historic District), which is summarized below.

### Rough and Ready Island Historic District

The Historic District was documented and evaluated in 1996 and again by Terracon Consultants in September 2018.

The 1996 evaluation was conducted as part of the U.S. Navy's conveyance of NCS Stockton to the Port of Stockton and a Historic and Archaeological Resources Protection (HARP) Plan was prepared. The HARP Plan determined the Historic District was eligible for the NRHP under Criteria A and C at the national level of significance, with a period of significance between 1944 and 1946 (Uribe & Associates 1996:B-1). The boundary encompasses the entire island, but excluded the northwest corner of the island (Corbett 1995:5). Contributors to the district were assigned a California Historical Resources Status Code 2D2 (Contributor to a multi-component resource determined eligible for NRHP by consensus through Section 106 process. Listed in the CRHR).

The HARP Plan also identified Bridge 528, a "riveted steel through-truss swing bridge" as eligible for the NRHP under Criterion C at the state level of significance. The period of significance is 1902, the year of its construction. The bridge is also a contributing element to the historic district (Uribe & Associates 1996:2).

In 2018, Terracon conducted a reconnaissance-level survey of the historic district to "to assess the integrity and condition of extant historic resources and understand any changes or alterations since 1996" (Terracon 2018:3).

## Tribal Coordination

The NAHC was contacted by Dudek on October 10, 2023 to request a search of the Sacred Lands File. The NAHC responded on November 28, 2023 indicating that the search failed to identify any Native American resources in the vicinity of the project. The NAHC provided a list of Native American tribal contacts who may have additional knowledge relating to cultural resources in the area Golden State Finance Authority did not receive any tribal requests for notification under Assembly Bill 52 (AB 52) prior to release of the Draft Environmental Impact Report, and therefore the formal requirements of AB 52 were not triggered for this project. However, in accordance with the Native American Heritage Commission, Tribal Consultation Under AB 52: Requirements and Best Practices, GSFA initiated "non-AB 52 tribal consultation" by sending outreach notices and offers to meet and confer to each of the Tribes listed on the NAHC contact list for the Lassen, Tuolumne, and Stockton sites. The results of those meetings and collaboration have informed the information, analyses, and management strategies in this chapter.

## Field Methods

### Archaeology

Survey and reporting was completed by Terracon Consultants in September 2018. No additional fieldwork was completed by Dudek. The area has been documented to have been fully developed. The area is unsuited to support the presence of significant archaeological resources, given these present conditions.

### Built Environment

Dudek Architectural Historian Fallin Steffen, MPS, conducted pedestrian survey of the Project area for historic built environment resources on August 31, 2023. The survey entailed walking the exteriors of all buildings and structures within the Project area, documenting each building with notes and photographs, specifically noting character-defining features, spatial relationships, observed alterations, and examining any historic landscape features on the property. Dudek documented the fieldwork using field notes, digital photography, close-scale field maps, and aerial

photographs. Photographs of the historic district were taken with a digital camera. All field notes, photographs, and records related to the current study are on file at Dudek's office in Sacramento, California.

## Results of Identification and Evaluation Efforts

### Built Environment

Dudek reviewed the 1996 HARP Plan, which determined that the Historic District is eligible for the NRHP under Criterion A, for embodying "a new approach to the supply problem by the U.S. Navy – the establishment of inland depts at several locations around the United States, and a new approach to cargo handling with the adoption of pallets and fork lift trucks throughout the Navy supply line" (Uribe & Associates 1996:B-1). Under NRHP Criterion C the Historic District is significant because it "embodies better than any other supply depot the Navy's redesign of its warehouses to accommodate pallets and forklift trucks as the first and only complete deport built to accommodate this means of cargo handling" (Uribe & Associates 1996:B-1). The Historic District is eligible at the national level of significance because it is "associated with the role of the Navy Department in Washington in the location and design of the facility at Stockton and with the significance of Naval Supply Annex Stockton among other Naval supply depots and other shipping facilities throughout the United States" (Uribe & Associates 1996:B-1). The Historic District's period of significance is 1944 to 1946.

The HARP Plan identified 109 contributing elements and 12 non-contributing elements. All buildings, structures, and features constructed after 1946 were considered non-contributors to the historic district. Additionally, there were 69 buildings and structures constructed after 1946 that were considered non-contributing because they were less than 50 years old at the time of survey (Uribe & Associates 1996:B1, B-6). For a complete list of contributors and non-contributors refer to the 1996 HARP Plan.

The boundary for the Historic District was the entire Rough and Ready Island that included the "outer edge of the marginal wharf, the levees, and the bridges (two vehicular and one railroad" (Corbett 1995:5). Excluded from the boundary are the two, 13-acre oil company properties and the 6.458 acres around the Lindley House, which are all in the northeast corner of the island. This area of the island was excluded from the boundary because they are not associated with NSA Stockton (Corbett 1995:5).

Dudek reviewed the 2018 report prepared by Terracon Consultants for the Port of Stockton, which provided a reconnaissance-level architectural survey of Rough and Ready Island that was based on the 1996 HARP Plan. Terracon concurred with the 1996 HARP Plan determination under Criterion A. Terracon also found that the Historic District was eligible under Criterion A for the "development of palletization and forklifts as the standardized method for the storage and transportation of goods" (Terracon 2018:51). This reasoning for significance was applied to Criterion C in the 1996 HARP Plan. Terracon recommended that an additional period of significance of 1944-1965 to account for the Historic District's association with NCS, and the inclusion of the NCS-era resources as contributors to the district (Terracon 2018:3).

Based on its reconnaissance-level survey, Terracon identified 94 contributors and 13 non-contributors to the Historic District. Nineteen elements that were considered contributors to the Historic District in the HARP Plan, were not located by Terracon. Another 16 contributing elements were demolished between 1996 and 2018 (Terracon 2018:26–31). Terracon further recommended that the historic boundary for the district exclude 330 acres, which covered areas of the island that were developed during the 2000s years and is largely in the southern and southeast sections of the island (Terracon 2018:3, 22–23).

Within the API, are 16 contributing buildings, as well as roads, railroad tracks/spurs that are also contributing elements to the Historic District, and two non-contributors (Uribe & Associates 1996:B-5; Terracon 2018:31). Character-defining features of the Historic District include:

The contributing buildings are categorized as warehouses, which fall into four types (Terracon 2018:32). Those within the API include three types: four Transit Sheds (built between 1944-1945), 11 Steel Warehouses (built in 1944), and one Heavy Materials Storage (built in 1944).

Terracon identified the following character-defining features of a warehouse type:

- Corrugated metal siding
- Sliding wood garage doors
- Wood panel egress doors
- Wood louvers
- Wood canopy over rail side
- Exterior light fixtures
- Steel sash windows
- Gabled roofs
- Board-formed concrete foundations
- Plywood-formed concrete foundations
- Interior trusses
- Footprint and location (Terracon 2018:36)

While the above character-defining features pertain to the warehouses as a property type, the Historic District's character-defining features include:

- Location
- Overall plan
- Spatial relationships between the buildings, railroad tracks, and the deep-water channel
- Open space
- Arrangement of buildings
- Inter-modal transportation network (railroad tracks, street grid, wharf at the waterfront)
- Hardscape

## Tribal Cultural Resources

The effort to identify TCRs at the Port Facility project site included, as described above, a records search and a review of the archaeological, ethnographic, and historical literature; a Native American Heritage Commission (NAHC) Sacred Lands File Search; tribal engagement; examination of historic maps; and historical research. No TCRs have been identified within the project site.

## 3.4.2 Regulatory Setting

### 3.4.2.1 Federal

#### Section 106 of the National Historic Preservation Act

The NHPA established the National Register of Historic Places (NRHP) and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers (SHPOs) to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the Act directs that "[t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP." Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f).

Title 36 of the Code of Federal Regulations, Part 800 (36 CFR 800), implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources of concern to them; to determine whether or not they may be adversely affected by a proposed undertaking; and the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 also defines criteria for determining eligibility for listing in the NRHP. The BLM evaluates the significance of cultural resources identified during inventory phases in consultation with the California SHPO to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association. A resource may be considered historically significant and eligible for NRHP listing if it is found to meet one of the following criteria:

A. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
B. It is associated with the lives of persons important to local, California, or national history.
C. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.
D. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Integrity is defined in NRHP guidance, *How to Apply the National Register Criteria for Evaluation*, as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1997). NRHP guidance further states that properties must have been completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria" (36 Code of Federal Regulations (CFR) Section 800.16(i)(1)).

Effects on historic properties under Section 106 of the National Historic Preservation Act are defined in the assessment of adverse effects in 36 CFR Sections 800.5(a)(1) as follows:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

Adverse effects on historic properties are defined as follows (36 CFR 800.5 (2)):

i. Physical destruction of or damage to all or part of the property;
ii. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
iii. Removal of the property from its historic location;
iv. Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;
v. Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
vi. Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
vii. Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

To comply with Section 106 of the National Historic Preservation Act, the criteria of adverse effects are applied to historic properties, if any exist in the project area of potential effects, pursuant to 36 CFR Sections 800.5(a)(1). If no historic properties are identified in the area of potential effects, a finding of "no historic properties affected" would be made for the proposed project. If there are historic properties in the area of potential effects, application of the criteria of adverse effect (as described above) would result in project-related findings of either "no adverse effect" or of "adverse effect." A finding of no adverse effect may be appropriate when the undertaking's effects do not meet the thresholds in criteria of adverse effect (36 CFR Sections 800.5(a)(1)), in certain cases when the undertaking is modified to avoid or lessen effects, or if conditions are imposed to ensure review of rehabilitation

plans for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (codified in 36 CFR Part 68).

If adverse effects were expected to result from a project, mitigation would be required, as feasible, and resolution of those adverse effects by consultation may occur to avoid, minimize, or mitigate adverse effects on historic properties pursuant to 36 CFR Part 800.6(a).

### American Indian Religious Freedom Act

The American Indian Religious Freedom Act recognizes that Native American religious practices, sacred sites, and sacred objects have not been properly protected under other statutes. It establishes as national policy that traditional practices and beliefs, sites (including right of access), and the use of sacred objects shall be protected and preserved.

### Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) requires federal agencies and institutions that receive federal funds, including museums, universities, state agencies, and local governments, to repatriate or transfer Native American human remains and other cultural items to the appropriate parties upon request of a culturally affiliated lineal descendant, Indian tribe, or Native Hawaiian organization (43 Code of Federal Regulations [CFR] Section 10.10). Federal NAGPRA regulations (43 CFR Part 10) provide the process for determining the rights of culturally affiliated lineal descendants, Native American tribes, and Native Hawaiian organizations to certain Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony, which are indigenous to Alaska, Hawaii, and the continental United States but not to territories of the United States, that are (i) in federal possession or control, (ii) in the possession or control of any institution or state or local government receiving federal funds, or (iii) excavated intentionally or discovered inadvertently on federal or tribal lands.

## 3.4.2.2 State

### California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Public Resources Code (PRC) Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR, enumerated in the following text, were developed to be in accordance with previously established criteria developed for listing in the NRHP. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2. Is associated with the lives of persons important in our past

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4. Has yielded, or may be likely to yield, information important in prehistory or history

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

## California Environmental Quality Act

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either (i) listed or eligible for listing in the CRHR, (ii) included in a local register of historic resources, or (iii) identified as significant in a historical resources survey (meeting the requirements of Public Resources Code Section 5024.1(q)), then it qualifies as a "historical resource" for purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)(1)-(3)). The CEQA lead agency also is not precluded from determining, based on substantial evidence, that a resource that does not meet one of these three specific criteria nevertheless qualifies as a historic resource for CEQA purposes (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" is defined to mean "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of an historical resource is materially impaired when a project "demolishes or materially alters in an adverse manner those physical characteristics" that account for the resource being identified as an historic resource under CEQA (CEQA Guidelines Section 15064.5(b)(2)).

With respect to archaeological sites, the first issue is whether the site qualifies as a historic resource under the provisions discussed above. If the archaeological site does not qualify as an historic resource, and if the site also does not meet the definition of a "unique archaeological resource" or a "tribal cultural resource," then any impacts to the resource are not considered significant and further evaluation is not required (PRC Section 21083.2(h); CEQA Guidelines Section 15064.5(c)). A "unique archaeological resource" is defined to mean an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type; (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Sections 21083.2(g)).

## Native American Historic Resource Protection Act (AB 52)

The Native American Historic Resource Protection Act (AB 52), which went into effect July 1, 2015, establishes that Tribal Cultural Resources must be considered under CEQA and defines a lead agency's requirements for notification and consultation with California Native American tribes.

Public Resource Code (PRC) Section 21074 states:

a) "Tribal cultural resources" are either of the following:
   1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
      A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
      B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
   2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in PRC Section 21084.1, a unique archaeological resource as defined in subdivision (g) of PRC Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of PRC Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Under AB 52, lead agencies must notify all California Native American tribes that are traditionally and culturally affiliated with the project area and that have requested formal notification. The notification requirement extends to tribes that are not federally recognized, and notification must occur at the onset of a project, which is typically considered to be when an NOP is released. After notification, tribes may request to engage in consultation with the Lead Agency. If it is determined that a substantial adverse change to a tribal cultural resource would result from a project, the tribal consultation can include development of MMs and/or project alternatives that could reduce or avoid those impacts.

Golden State Finance Authority did not receive any tribal requests for notification under AB 52 prior to release of the Draft Environmental Impact Report, and therefore the formal requirements of AB 52 were not triggered for this project. However, in accordance with the Native American Heritage Commission, Tribal Consultation Under AB 52: Requirements and Best Practices, GSFA initiated "non-AB 52 tribal consultation" in May 2024 by sending outreach notices and offers to meet and confer to each of the Tribes listed on the NAHC contact list for the Lassen, Tuolumne, and Stockton sites. The results of those meetings and collaboration have informed the information, analyses, and management strategies in this chapter.

## Native American Historic Cultural Sites

State law (PRC Section 5097 et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be

implemented if Native American skeletal remains are discovered during construction of a project; and established the Native American Heritage Commission (NAHC) to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the CRHR.

#### California Health and Safety Code Section 7050.5

In the event that Native American human remains or related cultural material are encountered, Section 15064.5(e) of the CEQA Guidelines (as incorporated from PRC Section 5097.98) and California Health and Safety Code Section 7050.5 define the subsequent protocol. If human remains are encountered, excavation or other disturbances shall be suspended of the site or any nearby area reasonably suspected to overlie adjacent human remains or related material. Protocol requires that a county-approved coroner be contacted in order to determine if the remains are of Native American origin. Should the coroner determine the remains to be Native American, the coroner must contact the NAHC within 24 hours. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 (14 CCR 15064.5(e)).

### 3.4.2.3 Local

#### Lassen County

Lassen County does not have any general plan policies or ordinances that directly pertain to cultural resources or historic preservation.

#### Tuolumne County

##### Tuolumne County General Plan

Goal 13A. Identify incentives to strengthen the local economic base by providing and promoting a positive atmosphere for visitor, resident, business and industry activity compatible with an historic environment.

Policy 13A.1. Initiate, adopt, and promote the availability of monetary and other incentive programs to encourage the retention, reuse and restoration of historic structures.

Goal 13B. Encourage historic preservation by adopting a consistent and predictable environmental review process for evaluating impacts to cultural resources.

Policy 13B.1. Adopt flexible and consistent environmental review procedures for new development entitlements including provisions for monitoring and enforcement.

Goal 13C. Maintain Tuolumne County's cultural heritage, through the identification, management, preservation, use, enhancement, restoration and study of its cultural resources. (f

Policy 13C.1. Survey, record, inventory, maintain and regularly update databases and archives of historic, architectural, and archeological resources for informational purposes.

Policy 13C.3. Identify historic districts and structures.

#### Tuolumne County Register of Cultural Resources.

Since the Tuolumne County Board of Supervisors adopted requirements for the County Register of Cultural Resources in July 1992, it has designated 17 properties on this register and twelve properties that occur in the unincorporated County. Pursuant to Implementation Program 9.C.e in the County's Cultural Resources Management Element, the County Register of Cultural Resources applies to all properties contained within cultural resources inventories which have been or are assigned a National Register designation of 1 (listed on the National Register), 2 (determined eligible for listing by formal process involving federal agencies), 3 (appears to be eligible for listing in the judgment of the person completing the form), 4 (might become eligible for listing), or 5 (ineligible for listing but of local interest and eligible for the Tuolumne County Register of Cultural Resources). Inclusion on the register qualifies properties to use the State Historical Building Code, to enter into a Mills Act Contract for qualifying rehabilitations and maintenance, and for alternative development standards.

### Port of Stockton

#### City of Stockton Municipal Code

The City designates Landmarks and Historic Sites under the City Municipal Code, Title 16, Division 7,Chapter 16.220. Landmarks are artifacts, natural features, or structures notable for one or more of the following: archaeological interest; architectural artisanship, style, or type; association with a historic event or person; association with the heritage of the City, state, or nation; visual characteristics; relationship to another landmark; or integrity as a natural environment. Historic sites are areas, neighborhoods, properties, or sites which meet one or more of the following: archaeological interest; association with the heritage of the City, state, or nation; visual characteristics; association with a particular way of life important to the City; or association with a historic event, significant person, or a person significant to a specific national origin. Historic sites cannot be relocated or demolished without a permit.

## 3.4.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to cultural resources are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to cultural resources would occur if the project would:

- Cause a substantial adverse change in the significance of a historical resource pursuant to §15063.4.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15063.4.
- Disturb any human remains, including those interred outside of dedicated cemeteries.

CEQA defines a "*unique archaeological resource*" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; or
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC §21083.2(g)).

State CEQA Guidelines Section 15064.5 defines a *historical resource* as:

- A resource listed in, or determined to be eligible for listing in, the California Register;
- A resource listed in a local register of historical resources.
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…Generally, a resource shall be considered by the lead agency to be :historically significant." Generally a resource is considered historically significant if it meets criteria for listing in the California Register of Historical Resources, including:
    1. Is associated with events that made a significant contribution to the broad patterns of California's history and cultural heritage.
    2. Is associated with the lives of people important in our past.
    3. Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values.
    4. Has yielded or may be likely to yield information important in prehistory or history; or
- A resource determined to be a historical resource by a project's lead agency.

CEQA Guidelines Section 15064.5 defines a "historical resource." If a cultural resource in question is an archaeological resource, CEQA Guidelines Section 15064.5[c][1]) requires that the lead agency first determine if the resource is a historical resource as defined in Section 15064.5(a). If the resource qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource. If the archaeological resource does not qualify as a historical resource but does qualify as a "unique archaeological resource," then the archaeological resource is treated in accordance with Public Resources Code Section 21083.2 (see also CEQA Guidelines Section 15069.5[c][3]).

CEQA Guidelines Section 15064.5(b) defines a "*substantial adverse change*" to a historical resource as: "physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired. The significance of an historical resource is *materially impaired* when a project demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register of Historical Resources or in registers meeting the definitions in Public Resources Code 5020.1(k) or 5024.1(g).

A significant impact related to tribal cultural resources would occur if the project would:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    - Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).
    - A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

## 3.4.4 Impact Analysis

### 3.4.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to cultural resources.

#### Feedstock/Program Level Impacts Assessment

The following measures have been incorporated into the project and are considered as part of the impact assessment for cultural resources for Feedstock Acquisition. As specific Sustainable Forestry Management Projects cannot be known at a project or site specific level of detail at this time, this document functions as a Program EIR in accordance with State CEQA Guidelines Section 15168 for streamlining of CEQA review of later activities described in Section 2.4 of this EIR.

PDF-CUL-1: A CHRIS record search and review of other pertinent desktop sources will be conducted per the applicable federal, state or local agency procedures prior to any treatment activities.

PDF-CUL-2: The project proponent will obtain the latest Native American Heritage Commission (NAHC) provided Native Americans Contact List. Using the appropriate Native Americans Contact List, the California Native American Tribes in the counties where the treatment activity is located will be notified. The notification will contain the following:

- A written description of the treatment location and boundaries.
- Brief narrative of the treatment objectives.
- A description of the activities used (e.g., mastication) and associated acreages.
- A map of the treatment area at a sufficient scale to indicate the spatial extent of activities.
- A request for information regarding potential impacts to cultural resources from the proposed treatment.
- A detailed description of the depth of excavation if ground disturbance is expected. In addition, NAHC will be contacted for a review of their Sacred Lands File.

PDF-CUL-3: Research will be conducted prior to implementing treatments as part of the cultural resource investigation. The purpose of this research is to properly inform survey design, based on the types of resources likely to be encountered within the treatment area, and to be prepared to interpret, record, and evaluate these findings within the context of local history and prehistory. Qualified cultural resources specialists will review records, study maps, read pertinent ethnographic, archaeological, and historical literature specific to the area being studied, and conduct other tasks to maximize the effectiveness of the survey.

PDF-CUL-4: GSNR will coordinate with a qualified archaeologist to conduct a site-specific survey of the treatment area. The survey methodology (e.g., pedestrian survey, subsurface investigation) depends on whether the area has a low, moderate, or high sensitivity for resources, which is based on whether the records search, pre-field research, and/or Native American consultation identifies archaeological or historical resources near or within the treatment area. A survey report will be

completed for every cultural resource survey completed. The specific requirements will comply with the applicable federal, state, or local agency procedures.

PDF-CUL-5: If cultural resources are identified within a treatment area, and cannot be avoided, a qualified archaeologist will notify the culturally affiliated tribe(s) based on information provided by NAHC and assess, whether an archaeological find qualifies as a unique archaeological resource, an historical resource, or in coordination with said tribe(s), as a tribal cultural resource. GSNR, in consultation with culturally affiliated tribe(s), will develop effective protection measures for important cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. These protection measures will be written in clear, enforceable language, and will be included in the survey report in accordance with applicable state or local agency procedures.

PDF-CUL-6: GSNR, in consultation with the culturally affiliated tribe(s), will develop effective protection measures for important tribal cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. The project proponent will provide the tribe(s) the opportunity to submit comments and participate in consultation to resolve issues of concern. GSNR will defer implementing the treatment until the tribe approves protection measures, or if agreement cannot be reached after a good-faith effort, GSNR determines that any or all feasible measures have been implemented, where feasible, and the resource is either avoided or protected.

PDF-CUL-7: If the CHRIS records search and/or other desktop review identifies built environment historical resources, as defined in Section 15064.5 of the State CEQA Guidelines, these resources will be avoided. Within a buffer of 100 feet of the built historical resource, there will be no mechanical treatment activities Buffers less than 100 feet for built historical resources will only be used after consultation with and receipt of written approval from a qualified archaeologist or architectural historian. If the records search does not identify known historical resources in the treatment area, but structures (i.e., buildings, bridges, roadways) over 50 years old that have not been evaluated for historic significance are present in the treatment area, they will similarly be avoided.

PDF-CUL-8: All crew members and contractors implementing treatment activities will be trained on the protection of sensitive archaeological, historical, or tribal cultural resources. Workers will be trained to halt work if archaeological resources are encountered on a treatment site and the treatment method consists of physical disturbance of land surfaces (e.g., soil disturbance).

PDF-CUL-9: If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil (“midden”), that could conceal cultural deposits, are discovered during ground-disturbing activities, all ground-disturbing activity within 100 feet of the resources will be halted and a qualified archaeologist will assess the significance of the find. The qualified archaeologist will work with the project proponent to develop a primary records report that will comply with applicable state or local agency procedures. If the archaeologist determines that further information is needed to evaluate significance, a data recovery plan will be prepared. If the find is determined to be significant by the qualified archaeologist (i.e., because the find constitutes a unique archaeological resource, subsurface historical resource, or tribal cultural resource), the

archaeologist will work with the project proponent to develop appropriate procedures to protect the integrity of the resource. Procedures could include preservation in place (which is the preferred manner of mitigating impacts to archaeological sites), archival research, subsurface testing, or recovery of scientifically consequential information from and about the resource. Any find will be recorded standard DPR Primary Record forms (Form DPR 523) will be submitted to the appropriate regional information center.

### Lassen, Tuolumne, and Stockton Site Activities (Project Level)

Site specific activities at the Lassen, Tuolumne, and Stockton sites are being evaluated at the project level. The CEQA Guidelines define a substantial adverse change in the significance of a historical resource as a significant effect on the environment. A substantial adverse change to archaeological, tribal cultural, or historical resources is defined to include physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (CEQA Guidelines Section 15064.5[b][1]). The significance of a historical resource is materially impaired when a project diminishes the characteristics that convey its historical significance and that justify its inclusion on a historic register. Proposed project activities were evaluated for their potential to result in a substantial adverse change to a significant cultural resource. See "Methods and Identification of Cultural Resources " in Section 3.4.1.2, 3.4.1.3, and 3.4.1.4, above, for a discussion of how potential cultural resources were identified at the Lassen, Tuolumne, and Stockton sites.

## 3.4.4.2 Project Impacts

Impact CUL-1 The project would not cause a substantial adverse change in the significance of a historical resource pursuant to §15063.4.

This section addressed potential impacts to built environment resources. Built environment resources are largely considered buildings, structures, landscapes, and districts that comprise what is considered the built environment. Built environment resources include but are not limited to water management structures (levees, canals, dams, ditches), buildings (residential, industrial, and commercial), linear structures (railroad alignments, roads, and bridges), and landscapes which can include hardscape (walls, paved walkway, fountains, outside structures) or softscape components (tree allées, purposefully designated and designed planted vegetation). Archaeological and tribal cultural resources are addressed separately, below.

Specifically, this section addresses potential impacts to built environment resources that are as defined by the CEQA Guidelines (14 CCR 15000 et seq.), a "historical resource" which is considered to be a resource that is listed in or eligible for listing in the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR), has been identified as significant in a historical resource survey, or is listed on a local register of historical resources. Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (Public Resources Code Section 21084.1; 14 CCR 15064.5(b)). If a site is listed or eligible for listing in the CRHR, or included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of Public Resources Code Section 5024.1(q)), it is a historical resource and is presumed to be historically or culturally significant for the purposes of CEQA (Public Resources Code Section 21084.1; 14 CCR 15064.5(a)).

A substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource is materially impaired (15064.5[b][1]) to the extent that the resource can no longer exists or convey significance.

Under CEQA, material impairment of a historical resource is considered a significant impact (or effect), which can be direct, indirect, or cumulative.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Review of the Proposed Program Activities related to Feedstock Acquisition indicates that there is a low likelihood of proposed activities resulting in impacts to built environment properties that might be considered CEQA historical resources. Potential activities proposed as part of the Feedstock Acquisition that may result in potential impacts to built environment resources will likely be located in remote forested are that do not contain buildings or structures. Additionally, the activities are limited to removal of trees or brush proposed as part of the Hazardous Fuel Reduction Projects and the Construction of Shaded Fuel Breaks. The locations of these potential activities are not yet known nor is the presence of any known of potential built environment property that may be considered a CEQA historical resources. PDF-CUL-7 has been developed as part of the program design to ensure identification and avoidance of any known or potential built environment CEQA historical resources.

PDF-CUL-7: If the CHRIS records search and/or other desktop review identifies built environment historical resources, as defined in Section 15064.5 of the State CEQA Guidelines, these resources will be avoided. Within a buffer of 100 feet of the built historical resource, there will be no mechanical treatment activities Buffers less than 100 feet for built historical resources will only be used after consultation with and receipt of written approval from a qualified archaeologist or architectural historian. If the records search does not identify known historical resources in the treatment area, but structures (i.e., buildings, bridges, roadways) over 50 years old that have not been evaluated for historic significance are present in the treatment area, they will similarly be avoided.

Due to this PDF which ensures identification, evaluation if necessary, and avoidance measure will be implemented if needed the impact to built environment historical resources under CEQA are considered **less than significant.**

## Wood Pellet Production

### Northern California (Lassen) Facility

As stated earlier, two (2) historic era properties were identified within the API and were evaluated for significance under NRHP, and CRHR Criteria. None of these properties were found eligible for listing under the Criteria and are therefore not considered historical resources for the purposes of CEQA. The project would have **no impact** to historical resources at the Lassen site.

### Tuolumne Facility

Two (2) historic era properties were identified within the API and were evaluated for significance under NRHP, CRHR, and County designation Criteria. Only one of these properties, (Property 2) a segment of the Sierra Railroad – Mainline, including the Keystone Segment (P-55-000347), is eligible for listing in the NRHP, CRHR, and Tuolumne County Register of Cultural Resources under Criteria A/1/1. Therefore, Property 2 is considered a historical resource under CEQA. The character-defining features associated with the Sierra Railroad – Mainline, Keystone Segment, are limited to its location, setting, original alignment, construction materials, and its ability to convey use as a

railroad alignment. The character-defining features are the physical attributes enable the historical resource to convey significance.

Proposed construction activities that may result in impacts to Sierra Railroad – Mainline, including the Keystone Segment (P-55-000347) are summarized here:

Construction of the proposed facility, the Tuolumne site may be used as a wood storage yard, consistent with its past and present use. The proposed project would further include long-term use as a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, pellet storage and loadout area. New roads for truck access and mill personnel access will be added, including a new truck access from La Grange Road at the southeast corner of the site. A new rail spur connecting to the adjacent Sierra Northern Railway line as well as additional rail siding tracks on site for the storage of full and empty railcars will be added for finished product loadout. Other improvements will include repurposing existing truck scales and a graded area for overflow raw material storage. The proposed site layout is shown in Figure 2-9, Project Site Plan (Tuolumne).

The proposed Project will not result in the physical destruction of or damage to any character-defining feature of the Sierra Railroad – Mainline, including the Keystone Segment (P-55-000347) resource. The addition of a rail spur and additional facilities proposed for construction to redevelop the property that the historic rail line crosses will not result in damage to historical resource structural materials. Nor will the proposed construction result in physical destruction or damage. Following project construction and implementation the Sierra Railroad – Mainline, including the Keystone Segment (P-55-000347) retain location, setting, alignment, and will still be used as a railroad. As such the historic resource will remain eligible for listing under Criteria A/1/; therefore, the CEQA finding is **less than significant.**

## Transport to Market

### Port of Stockton

The proposed Project site/API is located within the Rough and Ready Island Historic District which is a CEQA historical resource.

Within the API, there are 16 contributing buildings, as well as contributing roads, and railroad tracks/spurs and two non-contributors of the Historic District (Terracon 2018:31). The character-defining features of the Historic District and those relating specifically to the property type of warehouse are discussed in the previous section.

The project consists of the construction of additional rail spur lines, two storage domes, and a conveyor system to transport material from the storage domes to a cargo ship. See Figure 2-11 for the site layout.

Development of the project would include a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, and a ship loadout system featuring a conveyor system. Each component of the project would be constructed within the boundary of the Historic District. The study area/API includes 16 contributing buildings: Nos. 211, 310, 409, 508 (Transit Sheds); Nos. 213, 214, 312, 313, 314, 412, 413, 414, 510, 511, 512 (Warehouses), and No. 411 (Heavy Material Storehouse). Also, in the study area/API are contributing structures that include streets, railroad tracks, and a paved parking lot. The four Transit Sheds in the northern section of the API share a similar design and historic function and are approximately 33 feet high. The Warehouses are nearly identical in design, served the same historic purpose, and are 33 feet high. The Heavy Material Storehouse, is the tallest contributor to the Historic District and is in the API, standing 47 feet high.

The existing railroad tracks within the Historic District's boundary are contributing elements. The addition of the rail unloading system south of Edwards Avenue will introduce new visual feature within the Historic District, which will somewhat alter integrity of design and materials. However, the new railroad tracks would not be out of character with the district and considering the size and number of contributing elements to the Historic District, sufficient integrity will be maintained, and the Historic District will continue to convey its significance under NRHP Criteria A and C.

The domes would be constructed partially on a contributing feature to the Historic District, a former paved parking lot. This addition would somewhat alter a character-defining feature of the Historic District however, other parking areas, particularly those north of Davis Avenue which contribute to the Historic District, will remain intact. This includes two that are in the immediate vicinity of the project area. Of the seven aspects of integrity impacted by the construction of the domes, only integrity of design would be marginally affected by the construction of the domes. The overall design of the Historic District, which includes its spatial relationships between the buildings, railroad tracks and the deep-water channel, hardscape, and transportation network would not be altered. Therefore, the Historic District would retain sufficient integrity of design as well as location, materials, workmanship, setting, feeling, and association to convey its significance under NRHP Criteria A and C.

The storage domes would be the highest project structure, at 151 feet in height (15 stories) making them 104 feet taller than the tallest building (Building 411 – Heavy Material Storehouse) in the Historic District. The domes would be located to the south of that building by approximately 1,240 feet and approximately 370 feet south of the nearest warehouse, which is 33 feet tall. These warehouses and transit sheds form the core of the Historic District and defines the visual character of the Historic District (Mikesell 1997:2–3). The visual intrusion caused by the domes within the viewshed of the historical resource would not result in the material impairment of the Historic District's integrity of setting because there will still be a significant concentration of the Historic District's setting unaltered after the domes are constructed. The Historic District's character, how the district is situated, and its relationship to the surrounding features, including the spatial arrangement between the warehouses and transit sheds, the road grid system and the railroad tracks will not be marred by the addition of the domes. The Historic District will maintain its relationship to the Stockton Deep Water Channel, a major shipping channel used during the Historic District's period of significance, as well as the sloughs that surround the island. The domes would not be near public viewpoints and would be setback from the viewers on the north side of the San Joaquin River.

The elevated conveyor structure would be above Boone Drive, which is part of the street grid that contributes to the Historic District. It would connect from the domes to the ship berth. This conveyor system would not be taller than the existing warehouses, which form the core of the Historic District and provide a strong visual presence because of their numbers and size. Therefore, the conveyor structure would not represent a change in the visual character of the project area. The elevated conveyor structure would not alter the organization of the inter-modal transportation system (street grid system, railroad tracks, wharf) in the Historic District. The Historic District would retain the seven aspects of integrity to convey its historic and architectural significance.

Overall, the project is within a small area of the Historic District, which in 2018 was identified as having 94 contributors and 13 non-contributors (Terracon 2018:26–31). As outlined above, the project is not altering the Historic District's integrity of location, setting, workmanship, feeling and association. Integrity of design and materials will only be marginally affected by the project. The Historic District will continue to convey its significance under NRHP Criterion A for embodying "a new approach to the supply problem by the U.S. Navy – the establishment of inland depts at several locations around the United States, and a new approach to cargo handling with the adoption of pallets and fork lift trucks throughout the Navey supply line" (Uribe & Associates 1996:B-1). And under NRHP Criterion C embodying "better than any other supply depot the Navy's redesign of its warehouses to

accommodate pallets and forklift trucks as the first and only complete deport built to accommodate this means of cargo handling" (Uribe & Associates 1996:B-1). Therefore, the impacts to built environment cultural resources would be **less than significant**.

Impact CUL-2 The project may cause a substantial adverse change in the significance of an archaeological resource pursuant to §15063.4 or disturb human remains.

#### Feedstock Acquisition

### Sustainable Forest Management Projects

As noted, this portion of the analysis is being carried out at the programmatic level, as the specific locations of these activities are presently unknown and consequently cannot feasibly be studied at the project level at this time. PDF CUL-1, CUL-3, SPR CUL-4, CUL-5, and CUL-8 apply most directly to archaeological resources. PDF CUL-1, intended to identify the location of previously recoded prehistoric and historic-era cultural resources relative to the project treatment area, will be satisfied through records searches directed at project specific activities. PDF CUL-3, requiring pre-field research would be completed through preparation of appropriate technical studies. PDF CUL-4, requiring appropriate fieldwork, will be satisfied through GSNR's intensive-level survey of all accessible portions of the proposed treatment area. In the event that cultural resources are identified through activities stipulated by PDF CUL-1 through CUL-8, added Project-specific mitigation may be necessary to ensure that these archaeological resources are not affected during treatment activities. Management strategies may include archaeological and Native American monitoring, pre-construction resource flagging, or other methods intended to ensure that resources would not be subject to significant impact.

During treatment activities, PDF CUL-8, training, will require that appropriate pre-treatment training is provided regarding the identification and treatment of any potential cultural resources should they be encountered by crews completing work. With appropriate implementation of inadvertent discovery processes stipulated by PDF CUL-2, unidentified resources will be managed through best practice standards outlined by regulatory conditions. With PDF CUL-1, CUL-2, CUL-5, CUL-6, and CUL-8 implemented, impacts to archaeological resources will be **less than significant.**

## Wood Pellet Production

### Northern California (Lassen) Facility

This study consisted of a CHRIS records search of the API and a 1-mile buffer, a Native American Heritage Commission Sacred Lands File search, and an intensive pedestrian survey of the API (Appendix D1). The records search did not identify any previously recorded cultural resources within the API. Ten cultural resources have been recorded within 1 mile. An intensive-level pedestrian survey was conducted of the entire API; this survey did result in the identification of four newly recorded historic era refuse scatters. Sufficient documentation was gathered through archaeological inventory efforts to evaluate this resource for NRHP and CRHR listing, for which the sites were assessed to be not eligible. To be eligible for listing in the CRHR/NRHP, a site must have "yielded, or [have] the potential to yield, information important to the prehistory or history of the local area, California, or the nation" (PRC Section 5024.1; 14 CCR 4852). The sites are not substantially associated with any specific significant events locally, regionally, or nationally (Criterion A/1); are not directly associated with the lives of any important people locally, regionally, or nationally (Criterion B/2); do not contain architecture (Criterion C/3); and, beyond the attributes captured through recordation, does not have the potential to yield information locally, regionally, or nationally (Criterion D/4). Refuse scatters of this type are common throughout the region, and none of the sites

represent a "unique" resource as defined under CEQA. Any data potential associated with sites intersecting the API have been exhausted through recordation. As such, these resources are not eligible for listing in the NRHP/CRHR, and impacts/effects that would occur through planned project disturbances would be less than significant.

Based on these results, no known significant archaeological resources will be impacted by the project as currently designed. However, given the records search results and project conditions, the potential for the inadvertent discovery of cultural resources cannot be discounted. Impacts related to the inadvertent discovery of cultural resources would be **potentially significant**. **MM-CUL-1** and **CUL-2** would be implemented to address the potential for inadvertent discovery.

### Tuolumne Facility

This study consisted of a CHRIS records search of the API and a 1-mile buffer, a Native American Heritage Commission Sacred Lands File search, and an intensive pedestrian survey of the API (Appendix D3). The records search identified one cultural resource within the API, a segment of the Sierra Railroad Mainline (P-55-000347), but did not identify any previously recorded archaeological resources within the API. Three additional cultural resources have been recorded within 1 mile. An intensive-level pedestrian survey was conducted of the entire API; this survey updated the previously recorded built environment resource and identified one previously unrecorded built environment resource but did not identify any archaeological resources.

Based on these results, no known significant archaeological resources will be impacted by the project as currently designed. However, given the records search results and project conditions, the potential for the inadvertent discovery of cultural resources cannot be discounted. Impacts related to the inadvertent discovery of cultural resources would be **potentially significant**. **MM-CUL-1** and **CUL-2** would be implemented to address the potential for inadvertent discovery.

## Transport to Market

### Port of Stockton

This study consisted of a CHRIS records search of the API and a 1-mile buffer, a Native American Heritage Commission Sacred Lands File search, and pedestrian survey of the API (Dudek 2021). The records search did not identify any significant previously recorded archaeological resources within the API. Survey and reporting was completed by Terracon Consultants in September 2018. This survey did not result in the identification any archaeological resources. No additional fieldwork was completed by Dudek. The area has been documented to have been fully developed. The area is unsuited to support the presence of significant archaeological resources, given these present conditions.

Based on these results, no known significant archaeological resources will be impacted by the project as currently designed. However, given the records search results and project conditions, the potential for the inadvertent discovery of cultural resources cannot be discounted. Impacts related to the inadvertent discovery of cultural resources would be **potentially significant**. **MM-CUL-1** and **MM-CUL-2** would be implemented to address the potential for inadvertent discovery.

Impact CUL-3 The project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the

landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

A. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?
B. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

## Feedstock Acquisition

### Sustainable Forest Management Projects

As noted, this portion of the analysis is being carried out at the programmatic level, as the specific locations of these activities are presently unknown and consequently cannot feasibly be studied at the project level at this time. PDF CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, CUL-6, CUL-8, and CUL-9 apply most directly to TCRs. PDF CUL-1, intended to identify the location of previously recoded prehistoric and historic-era cultural resources relative to the project treatment area, will be satisfied through records searches directed at project specific activities. PDF CUL-2 requires the project proponent to obtain the latest NAHC provided Native American Contact List and to notify the provided California Native American Tribes in the counties where the treatment activity is located. PDF CUL-3, requiring pre-field research would be completed through preparation of appropriate technical studies. PDF CUL-4, requiring appropriate fieldwork, including Native American Consultation, will be satisfied through survey of all accessible portions of the proposed treatment area. PDF CUL-5 and CUL-6 involve the notification, consultation, and the development of effective protection or avoidance measures for cultural resources identified within a treatment area. PDF-CUL-8 requires training for project employees to identify potential resources, and complements PDF-CUL-9 which requires work stoppage for inadvertent discovery of potential resources. With these PDFs, impacts to TCRs would be **less than significant.**

## Wood Pellet Production

### Northern California (Lassen) Facility

The records search did not identify any previously recorded cultural resources within the API, although ten cultural resources have been recorded within 1 mile of the site. An intensive-level pedestrian survey was conducted of the entire API; this survey did result in the identification of four newly recorded historic era refuse scatters, but no potential TCRs were identified. Tribal outreach has not resulted in identification of potential TCRs within the project site. However, given the records search results, the potential for the inadvertent discovery of TCRs cannot be discounted. Impacts related to the inadvertent discovery of a TCR would be **potentially significant**. **MM-CUL-1** would address the potential for inadvertent discovery.

### Tuolumne Facility

The records search did not identify any previously recorded cultural resources within the project APE, the NAHC Sacred Lands File search results were negative, and the pedestrian survey did not result in the identification of

TCRs. Results of the cultural resources records search indicate that a total of four previously recorded cultural resources fall within one mile of the Project APE, including one historic-era resource (P-55-000347) which intersects the Project APE (see Section 4.4, Cultural Resources). Tribal outreach has not resulted in identification of potential TCRs within the project site.

Although no TCRs have been identified within or adjacent to the proposed project area, the presence of naturally occurring springs within the project vicinity would have been an attractive resource for prehistoric people, and any low-slope areas adjacent to these springs would have higher potential for buried deposits (see Appendix D3 – Cultural Resources Inventory Report for Golden State Natural Resources, Keystone, Tuolumne County, California). Thus, there is a potential that unanticipated TCRs could be encountered during project-related activities. The discovery of unknown TCRs could result in a **potentially significant** impact. **MM-CUL-1** would address the potential for inadvertent discovery.

### Transport to Market

#### Port of Stockton

The records search, including an updated CHRIS, SLF request, and previous analysis of Rough and Ready Island by the U.S. Navy, and Terracon Consultants (2018) did not identify any potential TCRs. These results, and the disturbed nature of the project site, indicate the probability of accidental discovery is low. Tribal outreach has not resulted in identification of potential TCRs within the project site. Nevertheless, such a discovery would be **potentially significant**. **MM-CUL-1** would address the potential for inadvertent discovery.

## 3.4.4.3 Cumulative Impacts

A cumulative impact to cultural and tribal cultural resources, refers to the mounting aggregate effect upon cultural and tribal cultural resources due to modern or recent historic land use, such as residential development, and natural processes, such as erosion, that result from human acts. The issue that must be explored in a cumulative impact analysis is the aggregate loss of information and the loss of recognized cultural landmarks and vestiges of a community's cultural history.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

The Sustainable Forest Management Projects, in combination with other related projects and plans throughout the state, could contribute to a cumulative loss of historic resources in the Working Area. Conducting record searches, contacting Native American groups, conducting pre-field research and cultural resource surveys, and avoiding known resources, as provided in the PDFs, will avoid or minimize the risk of disturbance, damage, or destruction of these resources by identifying, avoiding or protecting these sensitive resources from damage that could be caused by treatment activities. Therefore, the contribution of feedstock acquisition activities to a significant cumulative impact related to known unique archaeological resources, tribal cultural resources, subsurface historical resources, or built historical resources, would **not be cumulatively considerable**.

### Wood Pellet Production

#### Lassen Facility

There are no NRHP/CRHR eligible archaeological resources within the API. Existing regulatory requirements, including those organized and stipulated by **MM-CUL-1** and **MM-CUL-2**, will ensure that the project would not contribute to a cumulative impact to archaeological resources, tribal cultural resources, and human remains.

As discussed in Section 3.4.1.2, no built environment CEQA historical resources were identified in the API. As such there are no impacts to CEQA Historical Resources as a result of the Project. Therefore, there would be no significant cumulative impact to which the Project could contribute related to CEQA historical resources.

#### Tuolumne Facility

There are no NRHP/CRHR eligible archaeological resources within the API. Existing regulatory requirements, including those organized and stipulated by **MM-CUL-1** and **MM-CUL-2**, will ensure that the project would not contribute to a cumulative impact to archaeological resources, tribal cultural resources, and human remains.

None of the identified cumulative projects would result in impacts to the Sierra Railroad – Mainline, including the Keystone Segment (P-55-000347) historical resource.

### Transport to Market

#### Port of Stockton

There are no NRHP/CRHR eligible archaeological resources within the API. Existing regulatory requirements, including those organized and stipulated by **MM-CUL-1** and **MM-CUL-2**, will ensure that the project would not contribute to a cumulative impact to archaeological resources, tribal cultural resources, and human remains.

None of the identified cumulative projects identified would result in significant impacts to the Rough and Ready Island Historic District.

## 3.4.4.4 Mitigation Measures

### Feedstock Acquisition

#### Sustainable Forest Management Projects

No additional mitigation is required beyond PDF-CUL-1 through PDF-CUL-9 to ensure impacts to cultural resources are appropriately addressed.

### Wood Pellet Production

#### Lassen Facility

The following mitigation measures have been developed to ensure compliance with regulatory conditions based on the results of technical studies.

MM-CUL-1 Unanticipated Archaeological Resources. All crews should be alerted to the potential to encounter archaeological material. In the unlikely event that cultural resources (sites, features, or artifacts) are exposed during creek bank stabilization activities, all construction work occurring within 100 feet of the find shall immediately stop and GSNR contacted. A qualified specialist, meeting the Secretary of the Interior's Professional Qualification Standards, will be assigned to review the unanticipated find, and evaluation efforts of this resource for NRHP and CRHR listing will be initiated in consultation with GSNR. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, concentrations of fragmented or whole burned or complete bone, non-local lithic materials, or the characteristic observed to be atypical of the surrounding area. Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appeared to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies. Depending upon the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under NHPAA/CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

MM-CUL-2 Unanticipated Discovery of Human Remains. Should human remains be discovered, work will halt in that area and procedures set forth in the California Public Resources Code (Section 5097.98) and State Health and Safety Code (Section 7050.5) will be followed, beginning with notification to the ACOE (if applicable) and County Coroner. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall provide recommendations on next steps within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

### Tuolumne Facility

No additional mitigation measures are required for archaeological resources, beyond those that are stipulated in the event of inadvertent discovery of cultural resources (**MM-CUL-1**) or human remains (**MM-CUL-2**).

## Transport to Market

### Port of Stockton

No additional mitigation measures are required for archaeological resources, beyond those that are stipulated in the event of inadvertent discovery of cultural resources (**MM-CUL-1**) or human remains (**MM-CUL-2**).

### 3.4.4.5 Significance After Mitigation

Impact CUL-1 The project would not cause a substantial adverse change in the significance of a historical resource pursuant to §15063.4.

Impacts at the facilities locations would be less than significant. With the implementation of PDF CUL-7, potential impacts to historical resources as a result of Sustainable Forest Management projects would be **less than significant**. No additional mitigation is required.

Impact CUL-2 The project may cause a substantial adverse change in the significance of an archaeological resource pursuant to §15063.4 or disturb human remains.

With the implementation of PDF CUL-1 through PDF-CUL-9, as well as **MM-CUL-1** and **MM-CUL-2**, potential impacts to archaeological resources or human remains would be **less than significant**.

Impact CUL-3 The project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

A. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?
B. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

With the implementation of PDF CUL-1 through PDF-CUL-9, as well as **MM-CUL-1**, potential impacts to tribal cultural resources or human remains would be **less than significant**.

## 3.4.5 References

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# 3.5 Energy

This section of the Draft EIR evaluates potential impacts to energy resources associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (project or proposed project). This section describes the existing air quality conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal at the Port of Stockton, and evaluates the potential for project-related energy impacts, considering proposed project design features that could reduce or eliminate associated impacts.

Scoping comments were received regarding energy in response to the Notice of Preparation (NOP) (see Appendix A). The energy related comments included concerns about energy demand for the proposed project, specifically construction, operations (including impact on electricity grid from pellet plants), and transportation. Concerns related to the proposed project's potential impacts on energy resources are addressed in Section 3.5.4.2.

## 3.5.1 Environmental Setting

### 3.5.1.1 Existing Environmental Conditions

#### Electricity

According to the U.S. Energy Information Administration, California used approximately 251,869,136 megawatt-hours of electricity in 2022 (EIA 2023a). California ranks second in the nation, after Georgia, in the most utility-scale electricity generation from biomass. In 2023, biomass fueled 2% of the state's total net generation, and more than half of that was from wood and wood-derived fuels. Electricity usage in California for different land uses varies substantially based on the types of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Based on California's electricity sales in 2023, the industrial sector accounted for 18%, the commercial sector accounted for 47%, and the residential sector accounted for 35% (EIA 2023a). California's electricity use per capita is lower than any other state except Hawai'i (EIA 2023a).

Pacific Gas and Electric (PG&E) would provide electricity to the Project at the Lassen Facility, the Tuolumne Facility, and the Port of Stockton. PG&E provides natural gas and electric service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California. PG&E has 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines. According to the 2022 PG&E Power Content Label, with the Base Plan, eligible renewable accounts for 38.3% of PG&E's energy sources, with solar at 22%. The remaining energy resources are large hydroelectric at 7.6%, natural gas at 4.8%, and nuclear at 49.3% (PG&E 2023).

#### Natural Gas

According to the U.S. Energy Information Administration, California used approximately 2,056,267 million cubic feet of natural gas in 2022 (EIA 2023b). The majority of California's natural gas customers are residential and small commercial customers (core customers). These core customers account for approximately 35% of the natural gas delivered by California utilities (CPUC 2021). Large consumers, such as electric generators and industrial customers (noncore customers), account for approximately 65% of the natural gas delivered by California utilities (CPUC 2021).

The California Public Utilities Commission (CPUC) regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. California gas utilities may soon also begin receiving biogas into their pipeline systems (CPUC 2022).

PG&E is the natural gas utility provider to the Lassen Facility, the Tuolumne Facility, and the Port of Stockton areas. PG&E has 42,141 miles of natural gas distribution pipelines and 6,438 miles of transmission pipelines (PG&E 2023).

#### Petroleum

According to the U.S. Energy Information Administration, California used approximately 628 million barrels of petroleum in 2022, with the majority (534 million barrels) used for the transportation sector (EIA 2023c). There are 42 U.S. gallons in a barrel, so this equates to a total daily use of approximately 14.95 million gallons of petroleum among all sectors and 12.71 million gallons for the transportation sector. In California, petroleum fuels refined from crude oil are the dominant source of energy for transportation sources. Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. California has implemented policies to improve vehicle efficiency and to support use of alternative transportation, which are described in the "State" subsection in Section 3.5.2.2, Regulatory Setting, as well as Section 3.7, Greenhouse Gas Emissions. California has led the United States in the most electric vehicles (EVs) and EV charging locations every year since 2016 (EIA 2023a).

### 3.5.1.2 Sustainable Forest Management Projects

In 2019, the Golden State Finance Authority (GSFA) and the U.S. Forest Service signed a Master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes all of the 18 national forests located in California. Feedstock for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). While the MSA applies to the entirety of Region 5, only Sustainable Forest Management Projects within the Working Area described in Section 2.4 are contemplated under the proposed project. The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities.

Sustainable forest management projects would not consume electricity or natural gas, and therefore, would not require a utility provider. Sustainable forest management projects would require petroleum for transportation to and from the forests, and for off-road equipment during feedstock acquisition. Fuel would be provided by current and future commercial vendors in the area.

### 3.5.1.3 Northern California (Lassen Facility) Site

Existing electrical infrastructure on the project site is minimal, serving the two existing structures (pump house and water tower). Pacific Gas & Electric Company (PG&E) is currently the electrical provider. PG&E provides electric services to 5.1 million customers, including 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines over a 70,000-square-mile service area in northern and central California (PG&E 2023).

As set forth in Chapter 3.16 (Utilities and Service Systems"), it is anticipated that electrical services would be provided to the project through a substation owned by the Surprise Valley Electrification Corporation (SVEC), through a wheeling or similar arrangement between PG&E and SVEC.

#### 3.5.1.4 Central Sierra Nevada (Tuolumne Facility) Site

PG&E provides electrical services to the majority of the County. As previously stated, PG&E covers a 70,000 square mile service area in northern and central California. The project site is currently served by PG&E. The existing infrastructure consists of overhead powerlines on the eastern boundary which serve the existing on-site structures.

#### 3.5.1.5 Port of Stockton

PG&E provides electricity to the majority of the City of Stockton, including the Port of Stockton. The Port owns and maintains the electrical utility system in the West Complex, which receives wholesale electricity from PG&E (Port of Stockton 2022).

PG&E also supplies the City of Stockton with natural gas. In 2022, natural gas consumption for San Joaquin County totaled approximately 187,299,397 therms, of which just 96,816,200 therms were consumed by non-residential uses; the remainder were consumed by residential uses (CEC 2022a).

### 3.5.2 Regulatory Setting

#### 3.5.2.1 Federal

##### Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

##### Energy Policy Act of 2005

In January 2005 the Energy Policy Act was signed into law. It addresses energy production in the United States, including energy efficiency; renewable energy; oil and gas; coal; tribal energy; nuclear matters and security; vehicles and motor fuels, including ethanol; hydrogen; electricity; energy tax incentives; hydropower and geothermal energy; and climate change technology. The Energy Policy Act provides loan guarantees for entities that develop or use innovative technologies that avoid the by-production of greenhouse gases (GHGs). Another provision of the Energy Policy Act is the Renewable Fuel Standard (RFS), which increases the amount of biofuel that must be mixed with gasoline sold in the United States.

## Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased corporate average fuel economy standards for motor vehicles, the EISA includes the following other provisions related to energy efficiency:

- RFS (Section 202)
- Appliance and lighting efficiency standards (Sections 301–325)
- Building energy efficiency (Sections 411–441)

This federal legislation (the RFS) requires ever-increasing levels of renewable fuels to replace petroleum (EPA 2022). The U.S. Environmental Protection Agency (EPA) is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that laid the foundation for achieving significant reductions of GHG emissions through the use of renewable fuels, for reducing imported petroleum, and for encouraging the development and expansion of our nation's renewable fuels sector. The updated program ("RFS2") includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

## Transportation Equity Act for the 21st Century

The Transportation Equity Act for the 21st Century was signed into law in 1998 and builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act legislation. The Transportation Equity Act authorizes highway, highway safety, transit, and other efficient surface transportation programs. The act continues the program structure established for highways and transit under Intermodal Surface Transportation Efficiency Act, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of transportation decisions. The Transportation Equity Act also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of intelligent transportation systems to help improve operations and management of transportation systems and vehicle safety.

### Infrastructure Investment and Jobs Act

The Infrastructure Investment and Jobs Act (Infrastructure Deal) was signed into law November 15, 2021. The legislation includes $39 billion of new investment to modernize transit, in addition to continuing the existing transit programs for 5 years as part of surface transportation reauthorization. The Infrastructure Deal would also invest $7.5 billion to build out a national network of electric vehicle (EV) chargers. The Infrastructure Deal would provide funding for deployment of EV chargers along highway corridors to facilitate long-distance travel and within communities to provide convenient charging where people live, work, and shop to support a goal of building a nationwide network of 500,000 EV chargers. This would accelerate the adoption of EVs, which would help reduce emissions and improve air quality. In addition, the Infrastructure Deal would include more than $65 billion of investments in clean energy transmission including upgrading existing power infrastructure through expanding transmission lines to facilitate the expansion of renewables and clean energy.

### The Inflation Reduction Act of 2022

The Inflation Reduction Act was signed into law by President Biden in August 2022. The act includes specific investment in energy and climate reform and is projected to reduce GHG emissions within the United States by 40% as compared to 2005 levels by 2030. The act allocates funds to boost renewable energy infrastructure (e.g., solar panels and wind turbines), includes tax credits for the purchase of electric vehicles, and includes measures that will make homes more energy efficient.

## 3.5.2.2 State

### Warren-Alquist Act

The California Legislature passed the Warren–Alquist Act in 1974, which created the California Energy Commission (CEC). The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for both buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high-demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

### State of California Energy Action Plan

The CEC and the CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure the provision of adequate, reliable, and reasonably priced electrical power and natural gas supplies; it also identified cost-effective and environmentally sound energy policies, strategies, and actions for California's consumers and taxpayers. In 2005, the CEC and CPUC adopted a second Energy Action Plan to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, the CEC and the CPUC determined that it was not necessary or productive to prepare a new energy action plan. This determination was based, in part, on a finding that the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act

of 2006 (discussed below). Rather than produce a new energy action plan, the CEC and CPUC prepared an "update" that examines the state's ongoing actions in the context of global climate change.

### Assembly Bill 1007

AB 1007 (2005) required CEC to prepare a statewide plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). CEC prepared the plan in partnership with the California Air Resources Board (CARB) and in consultation with other state agencies, plus federal and local agencies. The State Alternative Fuels Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

### California Code of Regulations, Title 24, Part 6

The California Building Standards Code was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure that new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every 3 years by the Building Standards Commission and CEC and revised if necessary (California Public Resources Code Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, to "reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code Section 25402[d]) and cost effectiveness (California Public Resources Code Section 25402[b][2–3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The current Title 24, Part 6 standards, referred to as the 2022 Title 24 Building Energy Efficiency Standards, became effective on January 1, 2023. The 2022 energy code focuses on four key areas in newly constructed homes and businesses quality (CEC 2021):

- Encouraging electric heat pump technology for space and water heating, which consumes less energy and produces fewer emissions than gas-powered units.
- Establishing electric-ready requirements for single-family homes to position owners to use cleaner electric heating, cooking, and EV charging options whenever they choose to adopt those technologies.
- Expanding solar photovoltaic (PV) system and battery storage standards to make clean energy available on site and complement the state's progress toward a 100% clean electricity grid.
- Strengthening ventilation standards to improve indoor air quality.

If approved, the 2025 Title 24 Standards will be effective on January 1, 2026. The 2025 Draft Energy Code introduces new areas compared to the 2022 Title 24 standards, including a stronger emphasis on electric heat pumps for space and water heating in new buildings. It also establishes electric-ready requirements for commercial kitchens and some multifamily buildings, mandates the replacement of end-of-life rooftop HVAC units with high-efficiency systems, and updates solar and storage standards for assembly buildings (CEC 2024).

## California Code of Regulations, Title 24, Part 11

In addition to CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24), which is commonly referred to as CALGreen, establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. CALGreen took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals.

The 2022 CALGreen standards are the current applicable standards. For residential projects, some of the key mandatory CALGreen standards involve requirements related to EV parking spaces and charging infrastructure, indoor and outdoor water efficiency and conservation, construction waste management, low volatile organic compound paints and finishes, and formaldehyde limits in wood products (24 CCR, Part 11). For nonresidential projects, some of the key mandatory CALGreen standards involve requirements related to bicycle parking, designated parking for clean air vehicles, EV charging stations for passenger vehicles, shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR, Part 11).

## California Code of Regulations, Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency (20 CCR 1401–1410). CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

## Senate Bill 1078, Senate Bill 1368, Executive Order S-14-08, Executive Order S-21-09 and Senate Bill X1-2, Senate Bill 350, Senate Bill 100, and Senate Bill 1020

Senate Bill (SB) 1078 (2002) (California Public Utilities Code Section 399.11 et seq.) established the Renewables Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107, Executive Order [EO] S-14-08, and EO S-21-09).

SB 1368 (2006) required CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities (California Public Utilities Code Section 8340-8341). These standards must be consistent with the standards adopted by CPUC.

EO S-14-08 (2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directed state agencies to take appropriate actions to facilitate reaching this target. California Natural Resources Agency, in collaboration with CEC and the California Department of Fish and Wildlife, was directed to lead this effort.

EO S-21-09 (2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with CPUC and CEC to ensure that the regulation builds upon the RPS program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health, as well as those that can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard; however, this regulation was not finalized because of subsequent legislation (SB X1-2) signed by Governor Brown in April 2011.

SB X1-2 (April 2011) expanded RPS by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current and that meets other specified requirements with respect to its location. SB X1-2 applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All these entities must meet the renewable energy goals listed above.

SB 350 (2015) further expanded the RPS program by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires CPUC, in consultation with CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100 (2018) increased the standards set forth in SB 350, establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024; 52% by December 31, 2027; and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources does not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

SB 1020 (September 2022) revises the standards from SB 100, requiring the following percentage of retail sales of electricity to California end-use customers to come from eligible renewable energy resources and zero-carbon resources: 90% by December 31, 2035; 95% by December 31, 2040; and 100% by December 31, 2045.

## State Vehicle Standards (Assembly Bill 1493 and Executive Order B-16-12)

AB 1493 (July 2002) was enacted in response to the transportation sector accounting for a large share of California's $CO_2$ emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate the rapid commercialization of ZEVs. It ordered CARB, CEC, CPUC, and other relevant agencies to work with the Plug-In Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve benchmark goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 identified a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare. As explained under the "Federal Vehicle Standards" description above, EPA and NHTSA approved the SAFE Vehicles Rule Part One and Two, which revoked California's authority to set its own GHG emissions standards and set ZEV mandates in California.

In March 2022, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate. EPA's action concludes its reconsideration of the 2019 SAFE-1 rule by finding that the actions taken under the previous administration as a part of SAFE-1 were decided in error and are now entirely rescinded.

## Heavy-Duty Diesel

CARB adopted the final Heavy-Duty Truck and Bus Regulation on December 31, 2014, to reduce DPM, a major source of black carbon, and $NO_x$ emissions from heavy-duty diesel vehicles (13 CCR, Part 2025). The rule requires that DPM filters be applied to newer heavier trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. The rule will require nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. CARB also adopted an Airborne Toxics Control Measure to limit idling of diesel-fueled commercial vehicles on December 12, 2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR, Part 2485).

## Executive Order S-1-07

EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining Low Carbon Fuel Standard for GHG emissions measured in $CO_2e$ grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel—including extraction/feedstock production, processing, transportation, and final consumption—per unit of energy delivered.

## Senate Bill 375

SB 375 (California Government Code Section 65080) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG-reduction targets for the automobile and light-truck sector for 2020 and 2035 and to update those targets every 8

years. SB 375 requires the state's 18 regional metropolitan planning organizations to prepare a sustainable communities strategy as part of their regional transportation plan that will achieve the GHG-reduction targets set by CARB. If a metropolitan planning organization is unable to devise a sustainable communities strategy to achieve the GHG-reduction target, the metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG-reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

A sustainable communities strategy does not (1) regulate the use of land; (2) supersede the land use authority of cities and counties; or (3) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it (California Government Code Section 65080[b][2][K]). Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

### Advanced Clean Cars Program and Zero-Emissions Vehicle Program

The Advanced Clean Cars (ACC) I program (January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of regulations: the low-emission vehicle regulation for criteria air pollutant and GHG emissions and a technology forcing regulation for ZEVs that contributes to both types of emission reductions (CARB 2012). The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold in 2015. The ZEV program will act as the focused technology of the ACC I program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid EVs in the 2018 to 2025 model years.

The ACC II program, which was adopted in August 2022, established the next set of low-emission vehicle and ZEV requirements for model years after 2025 to contribute to meeting federal ambient air quality ozone standards and California's carbon neutrality standards (CARB 2022). The main objectives of ACC II are as follows:

- Maximize criteria and GHG emission reductions through increased stringency and real-world reductions.
- Accelerate the transition to ZEVs through both increased stringency of requirements and associated actions to support wide-scale adoption and use.

The ACC II rulemaking package also considers technological feasibility, environmental impacts, equity, economic impacts, and consumer impacts.

### Executive Order N-79-20

EO N-79-20 (September 2020) requires CARB to develop regulations as follows: (1) Passenger vehicle and truck regulations requiring increasing volumes of new ZEVs sold in the state towards the target of 100% of in-state sales by 2035; (2) medium- and heavy-duty vehicle regulations requiring increasing volumes of new zero-emission trucks and buses sold and operated in the state towards the target of 100% of the fleet transitioning to ZEVs by 2045 everywhere feasible and for all drayage trucks to be zero emission by 2035; and (3) strategies, in coordination with other state agencies, EPA, and local air districts, to achieve 100% zero emissions from off-road vehicles and equipment operations in the state by 2035. EO N-79-20 called for the development of a ZEV Market Development Strategy, which was released February 2021, to be updated every 3 years, that ensures coordination and

implementation of the EO and outlines actions to support new and used ZEV markets. In addition, the EO specifies identification of near-term actions and investment strategies to improve clean transportation, sustainable freight, and transit options and calls for development of strategies, recommendations, and actions by July 15, 2021, to manage and expedite the responsible closure and remediation of former oil extraction sites as the state transitions to a carbon-neutral economy.

### Advanced Clean Trucks Regulation

The Advanced Clean Trucks (ACT) Regulation was also approved by CARB in 2020. The purpose of the ACT Regulation is to accelerate the market for ZEVs in the medium- and heavy-duty truck sector and to reduce air pollutant emissions generated from on-road mobile sources (CARB 2024c). The regulation has two components, (1) a manufacturer sales requirement and (2) a reporting requirement:

- Zero-emission truck sales: Manufacturers who certify Class 2b–8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b–3 truck sales, 75% of Class 4–8 straight truck sales, and 40% of truck tractor sales.
- Company and fleet reporting: Large employers including retailers, manufacturers, brokers, and others will be required to report information about shipments and shuttle services. Fleet owners with 50 or more trucks will be required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

### Commercial Harbor Craft Regulation

CARB adopted a Commercial Harbor Craft (CHC) Regulation in 2008 to reduce GHG emissions from vessels like tugboats and barges. These regulations required older engines to be replaced with cleaner ones. The 2022 amendments expanded the scope to more vessel types and mandated even cleaner technologies, aiming to improve public health by reducing harmful emissions. These changes began taking effect in early 2023, with ongoing assessments of low-emission technologies by a Technical Working Group until 2032.

### Mobile Cargo Handling Equipment Regulation

CARB adopted a Mobile Cargo Handling Equipment (CHE) Regulation in 2005 to reduce GHG emissions at California's ports and intermodal railyards. The regulation was fully implemented in 2017 and targets any motorized vehicle used to handle or perform activities at these ports and yards. Currently, CARB is in the process of implementing further regulation to reduce emissions with the implementation of zero-emission technologies.

### Ocean-Going Vessel Fuel Regulation

CARB approved the Ocean-Going Vessel At-Berth Regulation in 2007 to reduce GHG emissions from container ships, passenger ships, and refrigerated-cargo ships at six California ports. CARB is also committed to develop new regulations to further reduce emissions and reduce the exposure to nearby port communities.

### 3.5.2.3 Local

#### Lassen County

##### Lassen County General Plan

In May 1993, the Lassen County Board of Supervisors adopted an Energy Element as part of its General Plan. The General Plan was updated in 2000, and it includes various goals and policies related to directly and indirectly reducing energy consumption. Applicable goals and policies include the following:

Goal N-17. Conservative management of Lassen County's energy resources so that those resources can be developed and utilized for the benefit of County residents with a high degree of efficiency and productivity.

NR61 Policy. The County advocates, and encourages Federal and state agencies to conduct or help fund resource assessments and other studies to evaluate the availability of energy resources, and to facilitate efficient and well-designed projects which can capitalize on those resources with acceptable levels of environmental impact and compatibility with other land uses and resource values.

NR62 Policy. In the course of adopting policies pertaining to energy resources in other County planning elements and area plans, the County may consider additional and more specific policies and measures to manage those resources.

NR63 Policy. The Energy Element of the Lassen County General Plan shall provide specific policies and measures pertaining to the conservation and management of energy resources, as well as the siting and development standards of projects proposing to utilize those resources.

#### Tuolumne County

##### Tuolumne County General Plan

Tuolumne County adopted their General Plan Update in 2018. The County's General Plan includes various goals and policies related to directly and indirectly reducing energy consumption. Applicable goals and policies include the following:

Goal 2F. Promote green building design and encourage housing development that is consistent with the County's Healthy Communities Policies.

Policy 2.F.1. Promote land use patterns that encourage energy efficiency. Promote higher density residential development where existing public services are available.

Goal 6E. Encourage the retention and expansion of existing businesses, attraction of new business and industry and assist in entrepreneurial programs to generate local employment opportunities, reduce retail leakage out of the county trade area and diversify the local economy, while maintaining its environmental and cultural integrity.

Policy 6.E.5. Encourage development of alternative energy-producing facilities which conserve the County's natural resources.

Goal 8D. Manage agriculturally-related industrial and commercial uses in agricultural areas to facilitate local agricultural production.

Policy 8.D.1. Facilitate local agricultural production, by allowing the following agricultural support services, where appropriate within agricultural areas: (a) those facilities which supply an agricultural need such as: farm supply, feed sales, agricultural product storage, or feed yards; (b) those facilities that benefit agriculture by processing or packaging agricultural products such as: slaughtering facilities, packing sheds, canneries, wineries or sawmills; (c) those facilities that benefit agriculture by converting agricultural by-products to other uses such as: livestock feed yards or alternative energy power generation, utilizing agricultural by-products; and, (d) those facilities that process rock, aggregate gravel, or minerals.

Goal 15D. Maintain an effective open burning enforcement program that protects the public health and welfare while recognizing the need to reduce vegetative matter for the purposes of fire hazard reduction, wildland vegetation management and forest ecosystem management.

Policy 15.D.1. Work closely with federal, state and local agencies to minimize the emissions and smoke impacts from fire hazard reduction and forest management burn activities and during wildfire episodes.

Goal 18A. Reduce Greenhouse Gas (GHG) emissions from community activities and County government facilities and operations within the County to support the State's efforts under Assembly Bill 32 and other state and federal mandates to mitigate the County's GHG emissions impacts.

Policy 18.A.1. Prepare a Climate Action Plan (CAP), or similar GHG emission reduction plan, that establishes a GHG reduction target consistent with the Senate Bill (SB) 32 goal to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030. The CAP shall identify specific measures to reduce countywide emissions consistent with the established target and will also include adaptation strategies for the County to appropriately adjust to the environmental effects of climate change. Many of the measures in the CAP will overlap with and help implement goals, policies, and implementation programs identified in this General Plan.

Policy 18.A.5. Promote energy efficiency and alternative energy while reducing energy demand.

Policy 18.A.6. Encourage the use of solar power and other innovative energy sources as alternatives to more traditional forms of energy.

Policy 18.A.7. Encourage reduced consumption of fossil fuel energy by promoting alternative transportation methods and encouraging pedestrian oriented development to reduce the use of motor vehicles. See the Transportation Element and the Community Development and Design Element for a detailed listing of policies and implementation programs.

### Tuolumne County Climate Action Plan

Tuolumne County adopted their Climate Action Plan in November 2022. The CAP's main objectives are to build resilience to climate related hazards that threaten the community; to reduce (or "mitigate") local GHG emissions; and to preserve and improve the county's natural resources and quality of life. Climate change mitigation and

adaptation strategies are organized into five focus areas: Health and Safety, Conservation and Recreation, Buildings, Infrastructure, and Agriculture and Forestry. The following goals and policies are relevant to the project.

#### Buildings

##### Strategy 1. Energy-Efficient and Resilient New Buildings

- Measure 1.1: Increase energy efficiency and climate resiliency in all new buildings.

#### Infrastructure

##### Strategy 2. Resilient Transit System

- Measure 2.3: Increase the use of on-demand and vehicle-sharing services.

##### Strategy 3. Low-Emission and Electric Vehicle Support

- Measure 3.1: Support and encourage the adoption of low-emission vehicles and EVs.

##### Strategy 4. Resilient and Clean Electrical Grid

- Measure 4.2: Reduce electricity grid demand through load reduction strategies.

### City of Stockton

#### City of Stockton Envision 2040 General Plan

The City of Stockton adopted their General Plan Update on December 4, 2018. The County's General Plan, also called Envision Stockton 2040, includes various goals and policies related to reducing energy consumption. Applicable goals and policies include the following:

Goal LU-5. Protected Resources. Protect, maintain, and restore natural and cultural resources.

Policy LU-5.4. Require water and energy conservation and efficiency in both new construction and retrofits.

Goal TR-3. Sustainable Transportation. Design transportation infrastructure to help reduce pollution and vehicle travel.

Policy TR-3-2. Require new development and transportation projects to reduce travel demand and greenhouse gas emissions, support electric vehicle charging, and accommodate multi-passenger autonomous vehicle travel as much as feasible.

#### City of Stockton Climate Action Plan

The largest GHG reductions are identified in the areas of building energy (both energy efficiency and renewable energy), transportation, and waste. The GHG reduction measures set forth in the City of Stockton Climate Action Plan related to the project's energy are listed below.

- **Energy-1:** Green Building Ordinance
- **Energy-2b:** Outdoor Lighting Private Upgrades

- **Energy-5:** Solar Powered Parking
- **Energy-6:** Residential and Non-Residential Rooftop Solar

### Port of Stockton Clean Air Plan

The Port of Stockton adopted a Clean Air Plan in April 2023 (Port of Stockton 2023). The Port of Stockton Clean Air Plan defines strategies for reducing air emissions in the near term while charting a long-term path for the Port to reach zero emissions. It focuses on the five main sources of Port-related emissions: heavy-duty trucks, cargo-handling equipment, harbor craft, ships, and locomotives, among other strategies. The strategies set forth in the Port of Stockton Clean Air Plan to reduce air- and climate-related community impacts are identified below.

#### Heavy-Duty Trucks

**TRUCKS-5.** Assist truck operators in securing grant funds for zero-emission trucks and infrastructure.

**TRUCKS-6.** Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions truck transition.

**TRUCKS-7.** In partnership with tenants, facilitate the development and implementation of Zero-Emissions Truck Transition Plans at each facility to accelerate the introduction of zero-emission trucks.

#### Cargo-Handling Equipment

**EQUIP-1.** Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions equipment transition.

**EQUIP-2.** Seek grants to buy zero-emissions equipment and help terminal operators secure grants.

**EQUIP-3.** In partnership with tenants, facilitate the development and implementation of Zero-Emissions Terminal Transition Plans at each facility to accelerate the introduction of zero-emissions equipment.

**EQUIP-4.** Transition all Port-owned equipment to zero emissions by 2030 or in advance of the State regulation, whichever is earlier, when feasible.

**EQUIP-5.** Set a goal to transition tenant-owned equipment to zero emissions by 2035 or in advance of the State regulation, when feasible.

**EQUIP-6.** Evaluate the use of renewable diesel in cargo-handling equipment.

#### Harbor Craft

**TUGS-1.** Provide assistance for harbor craft operators in securing grant funds to transition to cleaner tugboats and to fund zero-emission tugboat demonstrations.

**TUGS-2.** Require harbor craft operators to have shore power infrastructure at their berths and to use this infrastructure to eliminate at-berth idling emissions.

#### Ships

**SHIPS-1.** Conduct technology demonstrations for barge- or land-based systems that eliminate at-berth emissions.

**SHIPS-2.** Develop an incentive program to encourage the deployment of the cleanest ships to Stockton.

#### Rail

**RAIL-1.** Secure grants to help rail operators transition to the cleanest available locomotives and to demonstrate advanced zero-emission technologies.

**RAIL-2.** Evaluate the possibility of contractual conditions to require Central California Traction Company, the short-line rail operator, to deploy cleaner locomotives in advance of the State's locomotive regulation.

#### Other Strategies

**FLEET-1.** Transition the Port's fleet of on-road vehicles to zero emissions by 2035.

**FLEET-2.** Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions on-road fleet transition.

## 3.5.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to energy are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to energy would occur if the project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

## 3.5.4 Impact Analysis

### 3.5.4.1 Methodology

The project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to energy consumption as detailed below.

#### Feedstock Acquisition

#### Sustainable Forest Management Projects

Feedstock acquisition would result in energy consumption primarily associated with use of off-road construction equipment, on-site hauling and vendor (i.e., water) trucks, and worker vehicles.

All details for criteria air pollutants discussed in Section 3.2.4.1.1 within Section 3.2, Air Quality, are also applicable for the estimation of feedstock acquisition-related energy consumption. As such, see Section 3.2.4.1.1 for a discussion of construction calculation methodology and assumptions used in the energy analysis. In addition, the following methodology was used to estimate construction electricity and petroleum consumption.

### Electricity

Electricity is not expected to be consumed during Sustainable Forest Management Projects. Operational activities associated with the acquisition of feedstock primarily involve use of offroad equipment to remove wood and transport of wood from the forest to the pellet facilities via truck. The equipment and vehicles are expected to be diesel- and gas-powered.

### Natural Gas

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the "petroleum" subsection.

### Petroleum

Potential Sustainable Forest Management Project petroleum consumption was assessed through projected vehicle trip generation and offroad equipment used as provided by the California Emissions Estimator Model (CalEEMod) and CARB EMFAC2021 outputs in the criteria air pollutant and GHG emissions calculations (Appendix B1). With respect to estimated VMT and based on the trip frequency and trip length methodologies cited in Chapter 3.2, Air Quality, and Chapter 3.14, Transportation, within this EIR, activities in the Lassen feedstock area would generate an estimated 10,154,830 annual VMT. Activities in the Tuolumne feedstock area would generate an estimated 4,381,446 annual VMT. Fuel consumption from construction equipment and vehicles was estimated by converting the total $CO_2$ emissions from each phase to gallons using conversion factors for $CO_2$ to gallons of gasoline or diesel. Heavy-duty construction equipment associated with feedstock acquisition activities, hauling, and water trucks were assumed to use diesel fuel. The conversion factor for gasoline is 8.78 kilograms per metric ton of $CO_2$ per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton of $CO_2$ per gallon (The Climate Registry 2024). It was assumed that workers would travel to and from the project sites in gasoline-powered vehicles. Fuel consumption from worker and vendor trips was estimated by converting the total $CO_2$ emissions from the construction phase to gallons using the conversion factors for $CO_2$ to gallons of gasoline or diesel.

## Wood Pellet Production

The project would implement energy-related site design features (SDFs) at the Lassen Facility and Tuolumne Facility, thereby achieving indirect air quality and GHG co-benefits. As set forth in Chapter 2, SDFs will be incorporated as enforceable contract terms in the public-private partnership agreement between GSFA and GSNR through which GSNR is authorized to perform project activities. The project would implement ENE-AQ-1, as follows:

SDF-ENE-1 Provision of Rooftop Solar – Lassen Facility & Tuolumne Facility. GSNR shall provide rooftop photovoltaic (PV) solar panels on all air-conditioned office buildings to comply with the requirements of the version of Title 24, Part 6, of the California Building Standards Code and California Green Building Standards (CALGreen) in effect at the time of building permit application to provide an on-site source of renewable energy.

## Lassen Facility

### Construction Energy

Construction of the Lassen Facility would result in energy consumption primarily associated with use of off-road construction equipment, on-site hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 3.2.4.1.2 within Section 3.2, Air Quality are also applicable for the estimation of construction-related energy consumption. As such, see Section 3.2.4.1.2 for a discussion of construction calculation methodology and assumptions used in the energy analysis. In addition, the following methodology was used to estimate construction electricity and petroleum consumption.

#### Electricity

Electricity is not expected to be consumed in large quantities during Project construction, as construction equipment and vehicles are generally not electric but rather diesel- or gas-powered. Although electrical service will be established to serve construction, the amount of electricity that will be used is likely to be small. Temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, is assumed to be minimal and is not estimated herein.

#### Natural Gas

Natural gas is not anticipated to be required during construction of the Project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the "petroleum" subsection.

#### Petroleum

Potential Lassen Facility construction petroleum consumption was assessed through projected vehicle trip generation and offroad equipment used as provided by the CalEEMod and CARB EMFAC2021 outputs in the criteria air pollutant and GHG emissions calculations (Appendix B1). Fuel consumption from construction equipment was estimated by converting the total $CO_2$ emissions from each construction phase to gallons using conversion factors for $CO_2$ to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton of $CO_2$ per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton of $CO_2$ per gallon (The Climate Registry 2024). Heavy-duty construction equipment associated with construction activities and vendor trucks were assumed to use diesel fuel. It was assumed that construction workers would travel to and from the Project site in gasoline-powered vehicles. Fuel consumption from worker and vendor trips was estimated by converting the total $CO_2$ emissions from the construction phase to gallons using the conversion factors for $CO_2$ to gallons of gasoline or diesel.

## Operational Energy

### Electricity

The project's operational phase would require electricity for multiple purposes, including, but not limited to, building heating and cooling, lighting, and appliances, including refrigeration, electronics, equipment, and machinery. Electricity would also be consumed during operation of the project related to water usage. CalEEMod was used to analyze electrical usage during operation.

### Natural Gas

There would be no natural gas consumption during operation at the Lassen Facility. There would be diesel and propane consumption, which is described below in the subsection "Petroleum" below.

### Petroleum

Petroleum would be consumed by project-generated vehicle trips, off-road equipment, and stationary sources.

Energy that would be consumed by project-generated traffic is a function of total VMT and estimated vehicle fuel economies for the vehicles accessing the project site. With respect to estimated VMT and based on the trip frequency and trip length methodologies cited in Chapter 3.2, Air Quality, and Chapter 3.14, Transportation, within this EIR, the Lassen Facility would generate an estimated 1,715,427 annual VMT, which does not include VMT associated with feedstock acquisition (See "Feedstock acquisition" subsection above). Similar to construction worker and vendor trips, fuel consumption was estimated by converting the total $CO_2$ emissions from project mobile sources to gallons using the conversion factors for $CO_2$ to gallons of gasoline or diesel. Based on the annual fleet mix for build-out of the project, approximately 90% of the fleet mix using fossil fuels (with the exception of natural gas) were assumed to run on gasoline and approximately 10% of the fleet mix was assumed to use diesel. In addition, the project would consume propane to power some of the stationary sources. The conversion factor for propane is 5.72 kilograms per metric ton of $CO_2$ per gallon (The Climate Registry 2024).

## Tuolumne Facility

### Construction Energy

Construction of the Tuolumne Facility would result in energy consumption primarily associated with use of off-road construction equipment, on-site hauling and vendor (material delivery) trucks, and worker vehicles. All details for the construction energy consumption at the Lassen Facility are also applicable for the estimation of construction-related energy consumption at the Tuolumne. In addition, the following methodology was used to estimate construction electricity and petroleum consumption.

### Electricity

Electricity is not expected to be consumed in large quantities during project construction, as construction equipment and vehicles are generally not electric but rather diesel- or gas-powered. Although electrical service will be established to serve construction, the amount of electricity that will be used is likely to be small. Temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, is assumed to be minimal and is not estimated herein.

### Natural Gas

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the "petroleum" subsection.

### Petroleum

The methodology for calculating the construction petroleum consumption at the Lassen Facility is also applicable for the Tuolumne Facility.

## Operational Energy

### Electricity

The project's operational phase would require electricity for multiple purposes, including, but not limited to, building heating and cooling, lighting, and appliances, including refrigeration, electronics, equipment, and machinery. Electricity would also be consumed during operation of the project related to water usage. CalEEMod was used to analyze electrical usage during operation.

### Natural Gas

There would be no natural gas consumption during operation at the Tuolumne Facility. There would be diesel and propane consumption, which is described below in the subsection "Petroleum" below.

### Petroleum

Petroleum would be consumed by project-generated vehicle trips, off-road equipment, and stationary sources.

Energy that would be consumed by project-generated traffic is a function of total VMT and estimated vehicle fuel economies for the vehicles accessing the project site. With respect to estimated VMT and based on the trip frequency and trip length methodologies cited in Chapter 3.2, Air Quality, and Chapter 3.14, Transportation, within this EIR, the project would generate an estimated 1,945,596 annual VMT, which does not include VMT associated with feedstock acquisition (See "Feedstock acquisition" subsection above). Similar to construction worker and vendor trips, fuel consumption was estimated by converting the total $CO_2$ emissions from project mobile sources to gallons using the conversion factors for $CO_2$ to gallons of gasoline or diesel. Based on the annual fleet mix for build-out of the project, approximately 96% of the fleet mix using fossil fuels (with the exception of natural gas) were assumed to run on gasoline and approximately 4% of the fleet mix was assumed to use diesel. In addition, the project would consume propane and diesel to power some of the stationary sources. The conversion factor for propane is 5.72 kilograms per metric ton of $CO_2$ per gallon (The Climate Registry 2024).

## Transport to Market

### Rail Transport

The project would consume energy during rail transport from the line haul trains, the switcher locomotive at the Lassen Facility, and the switcher at the Port of Stockton. The energy consumption from the switcher locomotive at the Lassen Facility and the switcher at the Port of Stockton were included in their respective facility sections.

### Electricity

There would be electricity consumption during rail transportation.

### Natural Gas

There would be no natural gas consumption during rail transportation.

### Petroleum

Petroleum, specifically diesel, would be consumed by project-generated rail transport. Fuel consumption was estimated by the converting the total $CO_2$ emissions from project rail sources to gallons using the conversion factor for diesel.

## Port of Stockton

### Construction Energy

Construction of the Port of Stockton Facility would result in energy consumption primarily associated with use of off-road construction equipment, on-site hauling and vendor (material delivery) trucks, and worker vehicles. All details for the construction energy consumption at the Lassen Facility are also applicable for the estimation of construction-related energy consumption. In addition, the following methodology was used to estimate construction electricity and petroleum consumption.

### Electricity

Electricity is not expected to be consumed in large quantities during project construction, as construction equipment and vehicles are generally not electric but rather diesel- or gas-powered. Although electrical service will be established to serve construction, the amount of electricity that will be used is likely to be small. Temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, is assumed to be minimal and is not estimated herein.

### Natural Gas

Natural gas is not anticipated to be required during construction of the Port of Stockton. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the "Petroleum" subsection.

### Petroleum

The methodology for calculating the construction petroleum consumption at the Lassen Facility is also applicable for the Port of Stockton Facility.

## Operational Energy

### Electricity

The project's operational phase would require electricity for multiple purposes, including, but not limited to, building heating and cooling, lighting, and appliances, including refrigeration, electronics, equipment, and machinery. Electricity would also be consumed during operation of the project related to water usage. CalEEMod was used to analyze electrical usage during operation.

### Natural Gas

There would be no natural gas consumption during operation at the Port of Stockton. There would be diesel and propane consumption, which is described below in the subsection "Petroleum" below.

#### Petroleum

Petroleum would be consumed by project-generated vehicle trips, off-road equipment, and stationary sources.

Energy that would be consumed by project-generated traffic is a function of total VMT and estimated vehicle fuel economies for the vehicles accessing the project site. With respect to estimated VMT and based on the trip frequency and trip length methodologies cited in Chapter 3.2, Air Quality, and Chapter 3.14, Transportation, within this EIR, the project would generate an estimated 101,500 annual VMT[1]. Similar to construction worker and vendor trips, fuel consumption was estimated by converting the total $CO_2$ emissions from project mobile sources to gallons using the conversion factors for $CO_2$ to gallons of gasoline or diesel. Based on the annual fleet mix for build-out of the project, approximately 80% of the fleet mix using fossil fuels (with the exception of natural gas) were assumed to run on gasoline and approximately 20% of the fleet mix was assumed to use diesel. In addition, the project would consume diesel to power some of the stationary sources.

### Ship Transport

The project would consume energy during ship transport from the Port of Stockton.

#### Electricity

As explained in the Port of Stockton Clean Air Plan in April 2023 (Port of Stockton 2023), page 32, bulk cargo vessels of the type anticipated to serve the project are unlikely to use shore power at berth at the Port of Stockton. While it is possible that these cargo ships may use shore power at some time in the future, this is speculative, particularly given that GSNR does not have operational control over these vessels. Therefore, it is conservatively assumed that cargo ships would use diesel power while at berth (accounted for under Petroleum below), and that there would thus be no electricity consumption during ship transport.

#### Natural Gas

There would be no natural gas consumption during ship transportation.

#### Petroleum

Petroleum, specifically diesel, would be consumed by project-generated ship transport. Fuel consumption was estimated by the converting the total $CO_2$ emissions from project ship sources to gallons using the conversion factor for diesel.

## 3.5.4.2 Project Impacts

**Impact ENE-1** The project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

[1] As the Port of Stockton is a fully operational port, and given that the project's demand for stevedoring services is intermittent, it is anticipated that the eight full-time equivalent stevedores required by the project would be filled by the large existing workforce at and around the Port. As such, the VMT associated with the these stevedores' commute trips would be included in the existing workforce baseline and their petroleum usage would be negligible, and thus only the eight additional GSNR employees have been modeled as new trips for purposes of this analysis..

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Electricity

Electricity is not expected to be consumed during Sustainable Forest Management Projects. Therefore, electricity consumption during Sustainable Forest Management Projects would not be wasteful, inefficient, or unnecessary. Impacts would be less than significant.

#### Natural Gas

Natural gas is not anticipated to be required during Sustainable Forest Management Projects. Fuels used for off-road equipment would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below. Any minor amounts of natural gas that may be consumed as a result of Sustainable Forest Management Projects would be temporary and negligible and would not have an adverse effect; therefore, impacts would be less than significant.

#### Petroleum

The estimated diesel fuel usage from off-road equipment, haul trucks, and vendor (i.e., water) trucks and the estimated gasoline fuel usage from worker vehicles in the Lassen feedstock area are shown in Table 3.5-1.

**Table 3.5-1. Lassen Feedstock Acquisition Petroleum Demand**

| Year | Off-Road Equipment (Diesel) | Haul Trucks (Diesel)[a] | Vendor Trucks (Diesel) | Worker Vehicles (Gasoline) | Total |
|---|---|---|---|---|---|
| | Gallons | | | | |
| 2025 and Subsequent[2] | 1,441,535 | 812,357 | 323,881 | 89,527 | **2,667,300** |

**Source:** Appendix B7.
**Notes**:
[a] Petroleum from haul trucks include on-site and off-site trucks and were modeled separately for air quality modeling purposes.

In summary, Sustainable Forest Management Projects in the Lassen feedstock area are estimated to consume a total of approximately 2,667,300 gallons of petroleum per year.

The estimated diesel fuel usage from off-road equipment, haul trucks, and vendor (i.e., water) trucks and the estimated gasoline fuel usage from worker vehicles in the Tuolumne feedstock area are shown in Table 3.5-2.

[2] The analysis assumes an operational year of 2025, which represents the earliest year feedstock operations could initiate. Assuming the earliest start date for operations represents the worst-case scenario for petroleum fuel usage due to increasing efficiency and technological improvement likely in future years, as well as fleet turnover replacing older equipment and vehicles.

**Table 3.5-2. Tuolumne Feedstock Acquisition Petroleum Demand**

| Year | Off-Road Equipment (Diesel) | Haul Trucks (Diesel)[a] | Vendor Trucks (Diesel) | Worker Vehicles (Gasoline) | Total |
|---|---|---|---|---|---|
| | Gallons | | | | |
| 2025 and Subsequent | 622,990 | 396,027 | 88,006 | 26,633 | **1,166,273** |

**Source:** Appendix B7.

[a] Petroleum from haul trucks include on-site and off-site trucks and were modeled separately for air quality modeling purposes.

In summary, Sustainable Forest Management Projects in the Tuolumne feedstock area are estimated to consume a total of approximately 1,166,273 gallons of petroleum per year.

Notably, the project would be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The fleet must either show that its fleet average index was less than or equal to the calculated fleet average target rate or that the fleet has met the Best Achievable Control Technology requirements. Overall, the project would not be unusual as compared to overall local and regional demand for energy resources and would not involve characteristics that require equipment that would be less energy efficient than at comparable construction sites in the region or state.

Therefore, because petroleum use during Sustainable Forest Management Projects would not be wasteful, inefficient, or unnecessary, impacts would be less than significant.

## Wood Pellet Production

### Lassen Facility

#### Construction

##### Electricity

Temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, would be provided by PG&E. The electricity used for such activities would be temporary, would be substantially less than that required for project operation, would have a negligible contribution to the project's overall energy consumption, and would not be wasteful, inefficient, or unnecessary. Impacts would be less than significant.

##### Natural Gas

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below. Any minor

amounts of natural gas that may be consumed as a result of project construction would be temporary and negligible and would not have an adverse effect; therefore, impacts would be less than significant.

### Petroleum

The estimated diesel fuel usage from construction equipment, haul trucks, and vendor trucks and the estimated gasoline fuel usage from worker vehicles is shown in Table 3.5-3. See Appendix B7, Energy Calculations, for details.

**Table 3.5-3. Total Lassen Facility Construction Petroleum Demand**

| Year | Off-Road Equipment (Diesel) | Haul Trucks (Diesel) | Vendor Trucks (Diesel) | On-Site Trucks (Diesel) | Worker Vehicles (Gasoline) | Total |
|---|---|---|---|---|---|---|
| | Gallons | | | | | |
| 2024[a] | 14,117 | 4,273 | 3,541 | 47 | 1,867 | 23,845 |
| 2025 | 244,355 | 7,076 | 153,311 | 0 | 77,347 | 482,089 |
| | | | | | Total | 505,934 |

**Source:** Appendix B7.

[a] The analysis assumes a construction start date of October 2024, which represents the earliest date construction was anticipated to potentially initiate at the time the analysis was performed. Assuming the earliest start date for construction represents the worst-case scenario for petroleum fuel usage due to increasing efficiency and technological improvement likely in future years, as well as fleet turnover replacing older equipment and vehicles.

In summary, construction of the project is conservatively anticipated to consume approximately 505,934 gallons of petroleum in total. As with Sustainable Forest Management Projects, the Lassen Facility construction would be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. Project construction would represent a "single-event" petroleum demand and would not require on-going or permanent commitment of petroleum resources for this purpose. Overall, the project would not involve characteristics that require equipment that would be less energy-efficient than at comparable construction sites in the region or state. Therefore, impacts would be less than significant.

## Operation

### Electricity

The operational phase would require electricity for multiple purposes, including building heating and cooling, lighting, electronics, electric pumps, etc. CalEEMod was used to estimate project emissions from electricity uses (see Appendix B1). Electricity consumption was provided by the Applicant. Table 3.5-4 shows the estimated annual operational electricity demand.

The Lassen Facility is anticipated to consume approximately 142,677,840 kWh of electricity per year. The project proposes conventional industrial uses reflecting contemporary energy efficient/energy conserving designs and operational programs. The project would be required to comply with the applicable Title 24 standards applicable at that time, which would further ensure that the project energy demands would not be inefficient, wasteful, or unnecessary and impacts would be less than significant.

#### Natural Gas

Natural gas is not anticipated to be required during operation at the Lassen Facility. Fuels used for operation would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below.

#### Petroleum

During operations, fuel consumption resulting from the project would involve the use of motor vehicles traveling to and from the project site, diesel-fueled off-road equipment, stationary equipment, and the switcher locomotive. Fuel demand estimates for the Lassen Facility are provided in Table 3.5-4.

**Table 3.5-4. Lassen Facility Annual Petroleum Demand**

| Project | Employee Vehicles (gasoline) | Vendor Trucks (diesel) | Off-Road Equipment (diesel) | Stationary Equipment (diesel) | Stationary Equipment (propane) | Switcher Locomotive (diesel) | Total |
|---|---|---|---|---|---|---|---|
| | Gallons | | | | | | |
| Lassen Facility | 83,778 | 8,005 | 50,940 | 1,533 | 1,866,645 | 1,718 | **2,012,619** |

**Source:** Appendix B7.
Switcher locomotive diesel fuel estimated does not include implementation of **MM-AQ-9**, which would reduce fuel use (Operational Switcher Locomotive Exhaust Minimization – Lassen Facility).

As summarized in Table 3.5-4, the project would result in an estimated annual fuel demand of approximately 2,012,619 gallons. Fuel would be provided by current and future commercial vendors. The project does not propose uses or operations that would inherently result in excessive and wasteful activities, nor associated excess and wasteful vehicle energy consumption. In addition, enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. As supported by the preceding discussions, project transportation energy consumption would not be considered inefficient, wasteful, or unnecessary and impacts would be less than significant.

### Tuolumne Facility

#### Construction

#### Electricity

Temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, would be provided by PG&E. The electricity used for such activities would be temporary, would be substantially less than that required for project operation, would have a negligible contribution to the project's overall energy consumption, and would not be wasteful, inefficient, or unnecessary. Impacts would be less than significant.

#### Natural Gas

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below. Any minor

amounts of natural gas that may be consumed as a result of project construction would be temporary and negligible and would not have an adverse effect; therefore, impacts would be less than significant.

### Petroleum

The estimated diesel fuel usage from construction equipment, haul trucks, and vendor trucks and the estimated gasoline fuel usage from worker vehicles is shown in Table 3.5-5. See Appendix B7, Energy Calculations, for details.

**Table 3.5-5. Total Tuolumne Facility Construction Petroleum Demand**

| Year | Off-Road Equipment (Diesel) | Haul Trucks (Diesel) | Vendor Trucks (Diesel) | On-Site Trucks (Diesel) | Worker Vehicles (Gasoline) | Total |
|---|---|---|---|---|---|---|
| | Gallons | | | | | |
| 2024[a] | 16,024 | 24,282 | 1,652 | 446 | 2,647 | 45,051 |
| 2025 | 147,104 | 68,606 | 53,927 | 1,276 | 56,031 | 326,945 |
| | | | | | Total | 371,995 |

**Source:** Appendix B7.

[a] The analysis assumes a construction start date of October 2024, which represents the earliest date construction was anticipated to potentially initiate at the time the analysis was performed. Assuming the earliest start date for construction represents the worst-case scenario for petroleum fuel usage due to increasing efficiency and technological improvement likely in future years, as well as fleet turnover replacing older equipment and vehicles.

In summary, construction of the project is conservatively anticipated to consume approximately 371,995 gallons of petroleum in total. As with Sustainable Forest Management Projects, the Tuolumne Facility construction would be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. Project construction would represent a "single-event" petroleum demand and would not require on-going or permanent commitment of petroleum resources for this purpose. Overall, the project would not involve characteristics that require equipment that would be less energy-efficient than at comparable construction sites in the region or state. Therefore, impacts would be less than significant.

## Operation

### Electricity

The operational phase would require electricity for multiple purposes, including building heating and cooling, lighting, electronics, and electric pumps. CalEEMod was used to estimate project emissions from electricity uses (see Appendix B1). Electricity consumption was provided by the Applicant. Table 3.5-6 shows the estimated annual operational electricity demand.

The Tuolumne Facility is anticipated to consume approximately 94,807,680 kWh of electricity per year. The project proposes conventional industrial uses reflecting contemporary energy efficient/energy conserving designs and operational programs. The project would be required to comply with the applicable Title 24 standards applicable at that time, which would further ensure that the project energy demands would not be inefficient, wasteful, or unnecessary and impacts would be less than significant.

#### Natural Gas

Natural gas is not anticipated to be required during operation at the Lassen Facility. Fuels used for operation would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below.

#### Petroleum

During operations, fuel consumption resulting from the project would involve the use of motor vehicles traveling to and from the project site, diesel-fueled off-road equipment, and stationary equipment. Fuel demand estimates for the Tuolumne Facility are provided in Table 3.5-6.

**Table 3.5-6. Tuolumne Facility Annual Petroleum Demand**

| Project | Employee Vehicles (gasoline) | Vendor Trucks (diesel) | Off-Road Equipment (diesel) | Stationary Equipment (diesel) | Stationary Equipment (propane) | Total |
|---|---|---|---|---|---|---|
| | Gallons | | | | | |
| Tuolumne Facility | 85,694 | 3,071 | 57,572 | 1,533 | 1,253,267 | **1,401,136** |

**Source:** Appendix B7.

As summarized in Table 3.5-6, the project would result in an estimated annual fuel demand of approximately 1,401,136 gallons. Fuel would be provided by current and future commercial vendors. The project does not propose uses or operations that would inherently result in excessive and wasteful activities, nor associated excess and wasteful vehicle energy consumption. In addition, enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. As supported by the preceding discussions, project transportation energy consumption would not be considered inefficient, wasteful, or unnecessary and impacts would be less than significant.

### Transport to Market

#### Rail Transport

#### Petroleum

Line haul rail transport would result in an estimated annual fuel demand of approximately 512,662 gallons of diesel. Fuel would be provided by current and future commercial vendors. The project does not propose uses or operations that would inherently result in excessive and wasteful activities, nor associated excess and wasteful rail energy consumption. Finally, enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of rail to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future diesel fuel demands. As supported by the preceding discussions, project rail transportation energy consumption would not be considered inefficient, wasteful, or unnecessary and impacts would be less than significant.

## Port of Stockton

### Construction

#### Electricity

Temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, would be provided by PG&E. The electricity used for such activities would be temporary, would be substantially less than that required for project operation, would have a negligible contribution to the project's overall energy consumption, and would not be wasteful, inefficient, or unnecessary. Impacts would be less than significant.

#### Natural Gas

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below. Any minor amounts of natural gas that may be consumed as a result of project construction would be temporary and negligible and would not have an adverse effect; therefore, impacts would be less than significant.

#### Petroleum

The estimated diesel fuel usage from construction equipment, haul trucks, vendor trucks, and worker vehicles is shown in Table 3.5-7. See Appendix B7, Energy Calculations, for details.

**Table 3.5-7. Total Port of Stockton Construction Petroleum Demand**

| Year | Off-Road Equipment (Diesel) | Haul Trucks (Diesel) | Vendor Trucks (Diesel) | On-Site Trucks (Diesel) | Worker Vehicles (Gasoline) | Total |
|---|---|---|---|---|---|---|
| | Gallons | | | | | |
| 2024 | 11,792 | 1,602 | 340 | 0 | 511 | 14,244 |
| 2025 | 172,780 | 0 | 4,719 | 0 | 4,643 | 182,142 |
| | | | | | Total | 196,386 |

**Source:** Appendix B7.

In summary, construction of the project is conservatively anticipated to consume approximately 196,386 gallons of petroleum in total. As with Sustainable Forest Management Projects, the project would be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. Project construction would represent a "single-event" petroleum demand and would not require on-going or permanent commitment of petroleum resources for this purpose. Overall, the project would not involve characteristics that require equipment that would be less energy-efficient than at comparable construction sites in the region or state. Therefore, impacts would be less than significant.

### Operation

#### Electricity

The operational phase would require electricity for multiple purposes, including building heating and cooling, lighting, electronics, electric pumps, etc. CalEEMod was used to estimate project emissions from electricity uses (see Appendix B7). Electricity consumption was provided by the Applicant. Table 3.5-8 shows the estimated annual operational electricity demand.

The Port of Stockton is anticipated to consume approximately 12,060,000 kWh of electricity per year. The project proposes conventional industrial uses reflecting contemporary energy efficient/energy conserving designs and operational programs. Uses proposed by the project are not abnormally energy intensive as compared with other industrial or port uses. Finally, the project would be required to comply with the applicable Title 24 standards applicable at that time, which would further ensure that the project energy demands would not be inefficient, wasteful, or unnecessary and impacts would be less than significant.

#### Natural Gas

Natural gas is not anticipated to be required during operation at the Port of Stockton. Fuels used for operation would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below.

#### Petroleum

During operations, fuel consumption resulting from the Port of Stockton would involve the use of motor vehicles traveling to and from the project site, diesel-fueled off-road equipment, stationary equipment, and the on-site switcher. Fuel demand estimates for the Lassen Facility are provided in Table 3.5-8.

**Table 3.5-8. Port of Stockton Annual Petroleum Demand**

| | Employee Vehicles (gasoline) | Vendor Trucks (diesel)[a] | Off-Road Equipment (diesel) | Stationary Equipment (diesel) | Switcher (diesel) | Total |
|---|---|---|---|---|---|---|
| Project | Gallons | | | | | |
| Port of Stockton | 5,357 | 1,152 | 13,916 | 511 | 6,026 | **26,961** |

**Source:** Appendix B7.
**Notes**:
[a] As described in Section 3.2, Air Quality, within this EIR, the assumption of the number of vendor trucks traveling to and from the Port of Stockton are a conservative estimate.

As summarized in Table 3.5-8, the project would result in an estimated annual fuel demand of approximately 26,961 gallons. Fuel would be provided by current and future commercial vendors. The project does not propose uses or operations that would inherently result in excessive and wasteful activities, nor associated excess and wasteful vehicle energy consumption. Finally, enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. Location of the project proximate to regional and local railroad systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands by utilizing rail instead of heavy-duty trucks. As supported by the preceding discussions,

project transportation energy consumption would not be considered inefficient, wasteful, or unnecessary and impacts would be less than significant.

### Ship Transport

#### Electricity

For the reasons discussed above, it is not assumed that there will be electricity consumption as part of ship transport, and electricity consumption would therefore not be considered inefficient, wasteful, or unnecessary and impacts would be less than significant.

#### Petroleum

Ship transport would result in an estimated annual fuel demand of approximately 184,124 gallons of diesel. Fuel would be provided by current and future commercial vendors. The project does not propose uses or operations that would inherently result in excessive and wasteful activities, nor associated excess and wasteful vehicle energy consumption. Finally, enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of ships to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future diesel fuel demands. As supported by the preceding discussions, project ship transportation energy consumption would not be considered inefficient, wasteful, or unnecessary and impacts would be less than significant.

## Local and Regional Energy Supplies and Capacity, and Energy Resources

### Electricity

As discussed in Section 3.5.1.1, PG&E would provide electricity to the Project at the Lassen Facility, the Tuolumne Facility and the Port of Stockton. In 2021, PG&E's total electricity sales were 87,782 GWh, approximately 12% of which were in the industrial sector.

**Construction (All).** During construction at the Lassen Facility, Tuolumne Facility, and Port of Stockton, electricity use would be nominal and would be intermittently consumed during the conveyance of the water used to control fugitive dust, as well as to provide electricity for temporary lighting and other general construction activities. The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease upon completion of construction. When not in use, electrical equipment would be powered off so as to avoid unnecessary energy consumption. The electricity used for project construction activities would be temporary and minimal. The project's minimal construction electricity needs would be within the supply and infrastructure service capabilities of PG&E, and it would not require additional capacity. Furthermore, construction of the project would not impact energy resources.

**Feedstock Acquisition Operation.** No electricity would be used to operate the heavy-duty trucks associated with feedstock acquisition.

**Lassen Facility Operation.** The Lassen site is currently served by electrical power via overhead utility lines. To support project operations, an electrical load of 12 kV would be required. As described in Chapter 3.16, Utilities and Service Systems, the existing infrastructure will require upgrades to accommodate the required electrical load and project will require electrical transmission upgrades to serve the project site. Electrical power will be supplied from an existing substation located on Susanville Road between Highway 299 and Valley Cutoff Road,

approximately 4 miles northeast of the project site. (This substation is presently operated by SVEC, and use of this substation for the proposed project will require a wheeling or similar arrangement between PG&E and SVEC). Existing electrical transmission lines running along the public roads between the substation and the project site would be upgraded to meet the demands of the proposed facility. The proposed transmission upgrades would be approximately 4.5 miles in length and would utilize existing utility poles that run parallel to State Route (SR) 299 and Susanville Road. Some utility poles may be replaced if they are in disrepair and not suitable for repowering.

As noted above, the Lassen Facility is anticipated to consume approximately 142,677,840 kWh of electricity per year. The Lassen Facility would account for approximately 0.1% of PG&E's total projected sales during 2025 for the project's 2025 operational year; therefore, PG&E has supply and capacity for the project.

Tuolumne Facility Operation. The site is currently served by electrical power via overhead utility lines. To support project operations, an electrical load of 12 kV would be required. As described in Chapter 3.16, Utilities and Service Systems, the existing infrastructure will require upgrades to accommodate the required electrical load and project will require electrical transmission upgrades to serve the project site. The existing transmission lines that run along the public roads between the project site and an existing electrical substation, located west of the project site, would be upgraded. The proposed transmission upgrades would be approximately 4.54 miles in length and would utilize existing utility poles adjacent to SR 108 (see Figure 3.16-2, Proposed Transmission Upgrades – Tuolumne Facility). Some utility poles may be replaced if they are in disrepair and not suitable for repowering.

As noted above, the Tuolumne Facility is anticipated to consume approximately 94,807,680 kWh of electricity per year. The Tuolumne Facility would account for less than 0.1% of PG&E's total projected sales during 2025 for the project's 2025 operational year; therefore, PG&E has supply and capacity for the project.

Port of Stockton Operation. The proposed facility would connect to existing electrical infrastructure available to Port tenants. The existing electrical infrastructure at the Port has adequate existing capacity and will not require new or expanded facilities to serve the project's needs.

The Port of Stockton is anticipated to consume approximately 12,060,000 kWh of electricity per year. The Port of Stockton would account for approximately 0.01% of PG&E's total projected sales during 2025 for the project's 2025 operational year; therefore, PG&E has supply and capacity for the project.

Transport to Market Operation. No electricity would be used to operate the trains and ships associated with transport to market, and therefore there is no impact related to electricity arising from this portion of the project.

The project's operation would result in an increase in electricity use at the project site; however, as described in SDF-ENE-1, the project would include photovoltaic (PV) panels on rooftops at the Lassen and Tuolumne facilities. Moreover, it is anticipated that PG&E's existing and planned local and regional electricity capacity and electricity supplies would be sufficient to support the project's electricity demand and would not require additional capacity, as noted above.

Project impacts related to local and regional electricity supplies and need for additional capacity, and electricity resources, would be less than significant.

## Natural Gas

As discussed in Section 3.5.1.1, PG&E would be the utility to provide natural gas to the Lassen Facility, the Tuolumne Facility, and the Port of Stockton.

**Construction (All).** Construction activities, including the construction of new buildings, facilities, and associated infrastructure at the Lassen Facility, Tuolumne Facility, and Port of Stockton, typically do not involve the consumption of natural gas. Accordingly, natural gas would not be expected to be supplied to support project construction activities; thus, there would be no natural gas demand estimated to be generated by project construction.

**Feedstock Acquisition Operation.** No natural gas would be used to operate the heavy-duty trucks associated with feedstock acquisition.

**Lassen Facility Operation.** Operation of the Lassen Facility would not require natural gas consumption at the project site.

**Tuolumne Facility Operation.** Operation of the Tuolumne Facility would not require natural gas consumption at the project site.

**Port of Stockton Operation.** Operation of the Port of Stockton would not require natural gas consumption at the project site.

**Transport to Market Operation.** No natural gas would be used to operate the trains and ships associated with transport to market.

Accordingly, potential project impacts related to local and regional natural gas supplies and need for additional capacity, and natural gas resources, would be less than significant.

## Petroleum

In 2024, annual on-road fuel usage in California was estimated to be approximately 17 billion gallons, which is similar to 2025 (approximately 17 billion gallons). In 2024, which is the earliest construction of the project could occur, annual off-road fuel usage for in California for construction equipment was estimated to be approximately 218 million gallons. In 2025, which is the earliest operation of the project could occur, annual fuel usage for off-road equipment in the forestry sector in California is estimated to be approximately 29 million gallons. In 2025, annual fuel usage for off-road equipment in the industrial sector in California is estimated to be approximately 83 million gallons.

**Construction (All).** The project would consume petroleum during construction of the Lassen Facility, Tuolumne Facility, and Port of Stockton associated with use of offroad equipment and vehicles (worker vehicles, delivery trucks, and haul trucks). As energy consumption during project construction activities would be short-term, the project would not substantially affect regional energy consumption during the construction period and would not require additional capacity.

**Feedstock Acquisition Operation.** The project would consume petroleum during operation of sustainable forest management projects or acquisition of feedstock. Petroleum use would be associated with offroad equipment and vehicles (worker vehicles, water trucks, and logging/haul trucks). Overall, in the Lassen feedstock area, the project

would consume 89,527 gallons of gasoline and 2,577,773 gallons of diesel per year, or 2,667,300 gallons of petroleum-based fuels per year. Overall, in the Tuolumne feedstock area, the project would consume 26,633 gallons of gasoline and 1,107,023 gallons of diesel per year, or 1,133,656 gallons of petroleum-based fuels per year.

**Lassen Facility Operation.** Project operation would consume 82,342 gallons of gasoline, 60,395 gallons of diesel, and 1,866,645 gallons of propane per year, or 2,009,382 gallons of petroleum-based fuels per year. The project would include EV parking and charging stations in accordance with applicable CALGreen requirements to encourage reduction in transportation fuel usage.

**Tuolumne Facility Operation.** Project operation would consume a total of 85,760 gallons of gasoline, 62,222 gallons of diesel, and 1,253,267 gallons of propane per year, or a total of 1,401,249 gallons of petroleum-based fuels per year. The project would include EV parking and charging stations in accordance with applicable CALGreen requirements to encourage reduction in transportation fuel usage.

**Port of Stockton Operation.** Project operation would consume a total of 3,537 gallons of gasoline and 15,578 gallons of diesel per year, or a total of 19,115 gallons of petroleum-based fuels per year.

**Transport to Market Operation.** Project operation would consume a total of 520,406 gallons of diesel during line-haul rail transport, and 184,124 gallons of diesel per year during ship transport.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT.

The project does not propose uses or operations that would inherently result in excessive and wasteful activities, nor associated excess and wasteful off-road equipment or stationary source energy consumption. The Petroleum usage for the project's operational off-road equipment and stationary sources would not likely have a significant effect on local and regional energy supplies or require additional capacity. Impacts would be less than significant.

As supported by the preceding discussions, project transportation energy consumption would not be considered inefficient, wasteful, or unnecessary and impacts would be less than significant.

## Peak and Base Period Demands for Electricity and Other Forms of Energy

As discussed above, the electricity used for project construction activities would be temporary and minimal and would be within the supply and infrastructure service capabilities of PG&E. Furthermore, it was assumed that there would be no electricity consumption during feedstock acquisition, rail, or ship transportation.

Operation of the Lassen Facility, Tuolumne Facility, and the Port of Stockton would result in an increase in electricity demand. PG&E forecasts that its total electricity sales in 2025 will be 97,049 GWh of electricity (CEC 2022b). Based on the Lassen Facility's estimated electrical consumption of 142,677,840 kWh/year, the Lassen Facility would account for approximately 0.1% of PG&E's total projected sales during 2025 for the project's 2025 operational year. Based on the Tuolumne Facility's estimated electrical consumption of 94,807,680 kWh/year, the Tuolumne Facility would account for less than 0.1% of PG&E's total projected sales during 2025 for the project's 2025 operational year. Based on the Port of Stockton's estimated electrical consumption of 12,060,000 kWh/year, the Port of Stockton would account for approximately 0.01% of PG&E's total projected sales during 2025 for the

project's 2025 operational year. Overall, the project would account for approximately 0.2% of PG&E's total projected sales during 2025 for the project's 2025 operational year.

The CEC forecasts to 2035, which estimates total electricity sales of 119,038 GWh. As such, if the project would be built out in a future year, demand is anticipated to be accommodated within the PG&E load forecasting, which generally increases over time.

Based on CEC estimates in 2022, the peak demand for the PG&E planning area was 22,379 MW (CEC 2022c). Under peak conditions, the Lassen Facility would have a daily peak load of 94 kW.[3] In comparison to the PG&E planning area peak load in 2022, the Lassen Facility would represent approximately 0.0004% of the PG&E planning area peak load conditions. Under peak conditions, the Tuolumne Facility would have a daily peak load of 32 kW. In comparison to the PG&E planning area peak load in 2022, the Tuolumne Facility would represent approximately 0.0003% of the PG&E planning area peak load conditions. Under peak conditions, the Port of Stockton would have a daily peak load of 15 kW. In comparison to the PG&E planning area peak load in 2022, the Tuolumne Facility would represent approximately 0.00006% of the PG&E planning area peak load conditions. In addition, PG&E's annual growth projection in peak demand of the electrical power grid would be sufficient to account for future electrical demand by the Project.

Natural gas would not be supplied to support project construction activities or operational activities, and there would be no natural gas demand generated by the project.

As consumption of fuel for transportation and off-road equipment during Project construction activities would be short-term and relatively negligible,[4] the project would not likely affect regional energy consumption in years during the construction period and would not require additional capacity.

Overall, project operation would consume a total of 292,561 gallons of gasoline, 4,588,563 gallons of diesel per year, and 3,119,912 gallons of propane per year, or a total of 7,971,037 gallons of petroleum-based fuels per year for transportation, off-road equipment, stationary equipment, and rail switchers.[5] The geographic context for impacts on petroleum is statewide, and therefore, petroleum-based fuel usage caused by the project would not likely have a significant effect on local and regional energy supplies or require additional capacity. Impacts would be less than significant.

Electricity, natural gas, and transportation energy supplies would be sufficient to serve the project's peak energy consumptions as discussed above, and impacts would be less than significant.

### Locational Efficiency, Transportation Energy Use Requirements, and Overall Use of Efficient Transportation Alternatives

During operation of the project, the majority of fuel consumption would involve the use of motor vehicles traveling to and from the Project site. Petroleum fuel consumption associated with the proposed Project is a function of the

[3] Load factor calculations to estimate peak load is based on California Public Utilities Commission, Report: System Efficiency of California's Electric Grid, p.11, Figure 6, May 22, 2017.

[4] For context, within California, transportation fuel usage during total Project construction activities over less than 2 years would represent approximately 0.0001% of the 2024 annual on-road energy consumption (17 billion gallons) and 0.01% percent of the 2024 annual off-road diesel energy consumption for construction equipment (218 million gallons).

[5] For context, within California, the transportation-related fuel usage for total Project operation would represent approximately 0.01% percent of the annual on-road petroleum (17 billion gallons) and approximately 5% of the 2025 annual off-road diesel-related energy consumption for forestry and industrial sectors (112 million gallons).

VMT as a result of proposed Project operation. As discussed in Chapters 3.2, Air Quality; 3.7, Greenhouse Gas Emissions, and 3.14, Transportation, the analysis has estimated the number of trips associated with the project, which would result in additional fuel consumption and energy use associated with transportation. Overall, operation of the project would result in 18,298,799 VMT annually when combining the transportation for feedstock activities, and operation at the Lassen Facility, the Tuolumne Facility, and the Port of Stockton. Annual mobile-source fuel consumption are provided in Tables 3.5-1 through 3.5-8.

The three project sites were primarily selected for their locational efficiency. The Lassen and Tuolumne sites are situated near major forests, which serves as the primary source of feedstock. This proximity minimizes the transportation distance for logging/haul trucks as much as possible. Furthermore, the Burlington Northern Santa Fe Railroad forms the eastern boundary of the Lassen site, and the Sierra Northern Railroad borders the western boundary of the Tuolumne site. Being adjacent to the main railroad routes provides a direct and efficient route for transporting the finished pellets to the Port of Stockton for international shipping. While the project's VMT is high due to the project's scale, the use of rail transport significantly mitigates this by offering a more sustainable and cost-effective alternative to road transport. Overall, the site's location leverages natural resources and existing transportation infrastructure to optimize operational transportation efficiency.

Overall, the project would minimize transportation fuel consumption to the extent feasible and through the reduction of VMT. The project would optimize its locational efficiency and use efficient transportation alternatives, such as rail and ship transport. Project impacts would be less than significant.

## Renewable Energy Potential

As part of the project's design process, the project applicant considered how the project could increase its reliance on renewable energy sources to meet its energy demand. Renewable energy sources that were considered for their potential to be used to power the project, consistent with CEC's definition of eligible renewables, include biomass, geothermal, solar, wind, and small hydroelectric facilities.

Regarding wind power, a general rule of thumb is to install a wind turbine on a tower with the bottom of the rotor blades at least 30 feet above anything within a 500-foot horizontal radius and to be sited upwind of buildings and trees (APA 2011; NREL 2015), which due to the nature of the Lassen Facility, Tuolumne Facility, and Port of Stockton sites and surrounding land uses, wind turbines are generally not feasible because they would represent an incompatible use.

**Lassen Facility.** Given the project site's location in rural area and the nature of the project (i.e., wood pellet processing facility), there are considerable site constraints, including limited land availability, incompatibility with on-site and surrounding land uses for large-scale power generation facilities, unknown interconnection feasibility, compatibility with utility provider systems, and no known water or geothermal resources to harness, that would eliminate the potential for geothermal and hydroelectric renewable energy to be installed on site. Regarding wind power, the Lassen site would not be in an optimal location for wind power due to the low average wind speed and it being designated as not a wind resource area (EIA 2024, CEC [ND], CEC 2023). The project also uses unmarketable renewable biomass as fuel during processing (i.e., drying). The project includes solar power as part of SDF-ENE-1, which would be provided by solar PV panels installed on the air-conditioned office buildings as required by the current California Building Code. As solar power technology improves in the future and regulations require additional solar, it is reasonable to assume that additional solar power may be provided to the project site. The project would comply with the current energy code requirements regarding battery energy storage, which are

based on solar PV requirements. In addition, the project does not preclude installation of additional battery storage in the future.

**Tuolumne Facility.** Given the project site's location in rural area and the nature of the project (i.e., wood pellet processing facility), there are considerable site constraints, including limited land availability, incompatibility with on-site and surrounding land uses for large-scale power generation facilities, unknown interconnection feasibility, compatibility with utility provider systems, and no known water or geothermal resources to harness, that would eliminate the potential for geothermal, and hydroelectric renewable energy to be installed on site. Regarding wind power, the Tuolumne site would not be in an optimal location for wind power due to the low average wind speed and it being designated as not a wind resource area (EIA 2024, CEC [ND], CEC 2023). The project also uses unmarketable renewable biomass as fuel during processing (i.e., drying). The project includes solar power as part of SDF-ENE-1, which would be provided by solar PV panels installed on the air-conditioned office buildings as required by the current California Building Code. As solar power technology improves in the future and regulations require additional solar, it is reasonable to assume that additional solar power may be provided to the project site. The project would comply with the current energy code requirements regarding battery energy storage, which are based on solar PV requirements. In addition, the project does not preclude installation of additional battery storage in the future.

**Port of Stockton.** Given the project site's location in an urbanized, developed area and the nature of the project (i.e., pellet storage and loadout facility), there are considerable site constraints, including limited land availability, incompatibility with on-site and surrounding land uses for large-scale power generation facilities, unknown interconnection feasibility, compatibility with utility provider systems, and no known water or geothermal resources to harness, that would eliminate the potential for biomass, geothermal, and hydroelectric renewable energy to be installed on site. Regarding wind power, the Stockton site would not be in an optimal location for wind power due to the low average wind speed and it being designated as not a wind resource area (EIA 2024, CEC [ND], CEC 2023). The project does not include solar or battery storage at the Port of Stockton due to site constraints. Nonetheless, in the event of changed circumstances, the project does not preclude installation of solar or battery storage in the future.

### Summary

In summary, the project includes the on-site renewable energy source (i.e., solar and biomass) that was determined to be feasible for the appropriate sites and does not include the on-site renewable energy sources that were determined to be infeasible.

### Conclusion

As demonstrated through the above analysis, the project would result in a **less-than-significant** environmental impact related to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Impact ENE-2 The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

### Title 24

The project would be subject to and would comply with, at a minimum, the California Building Energy Efficiency Standards (24 CCR Part 6). Part 6 of Title 24 establishes energy efficiency standards for non-residential buildings

constructed in California in order to reduce energy demand and consumption. As such, the project would comply with the California code requirements for energy efficiency.

Part 11 of Title 24 sets forth voluntary and mandatory energy measures that are applicable to the project under CALGreen. CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, high-rise residential, state-owned buildings, schools, and hospitals, as well as certain residential and non-residential additions and alterations. On this basis, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This impact would be less than significant.

### CARB 2022 Scoping Plan

The project would support energy-related strategies of the state including the 2022 CARB Scoping Plan by supporting all electric development. California's RPS program outlines the pathway for the state's electricity grid to transition to renewable energy; however, statewide RPS requirements do not apply to individual development projects like the project. Nonetheless, as PG&E meets the RPS milestones, the project would benefit from cleaner electricity provided by PG&E.

### Lassen County General Plan

The Lassen County General Plan includes three applicable policies that aim to increase energy efficiency and productivity to achieve the county's goal of conserving its energy resources. The project would not conflict with this Goal N-17 or the applicable policies therein. Policies NR61 through NR63 state the County's emphasis on facilitating energy-efficient projects that manage resources with acceptable levels of environmental impact. The project explores an efficient, alternative energy resource production pathway and would not conflict with the General Plan's goal of conserving the county's resources.

### Tuolumne County General Plan

The Tuolumne County General Plan includes policies and overarching goals intended to reduce countywide energy consumption. The project would not conflict with any of the energy reduction goals or policies determined to be relevant to the project's scope. The project would directly support Policy 8.D.1, which allows for agricultural facilities that convert by-products to other uses like alternative energy generation, by creating the wood pellet production pathway. Similarly, the project would support Policies 6.E.5 and 18.A.6, which encourage the development oof solar power or other alternative energy-producing facilities and the use of 'other innovative energy sources', respectively. The project, through implementation of SDF-ENE-1 would be required to incorporate solar power generation at the Tuolumne Facility, which would further support Policy 18.A.6; SDF-ENE-1 is described in greater detail in Section 3.5.4.4. Overall, the project aligns with the goals and policies within the General Plan.

### Tuolumne County CAP

Tuolumne County's CAP aims to build climate resilience, reduce local GHG emissions, and to preserve the county's natural resources; the CAP includes measures that support an increase in energy efficiency in buildings, resiliency within the transit system and electrical grid, and other sustainable features. The project would specifically support Strategy 4 and Measure 4.2, which aims to reduce electricity grid demand, through the implementation of SDF-ENE-1, which is described further in Section 3.5.4.4. Through the production of an alternative fuel source, as well

as its incorporation of solar power generation at the Tuolumne Facility, the project promotes energy efficiency and climate resiliency and would not conflict with any of the applicable measures of the CAP.

### City of Stockton General Plan

The project supports the City of Stockton's General Plan's goals of protecting resources and promoting sustainable development. Specifically, the project supports Policy LU-5.4, which requires energy conservation and efficiency, by producing an alternative energy fuel source. Overall, the project would not conflict with the relevant goals or policies within the General Plan.

### City of Stockton CAP

The City of Stockton CAP primarily addresses GHG reduction measures and strategies; however, GHG reduction can be viewed as a co-benefit of energy reduction action because a decrease in energy consumption directly decreases the demand for the combustion of GHG-emitting fuels. The project would support the GHG reduction goals established in the CAP, such as Energy-1, Green Building Ordinance, and would accordingly support energy efficiency.

### Port of Stockton Clean Air Plan

The Port of Stockton Clean Air Plan establishes strategies for emissions reduction within each of its operational sectors—trucks, cargo, ships, crafts, locomotives—with the goal of net-zero emissions. The project would include activity within the anticipated operations of the Port. The project, therefore, would not conflict with the Port's strategies or path towards zero emissions.

### Conclusion

The project's impact related to the potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency would be **less than significant**.

## 3.5.4.3 Cumulative Impacts

The geographic context for cumulative energy impacts is generally considered to be the service area for the electrical and natural gas utilities, and statewide for petroleum. Potential cumulative impacts on energy would result if the proposed project, in combination with past, present, and future projects, would result in the wasteful or inefficient use of energy. This could result from development that does not incorporate sufficient building energy efficiency features, would not achieve building energy efficiency standards, or would result in the unnecessary use of energy during construction and/or operation.

Impact ENE-1 The project would not result in a cumulatively considerable environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

As analyzed in Section 3.5.4.2, consumption of electricity, natural gas, and petroleum during construction would be temporary in nature, would not be unusual as compared to overall local and regional demand for energy resources, and would not involve characteristics that require equipment that would be less energy-efficient than at comparable construction sites in the region or state.

During operation, electricity consumption, natural gas demand, and petroleum use would increase due to project implementation. However, the analysis in Section 3.5.4.2 determined that the project would be designed to maximize energy performance and would use renewable energy on site as determined to be feasible, as described in SDF-ENE-1. The project would have a minimal effect on local and regional energy supplies and capacities. The project would have a minimal effect on peak and base period demands for electricity and other forms of energy. The project's would also use efficient transportation alternatives. The additional demand for energy resources during project operation would not be wasteful, inefficient, or unnecessary as compared to overall local and regional demand for energy resources. Thus, the project would not result in wasteful, inefficient, or unnecessary consumption of energy during operation of the project.

Cumulative projects would be subject to CEQA and would require an energy analysis related to wasteful, inefficient or unnecessary consumption of energy resources and mitigation, if necessary to avoid wasteful, inefficient or unnecessary consumption of energy resources. Further, like the project, cumulative projects would be subject to state law, including the mandatory energy requirements found in Title 24, Part 6 of the California Energy Code, the California Building Energy Efficiency Standards (Title 24 CCR Part 6) and Part 11, California Green Building Standards (Title 24 CCR Part 6). Like the project, cumulative projects would also be required to demonstrate consistency with the applicable general plan measures related to energy efficiency and resource consumption and other energy-related plans, which would promote renewable energy use and minimize the wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the project's contribution to cumulative impacts would **not be cumulatively considerable**.

Impact ENE-2 The project would not result in a cumulatively considerable impact related to the potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Cumulative projects that could exacerbate the project's impacts include any projects in the region that conflict with an applicable state or local plan for renewable energy or energy efficiency (see Section 3.0.3.2, Cumulative Projects and Scope of Analysis). As described above, the project would be designed to maximize energy performance and would use renewable energy on site as determined to be feasible, including through solar power generated on site. The project would be consistent with the mandatory requirements of state law, including Parts 6 and 11 of Title 24, and would be consistent with applicable general plan measures related to energy efficiency energy use. Furthermore, the project would not conflict with applicable state or local plans for renewable energy or energy efficiency, including the CARB 2022 Scoping Plan, the Lassen County General Plan, the Tuolumne County General Plan and CAP, the City of Stockton General Plan and CAP, and the Port of Stockton Clean Air Plan.

Like the project, cumulative projects would be subject to CEQA and would require an energy analysis, including an analysis of the potential to conflict with plans for renewable energy and energy efficiency, and implementation of control measures and mitigation, if avoid a conflict. Further, like the project, cumulative projects would be subject to state law, including the mandatory energy requirements found in Title 24, Part 6 of the California Energy Code, the California Building Energy Efficiency Standards (Title 24 CCR Part 6) and Part 11, California Green Building Standards (Title 24 CCR Part 6). Like the project, cumulative projects would also be subject to appliable general plan measures related to energy efficiency and resource consumption, which would promote renewable energy use and minimize the wasteful, inefficient, or unnecessary consumption of energy resources. On this basis, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and the project's contribution to cumulative impacts would **not be cumulatively considerable**.

### 3.5.4.4 Mitigation Measures

No mitigation measures are required as impacts would be less than significant.

Furthermore, the project would include EV parking and charging stations in accordance with applicable CALGreen requirements to encourage reduction in transportation fuel usage, and would exceed CALGreen requirements at the Lassen Facility, Tuolumne Facility, and Port of Stockton, per **MM-TRF-4**. EV parking and charging stations would encourage a reduction in transportation fuel usage, thereby reducing energy consumption.

In addition, the project would implement **MM-AQ-4**, which would require educational materials to be provided to encourage workers to carpool or use public transportation for their commutes during feedstock acquisition, and at the Lassen Facility, Tuolumne Facility, and Port of Stockton. Coupled with **MM-TRF-1** and **MM-TRF-4**, the project would provide employee sponsored vanpool for sustainable forest management projects and at the Lassen Facility. These measures would decrease annual VMT associated with project operation, thereby encouraging a reduction in transportation fuel usage.

### 3.5.4.5 Significance After Mitigation

Impact ENE-1 The project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

The project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. The project would result in a **less than significant** energy impact and no mitigation is required.

Impact ENE-2 The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The project would result in a **less than significant** energy impact and no mitigation is required.

## 3.5.5 Additional Energy Considerations

#### Purpose

CEQA is intended to inform government decisionmakers and the public about the potential environmental effects of proposed activities and to prevent significant, avoidable environmental damage. An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure. (CEQA Guidelines, § 15151).

As discussed in greater detail in Chapters 3.2, Air Quality, and 3.7, Greenhouse Gas Emissions, while analysis of the full wood pellet lifecycle, including those aspects occurring outside of California, is highly speculative, some evaluation of a product's lifecycle "may well be a useful guide for the decision maker when a project entails

substantial production or consumption of the product." As such, this section will provide such analysis as is reasonably feasible regarding the energy implications of the larger wood pellet lifecycle, in an effort to show good-faith analysis and comply with CEQA's information disclosure requirements. Specifically, this section will consider compare the total energy consumed in production of wood pellets by the project to the total energy produced by those wood pellets when used for fuel.

### Total Energy Consumed Compared to Energy Produced

The purpose of the project is to reduce the risks of catastrophic wildfire, and to help restore California forests, watersheds, and ecosystems to a more natural and resilient condition. The project processes excess biomass into a pelletized fuel source for renewable energy generation as a mechanism to support the project. Because the project creates a renewable energy source, a comparison of the energy consumed to produce 1 million metric tons of pellets, compared to the energy produced by 1 million metric tons of pellets, is provided below.

The project would consume energy through a variety of activities, primarily from transportation and industrial processing and manufacturing, and in four fuel types—diesel, gasoline, propane, and electricity. In sum, project construction (amortized over the project lifetime) and operations, including feedstock acquisition, activity at the Lassen Facility, Tuolumne Facility, Port of Stockton, as well as rail transport in California, and ship transport within California and outside of California, would altogether constitute approximately 4.4 million gigajoules (GJ)[6] of energy consumption annually; this figure represents the amount of energy consumed to produce 1 million metric tons of pellets per year. The energy produced by 1 million metric tons of wood pellets per year as proposed by the project, on the other hand, is estimated to be 15.4 million GJ per year[7], for a net benefit of approximately 11 million G per year. Details of these energy calculations are provided Appendix B7.

While the production of pellets may be energy-intensive process, the comparison above elicits a comparative benefit in the amount of energy that the pellets provide. These potential energy benefits are identified here for informational purposes only, and have not been taken into account for purposes of the energy impact significance determinations in this chapter.

## 3.5.6 References

APA (American Planning Association). 2011. *Planning for Wind Energy*. https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/research/wind/pdf/pas566.pdf.

CARB (California Air Resources Board). 2012. California Air Resources Board Approves Advanced Clean Car Rules. January 27, 2012. https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about.

6 The total energy use associated with the project's components within California is approximately 1.9 million GJ/year. The energy use associated with the ship transportation beyond California's jurisdiction is approximately 2.5 million GJ/year. The energy use associated with ship travel outside of California was estimated based on the GHG emissions calculated in Section 3.7 of this EIR, similar to the methodology for estimating ship travel within California. Therefore, the total energy use outside of California is approximately 4.4 million GJ/year.

7 The amount of energy produced by wood pellets is based on the industry standard assumption that 17 GJ is produced per U.S. ton of wood pellets (which equates to 15.4 GJ per metric ton). The 17 GJ per U.S. ton estimate is conservative for this calculation because based on project-specific fiber testing, the wood pellets are anticipated to generate greater energy content closer to 18 GJ per U.S. ton (Appendix B7).

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# 3.6 Geology and Soils

This section of the Draft EIR evaluates potential impacts regarding geology and soils associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing geology and soils conditions at feedstock source locations (Sustainable Forest Management Projects); proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility); and the export terminal in Stockton, California (Port of Stockton), and then evaluates the potential for project-related geology and soils impacts, Comment letters contained scoping comments that pertained at least in part to geology and soils in response to the Notice of Preparation (NOP) (see Appendix A). These comments related to potential erosion and associated water quality impacts related to "increased mechanical removals from forests, logging activity, and road transport." In addition, a comment letter indicated that timber operations and road networks can "destabilize landslides and trigger mass wasting events."

The following environmental setting and impact evaluation is based in part on the following project-specific technical reports, included as appendices to this EIR:

1. Appendix E1 - Geotechnical Engineering Report, Golden State Natural Resources Lassen County, prepared by Wallace Kuhl & Associates, September 2022
2. Appendix E2 – Supplemental Geotechnical Investigation Services, Golden State Natural Resources Lassen County Percolation Test, prepared by Universal Engineering Sciences November 2023_
3. Appendix E3 - Geotechnical Engineering Report, Pellet Processing Facility (Tuolumne County), prepared by Wallace Kuhl & Associates, June 2021

## 3.6.1 Environmental Setting

### 3.6.1.1 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities.

#### Lassen Facility Feedstock Area

A close association exists between physiographic areas and geology in many parts of California, and in general, large contiguous areas of the state have distinctive features not shared by the adjacent terrain. These are physiographic-geologic areas have been designated "geomorphic provinces" by the California Geological Survey (CGS). Geology and topography are closely linked by relationships between rock uplift rates, rock erodibility, and landscape form over geologic time. Rocks, which are the parent material for soil, also affect soil characteristics through variability in infiltration capacity and soil hydraulic conductivity, due to differing proportions of sand, silt, and clay.

The portion of the Working Area described in Section 2.4 covers parts of several geomorphic provinces of northern California, southern Oregon, and western Nevada, including the Modoc Plateau, Basin and Range, Cascade Range,

Sierra Nevada, Great Valley, and Klamath Mountains provinces (Figure 3.6-1, Geomorphic Provinces). These large physiographic-geologic areas are based on geology, faults, topographic relief, and climate.

The central portion of this feedstock area is located on the Modoc Plateau, which is a volcanic table land (elevation 4,000 to 6,000 feet above mean sea level [amsl]), consisting of a thick accumulation of lava flows and tuff beds, along with many small volcanic cones. Occasional lakes, marshes, and sluggishly flowing streams meander across the plateau, which has low to moderate topographic relief. The Modoc Plateau, which is cut by many north-south faults, is bound by the Cascade Range on the west and the Basin and Range on the east and south (CGS 2002a).

The west central portion of this feedstock area is located in the Cascade Range, a chain of volcanic cones that extend through Washington and Oregon into California. This range is dominated by Mount Shasta, a glacier-mantled volcanic cone, rising 14,162 feet amsl. The southern termination of the Cascade Range is Lassen Peak, which last erupted in the early 1900s. The Cascade Range is transected by deep canyons of the Pit River, which flow through the range between these two major volcanic cones, after winding across interior Modoc Plateau on its way to the Sacramento River (CGS 2002a).

The western portion of this feedstock area is located within the Klamath Mountains, which consist of rugged topography, with prominent peaks and ridges reaching 6,000 to 8,000 feet amsl. In the western Klamath Mountains, an irregular drainage is incised into an uplifted plateau called the Klamath Peneplain. The Klamath River follows a circuitous course from the Cascade Range through the Klamath Mountains. This geomorphic province is considered to be a northern extension of the Sierra Nevada (CGS 2002a).

The eastern portion of this feedstock area is located within the Basin and Range geomorphic province, which is the western-most part of the Great Basin, an area characterized by high topographic relief and interior drainage, with no outlet to an ocean. Drainage occurs toward lakes and playas. The topography of this region was created by horst and graben structures (i.e., subparallel, fault-bounded ranges separated by down-dropped basins) (CGS 2002a).

The southern portion of this feedstock area is located in the Sierra Nevada, which is a tilted fault block nearly 400 miles long. The eastern face of this mountain range is a high, rugged scarp, which contrasts with the gentle western slope (about 2 degrees) that disappears under sediments of the Great Valley to the west. Deep river canyons are cut into the western slope. The upper portions of these river canyons, especially in massive granites of the higher Sierra, are modified by glacial sculpturing, forming scenic features such as Yosemite Valley. The high crest of the Sierra Nevada culminates in Mount Whitney, with an elevation of 14,495 feet amsl near the eastern scarp. The northern Sierra Nevada boundary is marked where bedrock disappears under the Cenozoic volcanic cover of the Cascade Range (CGS 2002a).

The southwestern portion of this feedstock area is located in the Great Valley, which is a nearly flat alluvial plain about 50 miles wide and 400 miles long, in the central part of California. The northern part is comprised of the Sacramento Valley, which is drained by the Sacramento River, and the southern part is comprised of the San Joaquin Valley, which is drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor (CGS 2002a).

### Tuolumne Facility Feedstock Area

The portion of the Working Area described in Section 2.4 located near the Tuolumne Facility covers parts of the Sierra Nevada, Basin and Range, and Great Valley geomorphic provinces (Figure 3.6-1). The central and eastern

portions of this feedstock area are located in the Sierra Nevada, as described above for the Lassen Facility Feedstock Area. The western portion of this feedstock area is located in the Great Valley geomorphic province, as described above, and the northeastern portion of the feedstock area is located in the Basin and Range, as described above.

### 3.6.1.2 Northern California (Lassen Facility) Site

#### Topography and Geologic Formations

The project site is located on relatively flat to gently sloping topography, with the northern portion a few feet higher and gently sloping to the south (Appendix E1 – Lassen Geotechnical Report). Based on regional geologic mapping (USGS 2021a; California Division of Mines 1958), the project site is underlain by Quaternary alluvium/lake deposits of the Pit River Valley. These deposits typically consist of relatively unconsolidated sand, silt, clay, and gravel.

Based on eight soil borings, drilled to depths ranging from 10 to 21.5 feet below ground surface, the upper 4 to 8 feet consists of very stiff to hard, variably cemented, lean clay and fat clay. Beneath the clays are a layer of medium to very dense, silty sand with fine gravel, to a depth of 19 to 20 feet, which are in turn underlain by stiff to very stiff, lean clay (Appendix E1).

#### Soils

Surficial topsoil at the project site consists primarily of Pit silty clay on 0% to 2% slopes. More specifically, this soil type consists of silty clay, clay, silty clay loam, and silt loam, to a depth of 5 feet. These soils are poorly drained, with medium runoff. These soils are frequently flooded. Topsoil in the southwest corner of the site consists of Cupvar silty clay on 0% to 2% slopes. The upper 21 inches of soil consists of silty clay, which is underlain by a 4-inch thick cemented soil layer. The cemented layer is underlain by fine sandy loam to a depth of 5 feet. These soils are moderately well drained, and the runoff potential is medium. The cemented layer has a very low capacity to transmit water (USDA 2021). Based on a percolation testing completed at two on-site locations, shallow on-site soils consist of loose, organic sandy clay in the upper 1.0 to 1.5 feet, underlain by very stiff to hard, fat clay to a depth of 3 feet (Appendix E2 – Lassen Percolation Testing).

#### Seismicity

Historical earthquakes in Lassen County have generally ranged from magnitude 4.0 to 5.9, resulting in strong ground shaking, property damage, and injuries. From 1934 to 1971, two earthquakes of magnitude 5.0 to 5.9 occurred near Honey Lake and three earthquakes of magnitude 5.0 to 5.9 occurred between Doyle and Herlong (Lassen County 2020). These earthquakes were all in excess of 75 miles southeast of the Lassen Facility. In addition, at least two damaging earthquakes, with magnitudes in excess of 5.0, occurred north of Susanville, approximately 50 miles southeast of the project site (CDMG 2000). An earthquake hazard map published by the U.S. Geological Survey (USGS) indicates the relative earthquake hazard at the project site is moderate. This rating is based on a greater than 2% chance that peak seismically induced ground accelerations will be exceeded in 50 years (USGS 2018).

#### Faulting

Based on maps by the CGS and USGS, no active faults, including Alquist-Priolo Earthquake Fault Zones, are in proximity to the site. The CGS classifies active faults as those which have demonstrated movement in the past

11,700 years (i.e., Holocene epoch). The nearest Holocene-active fault, the Pittville Fault, is approximately 7 miles west of the project site (Figure 3.6-2, Regional Faulting – Lassen Facility). The USGS classifies this fault as Latest Quaternary (less than 15,000 years), with a well-constrained location. The nearest pre-Holocene (or potentially active) fault and two unnamed faults in the Big Valley area are located approximately 0.75 miles south and 4.0 miles northeast of the site, respectively. The USGS classifies these faults as Undifferentiated Quaternary (past 1.6 million years), with well-constrained locations (CGS 2021a, 2021b; USGS 2021b).

## Liquefaction

Liquefaction is a phenomenon that occurs when loosely consolidated soils lose their load bearing capabilities during ground shaking and flow in a fluid-like manner. The specific soil condition conducive to liquefaction is loose sands and silty sands below the water table and typically within the upper 50 feet of the ground surface. The CGS has prepared Seismic Hazard Maps for select USGS 7.5-Minute topographic quadrangle maps in California. These maps include areas of potential liquefaction and seismically induced landslides. A Seismic Hazards Map has not been prepared for the Bieber quadrangle, which includes the project site.

The project site is underlain by Quaternary alluvium/lake deposits of the Pit River Valley. Based on the USGS 7.5-Minute Bieber quadrangle, a relatively large marshy area is immediately northwest of the site, across State Highway 299. Numerous other small streams, sloughs, and marshy areas are east of the project site. The presence of these sloughs and marshes indicates that shallow groundwater is present in the vicinity of the project. Soil borings drilled on-site in July 2022 encountered groundwater at depths of 7 to 10 feet. Groundwater elevations in a well located approximately 0.5 mile northwest of the site (Well 38N07E32A002M) has fluctuated between depths of 1 to 12 feet, from 1959 to 2021 (Appendix E1). In addition, a groundwater well located approximately 2,000 feet west of the site (Well WCR2017-003484), had a static water depth of 25 feet in June 2017. The well is only 88 feet deep and has a yield of 50 gallons per minute (DWR 2021), indicating this well is screened at shallow depths (i.e., not a deep well). Based on the shallow groundwater and alluvial soils, the potential exists for liquefaction to occur at the site.

## Landslides

Landslides generally occur on steep slopes that have been undercut by erosion or on slopes where the bedding planes of the bedrock are inclined down the slope. The topography of the project site is relatively flat to gently sloping. As a result, landslide hazards are not present on the site.

## Subsidence

Land subsidence is the gradual sinking or settling of an area as a result of human activity, including pumping water, oil, or gas from underground reservoirs; collapse of underground mines; drainage of wetlands; and soil compaction. The site is not in an area of known subsidence due to groundwater pumping, peat loss, or oil extraction (USGS 2021c).

## Expansive Soils

Expansive soils are those characterized as having a high shrink-swell potential, associated with a high percentage of clay content. The change in volume exerts stress on buildings and other loads placed on these soils. Expansive soils are common throughout California and can cause damage to foundations and slabs unless properly treated during construction. Grading, site preparations, and backfill operations associated with subsurface structures can

often eliminate the potential for expansion. Based on the soil survey for the project area, surficial soils consist primarily of Pit silty clay (USDA 2021). Laboratory testing on near-surface soil samples indicated the soils have a medium to high expansion potential (Appendix E1).

#### Paleontological Resources

The Lassen Facility is located within the Modoc Plateau Geomorphic Province, as described above (CGS 2002a). According to surficial geological mapping by Gay and Aune (California Division of Mines 1958) at a 1:250,000 scale and the geological time scale of Cohen et al. (2022), the project area is underlain by Quaternary (late Pleistocene to Holocene) (< 129,000 years ago) lake deposits (map unit Ql). Quaternary lake deposits are typically fine-grained deposits consisting of unconsolidated sands and silts.

Dudek requested a paleontological records search from the Museum of Paleontology at the University of California, Berkeley (UCMP) on January 30, 2023 and the results were received on February 2, 2023. The UCMP reported no fossil localities from within the project site; however, they have one locality, 11 miles southwest of the project site, from similar sediments that likely underlie the project site on the surface and at depth. Fossil locality, UCMPV (Vertebrate) 3317 produced a complete *Bison latifrons* skull (Museum of Paleontology at the University of California, Berkeley 2023).

### 3.6.1.3 Central Sierra Nevada (Tuolumne Facility) Site

#### Tuolumne Facility

##### Topography and Geologic Formations

The Tuolumne Facility project site is located on gently to moderately sloping topography. The topography rises about 10 to 15 feet from the center of the facility to the northern property line and rises about 8 to 10 feet from the center of the facility to the eastern perimeter. In general, the eastern half to two-thirds of the site appears to have been cut to existing grade, while the remainder was raised with fill. Fill embankments ranging from about 1 to 10 feet high are present along the north, south, and west perimeters of the paved portion of the site. A cut slope ranging in height from about 1 to 10 feet is located along the eastern perimeter of the site. The perimeter of the site slopes down and away from the perimeter of the towards La Grange Road and two ponds located to the north. The detention pond appears to have been excavated into the existing grade, with the soil loosely packed on three sides of the basin (Appendix E3 – Tuolumne Geotechnical Report).

The project site is underlain by metavolcanic rock of the Copper Hill Volcanics (commonly referred to as greenstone) and serpentinized ultramafic rock. The upper 1 to 3 feet of greenstone in the project area tends to be highly weathered and fractured, quickly decreasing in weathering with depth and increasing in resistance and strength. Twelve 3- to 8-foot deep test pits excavated on the site encountered: 1) 2.0 to 5.5 feet of artificial fill underlain by 2) low plastic, sandy clay and highly plastic, sandy silt residuum that transitioned into 3) highly- to completely-weathered bedrock, with the consistency of hard sandy silt or dense silty sand, with angular gravel and cobble sized bedrock fragments, and 4) moderately weathered, friable to weak bedrock (Appendix E3).

##### Soils

Surficial topsoil at the project site consists primarily of Bonanza-Loafercreek complex, on 3% to 15% slopes. This soil type, which is residuum weathered from metavolcanics, consists primarily of loam and gravelly loam to a depth

of 2 feet, underlain by bedrock. These soils are well-drained and form on low hills. The southern portion of the site is underlain by Copperopolis-Whiterock complex, on 2% to 8% rocky slopes. This soil type, which is residuum weathered from slate, consists primarily of loam and gravelly loam to a depth of 1 foot, underlain by bedrock. These soils are somewhat excessively drained and form on low hills (USDA 2021).

### Seismicity

In Tuolumne County, the predicted seismically induced peak ground acceleration for the entire developed portion of the County does not exceed 20% of gravity, which indicates the County is in an area of very low potential for seismically induced ground shaking. Only four historical earthquake events, with recorded magnitudes of 3.5 or greater (Richter magnitude), occurred in or near Tuolumne County in the past century. These earthquakes did not cause substantial damage due to their occurrence in mountainous and remote areas generally devoid of development or human presence (Tuolumne County Community Resources Agency 2018). An earthquake hazard map published by the USGS indicates the relative earthquake hazard at the project site is moderate. This rating is based on a greater than 2% chance that peak seismically induced ground accelerations will be exceeded in 50 years (USGS 2018). Peak ground accelerations are anticipated to be less than 10% gravity (County of Tuolumne 2018).

### Faulting

Geologic hazards in Tuolumne County are associated with potential seismic activity along the Foothills Fault Zone, which is a complex, braided system of individual fault segments that extend for approximately 200 miles, from Mariposa on the south to Lake Almanor on the north (Tuolumne County Community Resources Agency 2018). The northeastern portion of the project site is underlain by a pre-Quaternary (i.e., inactive) segment of the Green Springs Run Fault. A late Quaternary-age (i.e., potentially active) segment of this fault is immediately northwest of the site. Other nearby faults include the late Quaternary Negro Jack Point Fault, approximately 2 miles to the west of the site, the late Quaternary Bowie Flat Fault, approximately 2 miles to the north, and the late Quaternary Rawhide Flat West Fault, approximately 8 miles to the northeast. These faults are all part of the larger Foothills Fault System (Figure 3.6-3, Regional Faulting – Tuolumne Facility). The Negro Jack Point, Bowie Flat, and Rawhide Flat West faults are considered by the County of Tuolumne to be capable (or potentially active) faults, which are faults with tectonic displacement within the last 35,000 years that could produce an earthquake (County of Tuolumne 2018).

Based on maps by the CGS and USGS, no active faults, including Alquist-Priolo Fault Zones, are in proximity to the site. The CGS classifies active faults as those which have demonstrated movement in the past 11,700 years (i.e., Holocene epoch) (CGS 2021a, 2021b). However, based on the County of Tuolumne Multi-Jurisdictional Hazard Mitigation Plan, the New Melones Fault, approximately 8 miles northeast of the site, is considered active. The County classifies active faults as those that have demonstrated movement within the last 100,000 years (Tuolumne County Community Resources Agency 2018). The USGS classifies this fault as Late Quaternary (less than 130,000 years), with a well-constrained location (USGS 2021b).

### Liquefaction

Based on the soil survey for the area (USDA 2021), bedrock is present at a depth of 1 to 2 feet below ground surface. Although seepage was observed in test pits excavated on-site, static groundwater was not present in the pits. In addition, no monitoring wells or groundwater wells were found near the site, based on California Department of Water Resources and State Water Resources Control Board GeoTracker databases. Based on the low seismicity of the area, lack of shallow groundwater, and shallow depth to bedrock, the potential for liquefaction and seismically induced settlement at the project site is low (Appendix E3).

#### Landslides

Landslides generally occur on steep slopes that have been undercut by erosion or on slopes where the bedding planes of the bedrock are inclined down the slope. Tuolumne County is located in a part of the state where landslide susceptibility is low, apart from some isolated areas of moderate-high susceptibility (Tuolumne County Community Resources Agency 2018). The topography of the project site is relatively flat to gently sloping, with very low-lying hills. As a result, landslide hazards are not present on the site.

#### Subsidence

Subsidence as a result of previous underground mining activity is potentially consequential in Tuolumne County (Tuolumne County Community Resources Agency 2018). However, such mining has not occurred beneath the project site. In addition, the site is not in an area of known subsidence due to groundwater pumping, peat loss, or oil extraction (USGS 2021c).

#### Expansive Soils

Based on the soil survey for the project area, surficial soils consist primarily of loam, which is soil with roughly equal proportions of sand, silt, and clay (USDA 2021). As a result, the potential for expansive clays exists at the site.

### Paleontological Resources

The Tuolumne County portion of the project area is located within the Sierra Nevada Geomorphic Province, as described above (CGS 2002a). According to surficial geological mapping by Bartow et al. (1981) at a 1:62,500 scale and Rogers (CDMG 1972) at a 1:250,000 scale and the geological time scale of Cohen et al. (2022), the project area is underlain by Upper Jurassic (approximately 145 to 163 million years ago) marine sediments (map unit Ju) and Jurassic-Triassic (200 to 208 million years ago) metavolcanic rocks. The Jurassic marine sediments generally consist of slate, graywacke, minor siltstone and conglomerate, and minor pyroclastic rocks (CDMG 1972).

Dudek requested a paleontological records search from the UCMP on January 30, 2023 and the results were received on February 2, 2023. The UCMP reported no fossil localities from within the project site, or from the nearby area or similar sediments (Museum of Paleontology at the University of California, Berkeley 2023).

## 3.6.1.4 Port of Stockton

### Topography and Geologic Formations

The Port of Stockton (Port) is located within the Great Valley geomorphic province, as previously described. The Port area consists of an island feature situated within the low-lying floodplains just east of the San Joaquin Delta. The surrounding topography is characteristic of a highly dissected alluvial plain with numerous river systems meandering to the west, including the San Joaquin and Calaveras rivers. The Port is surrounded by a perimeter levee that provides 100-year flood protection for the area (Port of Stockton 2003).

The majority of the Port area is underlain by Dos Palos Alluvium, which consists primarily of Holocene-age (past 11,700 years) flood deposits. A small portion of the Port area along the Stockton Deep Water Ship Channel is comprised of artificial fill. This fill was placed along the northeastern bank of the island during the initial construction of the Rough and Ready Naval Base in the 1930s. The extreme northern corner of the Port area is underlain by

Holocene age intertidal deposits, which primarily consist of soft mud and peat deposited by the San Joaquin River (Port of Stockton 2003; CDMG 1991).

## Soils

Surficial topsoil in the Port area is characterized by deep, poorly-drained, and fine textured soils that contain a high percentage of organic materials and formed in flood plains. The primary soil type at the project site is Urban Land, which is artificial fill (as described above), Egbert-Urban land complex, which consists of approximately 35% Urban Land and 65% silty clay loam, to a depth of 60 inches. These soils occur on 0% to 2% slopes, are poorly drained, have very high runoff, and are rarely flooded. Groundwater occurs at a depth of approximately 48 to 72 inches (USDA 2023).

## Seismicity and Faulting

The geology of San Joaquin County is comprised primarily of highly organic alluvium, which is susceptible to earthquake movement. No Holocene-active (past 11,700 years) and only one Quaternary age (past 1.6 million years) fault, the Vernalis Fault, is located within the County (Figure 3.6-4, Regional Faulting – Port of Stockton Facility) (CGS 2021a, 2021b; USGS 2021b). However, numerous active faults are present west of the County, within Contra Costa County. This scenario increases the likelihood of structural failures due to associated potential earthquake shaking and movement (San Joaquin County 2016). An earthquake hazard map published by the USGS indicates the relative earthquake hazard at the Port site is moderate. This rating is based on a greater than 2% chance that peak seismically induced ground accelerations will be exceeded in 50 years (USGS 2018).

No Alquist-Priolo Earthquake Fault Zones are located within the Port. The nearest faults to the Port exhibiting historic displacement (activity within the last 200 years) are the Concord-Green Valley, Hayward and Greenville fault zones, located approximately 35 miles west, 42 miles southwest, and 25 miles southwest of the Port, respectively (Figure 3.6-4). Portions of the Calaveras Fault Zone also have been rated as being active within the last 200 years and those portions are located approximately 35 miles southwest of the site (CGS 2021a, 2021b; USGS 2021b). Other Holocene-active faults within 50 miles of the Port are the Ortigalita (45 miles south) and West Napa (50 miles northwest) faults.

A seismically-active, concealed (blind) fold and thrust belt, referred to as the Coast Range Central Valley Geomorphic Boundary (CRCV), lies approximately 15 to 20 miles west of Stockton (CGS 2021a). Earthquakes associated with this fault system include the moment magnitude (Mw) 6.1 Kettleman Hills and Mw 6.5 Coalinga events (Wakabayashi and Smith 1994; USGS 2017). Published estimates of the CRCV slip rate derived from previous studies range from 1 to 10 millimeters (mm)/year, and estimated reoccurrence intervals of the Coalinga-type events range from 200 to 2,000 years. The concealed CRCV thrust is speculated to have produced the Vacaville-Winters earthquake (estimated Mw 6.75) (Wakabayashi and Smith 1994).

The maximum probable earthquake on the Greenville Fault is estimated to be Mw 6.0; however, the largest historic earthquake on the Greenville Fault was a Richter magnitude 5.8, comparable to a Mw 6.0 earthquake that occurred in 1980. That earthquake produced a peak ground acceleration of 0.15g in Brentwood, approximately 18 miles west of the Port (CGS 2021a; USGS 2021b; Port of Stockton 2003). The estimated likelihood of a magnitude 6.7 or greater earthquake in greater San Francisco Bay area before 2044 is 72%. For individual faults in proximity to the Port, forecasted probabilities include 0.17% for the CRCV and 4.03% for the Greenville Fault (USGS 2015).

For other similar industrial sites at the Port in proximity to the project site, the estimated Maximum Considered Earthquake peak ground acceleration adjusted for site class effects was determined to be 0.393g, based on both probabilistic and deterministic seismic ground motion. Nonetheless, regional seismic activity could cause accelerations severe enough to cause major damage to structures and foundations not designed to resist the forces generated by earthquakes. Underground utility lines are also susceptible where they lack sufficient flexibility to accommodate the seismic ground motion (Port of Stockton 2003).

### Liquefaction

The CGS has produced liquefaction hazard maps for select USGS quadrangle maps throughout California; however, the Stockton area is not included in this map database (CGS 2023). Based on available data, the potential for liquefaction exists within the Port (Port of Stockton 2003). A geotechnical investigation completed in 2020 for a site within the Port indicated that the top 50 feet of soil have a moderate vulnerability to liquefaction, but that there is sufficient non-liquefiable soil on top of potentially liquefiable soil to prevent secondary liquefaction effects (e.g., sand boils or lurch cracking) following a major earthquake (Port of Stockton 2022).

Lateral spreading is lateral movement of soil along an unsupported slope, which occurs in association with liquefaction. Based on the relatively flat topography of the site, the potential for lateral spreading is low. However, lateral spreading could occur on the slopes of the levee surrounding the Port.

### Landslides

Landslides generally occur on steep slopes that have been undercut by erosion or on slopes where the bedding planes of the bedrock are inclined down the slope. The topography of the Port site is relatively flat to gently sloping; therefore, landslide hazards are not present on the Port site.

### Subsidence

The Port is not in an area of known subsidence due to groundwater pumping, peat loss, or oil extraction (USGS 2021b).

### Expansive Soils

As previously discussed, the Port area is underlain by artificial fill and silty clay loam. Based on the presence of silty clay and heterogeneous unknown fill type, the potential for expansive clays exists at the site.

## Paleontological Resources

The Port of Stockton portion of the project area is located within the Great Valley Geomorphic Province (Harden 2004). The Coast Ranges to the west are subparallel to the San Andreas Fault (CGS 2002a). According to surficial geological mapping by Rogers (CDMG 1972) at a 1:250,000 scale and the geological time scale of Cohen et al. (2022), the project area is underlain by recent (< 4,200 years ago) stream channel deposits (map unit Qsc) and recent basin deposits (map unit Qb) of the Great Valley.

Dudek requested a paleontological records search from the UCMP on January 30, 2023, and the results were received on February 2, 2023. The UCMP reported no fossil localities from within the project site; however, they have five localities nearby from similar sediments that likely underlie the project site on the surface and at depth. Fossil locality, UCMPV4822, 3.5 miles north of the project area, produced the dentary of a horse (*Equus*). UCMP

V2016003, V2016004, and V2016005 were all found during the realignment of US Highway 99, approximately 5.5 miles east of the project area, from a depth of 3 to 8 meters below the ground surface. These localities yielded unidentified mammal bones, a camel upper jaw, and a bison lower jaw (Museum of Paleontology at the University of California, Berkeley 2023).

## 3.6.2 Regulatory Setting

### 3.6.2.1 Federal

#### Earthquake Hazards Reduction Act

The United States Congress passed the Earthquake Hazards Reduction Act in 1977 to reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the act established the National Earthquake Hazards Reduction Program. This program was substantially amended in November 1990 by the National Earthquake Hazards Reduction Program Act, which refined the description of agency responsibilities, program goals, and objectives.

#### Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction operations. Occupational Safety and Health Administration (OSHA) Regulations, OSHA Excavation and Trenching Standard, Title 29 of the Code of Federal Regulations, Part 1926, Subpart P, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

#### Clean Water Act

The Clean Water Act (CWA) of 1948 (as amended in 1972 and 1987) establishes federal policy for the control of point and non-point pollution and assigns the states the primary responsibility for control of water pollution. The CWA regulates the dredging and filling of freshwater and coastal wetlands. Section 404 (33 USC 1344) prohibits the discharge of dredged or fill material into waters (including wetlands) of the United States without first obtaining a permit from the U.S. Army Corps of Engineers. Wetlands are regulated in accordance with federal Non-Tidal Wetlands Regulations (Sections 401 and 404). Compliance with the CWA by the U.S. Forest Service in California is achieved under state law. The California Water Code consists of a comprehensive body of law that incorporates all state laws related to water, including water rights, water developments, and water quality. The laws related to water quality (sections 13000 to 13485) apply to waters on the national forests and are directed at protecting the beneficial uses of water.

#### Section 402 of the Clean Water Act (National Pollutant Discharge Elimination System)

The NPDES permit program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States (33 USC 1342). In the state of California, EPA has authorized the State Water Resources Control Board (SWRCB) permitting authority to implement the NPDES program. Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES Program to address stormwater discharges from construction sites that disturb land equal to or

greater than 1.0 acres and less than 5.0 acres (small construction activity). The regulations also require that stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) be regulated by an NPDES General Permit for Storm Water Discharges Associated with Construction Activity, Order No. 2022-0057-DWQ (i.e., the Construction General Permit [CGP]).

The CGP requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards
- Good site management "housekeeping"
- Non-stormwater management
- Erosion and sediment controls
- Run-on and runoff controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The CGP requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which describes best management practices (BMPs) the discharger would use to protect stormwater runoff. The BMPs fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Each category contains specific BMPs to achieve the goals of the overarching category. Specific BMPs may include the following:

- **Soil Stabilizing BMPs:** Use of straw mulch, erosion control blankets or geotextiles, and/or wood mulching
- **Sedimentation Control BMPs:** Use of storm drain inlet protection, sediment traps, gravel bag berms, and fiber rolls
- **Waste Management BMPs:** Stockpile management, solid waste management, and concrete waste management
- **Good Housekeeping BMPs:** Vehicle and equipment cleaning, implementing water conservation practices, and implementing rules for fueling construction vehicles and equipment

Routine inspection of all BMPs is required under the provisions of the CGP. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. On September 8, 2022, the SWRCB issued a new NPDES General Permit for Storm Water Associated with Construction Activities (Order No. 2022-0057-DWQ, NPDES No. CAS000002), which became effective September 8, 2022.

In the project areas (i.e., Lassen Facility, Tuolumne Facility, Port of Stockton), the CGP is implemented and enforced by the Central Valley Regional Water Quality Control Board (RWQCB), which administers the stormwater permitting program. Dischargers are required to electronically submit a Notice of Intent (NOI) and permit registration

documents in order to obtain coverage under this CGP. Dischargers are responsible for notifying the Central Valley RWQCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State Qualified SWPPP Developer (QSD) and implementation of the SWPPP must be overseen by a State Qualified SWPPP Practitioner (QSP). A Legally Responsible Person, who is legally authorized to sign and certify permit registration documents, is responsible for obtaining coverage under the permit.

## U.S. Forest Service

### Water Quality Management Handbook

The 2011 Forest Service Region 5 Water Quality Management Handbook 2509.22, Chapter 10 (USFS 2011) includes requirements for BMP implementation monitoring of all projects with the potential to adversely affect water quality using a "checklist" approach. The USFS water quality protection program relies on implementation of prescribed BMPs. The checklists are the primary means for early detection of potential water-quality problems and should be completed early enough to allow corrective actions to be taken, if needed, prior to any significant rainfall or snowmelt throughout the duration of the project.

These BMPs are procedures and techniques that are incorporated in project actions and determined by the State of California to be the most effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals. Forest Service BMPs, as presented in the 2011 Handbook, include detailed descriptions of individual BMPs (section 12), a requirement that site-specific BMPs be included in timber sale contracts (section 13), and direction that legacy sites (sites disturbed by previous land use that is causing or has potential to cause adverse effects to water quality) within timber project boundaries will be restored or improved. Additionally, the 2011 Handbook amendment establishes an expanded water quality management monitoring program (section 16).

### National Best Management Practices for Water Quality Management on National Forest System Lands

Volume 1 – National Core BMP Technical Guide (FS-990a) directs compliance with required CWA permits and State regulations, and requires the use of BMPs to control nonpoint source pollution to meet applicable water quality standards and other CWA requirements.

### Paleontological Resources Protection Act

The Paleontological Resources Protection Act (PRPA) of 2009 directs the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on federal land using "scientific principles and expertise." The PRPA incorporates most of the recommendations of the Secretary of the Interior's report titled Assessment of Fossil Management on Federal and Indian Lands (DOI 2022) to formulate a consistent paleontological resources management framework. In passing the PRPA, congress officially recognized the scientific importance of paleontological resources on some federal lands by declaring that fossils from these lands are federal property that must be preserved and protected. The PRPA codifies existing policies of the U.S. Bureau of Land Management,

National Park Service, U.S. Forest Service, Bureau of Reclamation, and the U.S. Fish and Wildlife Service, and provides the following:

- Criminal and civil penalties for illegal sale and transport and theft and vandalism of fossils from federal lands
- Minimum requirements for paleontological resource-use permit issuance (terms, conditions, and qualifications of applicants)
- Definitions for "paleontological resources" and "casual collecting"
- Requirements for curation of federal fossils in approved repositories

The PRPA requires the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on federal land. The PRPA furthers the protection of fossils on federal lands by criminalizing the unauthorized removal of fossils.

#### Federal Land Policy Management Act

The Federal Land Policy Management Act of 1976 (PL 94-579; 90 Statute 2743, USC 1701–1782) requires that public lands be managed such that the quality of their scientific values is protected. The act recognizes significant paleontological resources as scientific resources and requires federal agencies to manage public lands in a manner that protects scientific resource quality.

#### National Environmental Policy Act

The National Environmental Policy Act of 1969 (PL 91-190; 31 Statute 852, 42 USC 4321–4327) requires that important natural aspects of national heritage be considered in determining the environmental consequences of proposed projects.

### 3.6.2.2 State

#### Alquist-Priolo Earthquake Fault Zoning Act

California enacted the Alquist-Priolo Special Studies Zones Act in 1972, which was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994. Also known as the Alquist-Priolo Act, it requires the establishment of "earthquake fault zones" along known active faults in California. Regulations on development within these zones are enforced to reduce the potential for damage resulting from fault surface rupture.

#### California Building Code

The State's 2022 California Building Code (CBC), Title 24 of the California Code of Regulations, is a compilation of building standards, including seismic safety standards, for new buildings. CBC standards are based on building standards that have been adopted by State agencies without change from a national model code; building standards based on a national model code that have been changed to address particular California conditions; and building standards authorized by the California legislature but not covered by the national model code. The CBC applies to all occupancies in California, except where stricter standards have been adopted by local agencies. Specific CBC building and seismic safety regulations have been incorporated by reference into the current Lassen County, Tuolumne County, and City of Stockton building codes, with local amendments.

Chapters 16 and 16A of the 2022 CBC include structural design requirements governing seismically resistant construction, including (but not limited to) factors and coefficients used to establish seismic site class and seismic occupancy category for the soil/rock at the building location and the proposed building design. Chapters 18 and 18A include the requirements for foundation and soil investigations (Sections 1803 and 1803A); excavation, grading, and fill (Sections 1804 and 1804A); damp-proofing and water-proofing (Sections 1805 and 1805A); allowable load-bearing values of soils (Sections 1806 and 1806A); the design of foundation walls, retaining walls, embedded posts and poles (Sections 1807 and 1807A), and foundations (Sections 1808 and 1808A); and design of shallow foundations (Sections 1809 and 1809A) and deep foundations (Sections 1810 and 1810A). Chapter 33 of the 2022 CBC includes requirements for safeguards at work sites to ensure stable excavations and cut or fill slopes (Section 3304).

Construction activities are subject to occupational safety standards for excavation and trenching, as specified in the California Safety and Health Administration regulations (Title 8 of the California Code of Regulations) and in Chapter 33 of the CBC. These regulations specify the measures to be used for excavation and trench work where workers could be exposed to unstable soil conditions. The project would be required to employ these safety measures during excavation and trenching.

The CBC is published on a triennial basis, and supplements and errata can be issued throughout the cycle. The 2023 edition of the CBC became effective on January 1, 2023, and incorporates by adoption the 2021 edition of the International Building Code of the International Code Council, with California amendments. The 2022 CBC incorporates the latest seismic design standards for structural loads and materials as well as provisions from the National Earthquake Hazards Reduction Program to mitigate losses from an earthquake and provide for the latest in earthquake safety.

### California Occupational Safety and Health Administration Regulations

In California, California OSHA (Cal/OSHA) has responsibility for implementing federal rules relevant to worker safety, including slope protection during construction excavations. Cal/OSHA's requirements are more restrictive and protective than federal OSHA standards. Title 8 of the California Code of Regulations, Chapter 4, Division of Industrial Safety, covers requirements for excavation and trenching operations, as well as safety standards whenever employment exists in connection with the construction, alteration, painting, repairing, construction maintenance, renovation, removal, or wrecking of any fixed structure or its part.

### Seismic Hazards Mapping Act

In order to address the effects of strong ground shaking, liquefaction, landslides, and other ground failures due to seismic events, the State of California passed the Seismic Hazards Mapping Act of 1990 (Public Resources Code Section 2690-2699). Under the Seismic Hazards Mapping Act, the State Geologist is required to delineate "seismic hazard zones." Cities and counties must regulate certain development projects within these zones until the geologic and soil conditions of their project sites have been investigated and appropriate mitigation measures, if any, have been incorporated into development plans. The State Mining and Geology Board provides additional regulations and policies to assist municipalities in preparing the Safety Element of their General Plan and encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety. Under Public Resources Code Section 2697, cities and counties must require, prior to the approval of a project located in a seismic hazard zone, submission of a Preliminary Geotechnical Report defining and delineating any seismic hazard. Each city or county must submit one copy of each Preliminary Geotechnical Report, including mitigation measures, to the State Geologist within 30 days of its approval. Under Public Resources Code Section

2698, cities and counties may establish policies and criteria which are stricter than those established by the Mining and Geology Board.

State publications supporting the requirements of the Seismic Hazards Mapping Act include the CGS SP 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California,[1] and SP 118, Recommended Criteria for Delineating Seismic Hazard Zones in California (2004).[2] SP 117A provides guidelines to assist in the evaluation and mitigation of earthquake-related hazards for projects within designated zones requiring investigations and to promote uniform and effective Statewide implementation of the evaluation and mitigation elements of the Seismic Hazards Mapping Act.[3] SP 118 provides recommendations to assist the CGS in carrying out the requirements of the Seismic Hazards Mapping Act to produce the Probabilistic Seismic Hazard Maps for the State.

### California Forest Practice Rules 2020

In accordance with Title 14, CCR Chapter 4, 4.5, and 10, the California Forest Practice Rules govern the management and harvesting of timber on non-federal lands in California. The rules are designed to protect the environment, wildlife, and public safety, while ensuring a sustainable supply of timber for the state's economy. The rules are updated annually by the Board of Forestry and Fire Protection, with input from various stakeholders and experts. The rules are enforced by the California Department of Forestry and Fire Protection (CAL FIRE) through a system of timber harvesting plans, inspections, and penalties.

### California Environmental Quality Act of 1970

Paleontological resources are afforded consideration under CEQA. Appendix G of the State of California CEQA Guidelines (14 CCR 15000 et seq.) includes the following as one of the questions to be answered in the Environmental Checklist (Appendix G, Section VII, Part f): "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?"

### California Health and Safety Code and Penal Code

California Public Resources Code Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, California Penal Code Section 622.5 sets the penalties for damage to or removal of paleontological resources. California state laws and regulations under California Public Resources Code Section 5097.5 apply to paleontological resources.

### PRC 5097-5097.6 – Archaeological, Paleontological and Historical Sites

PRC Section 5097-5097.6 outlines the requirements for cultural resource analysis prior to the commencement of any construction project on State Lands. This section identifies that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands, and provides for criminal sanctions. This section was amended in 1987 to

[1] Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, prepared by California Geologic Survey, 2008, http://www.conservation.ca.gov/cgs/shzp/webdocs/Documents/sp117.pdf.

[2] Special Publication 118, Recommended Criteria for Delineating Seismic Hazard Zones in California, dated May 1992, Revised April 2004, http://www.conservation.ca.gov/cgs/shzp/webdocs/Documents/sp118_revised.pdf.

[3] Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, prepared by California Geologic Survey, 2008, http://www.conservation.ca.gov/cgs/shzp/webdocs/Documents/sp117.pdf.

require consultation with the California Native American Heritage Commission (NAHC) whenever Native American graves are found. Violations for the taking or possessing remains or artifacts are felonies.

### 3.6.2.3 Local

#### Lassen County

##### Lassen County General Plan

Goal N-2. To protect and maximize the present and future productive, economic, and environmental values of the County's soil resources.

Policy NR-10. The County shall exercise an appropriate degree of regulation designed to minimize soil erosion, including the administration of standards for grading and site clearance related to development projects.

Policy NR-11. The County encourages state and Federal programs and projects designed to reduce soil erosion and to repair areas damaged by erosion.

##### Lassen County Code

###### Lassen County Building Code (Ord. 2022-03, Section 5)

Title 12 Buildings and Construction, Article I. Building Code, Chapter 12.08, California Building Code, Section 12.08.010 Adoption, indicates that Lassen County has incorporated the most recent version of the CBC, including the State of California Amendments, based on the most recent version of the International Code Council's International Building Code.

###### Lassen County Grading

Grading in Lassen County is regulated under the Lassen County Building Code, as described above.

###### Installation of Septic Tanks

Lassen County Code Title 8, Health and Safety, Chapter 8.16, Privies and Septic Tanks, Section 8.16.050 describes requirements for septic tanks that would ensure lot size, soil conditions, and water availability would adequately support such facilities. As part of the code requirements, any new disposal systems or modifications to an existing system require that a percolation test be performed in a manner satisfactory to the Lassen County Environmental Health Division and found by that Division to meet all applicable laws and regulations.

#### Tuolumne County

##### Tuolumne County General Plan

Policy 17.A.1. Increase Tuolumne County's capabilities to mitigate the effects of natural hazards.

Implementation Program 17.A.a. Implement the Tuolumne County Multi-Jurisdictional Hazard Mitigation Plan to protect life, safety, and property by reducing the potential for future damages and economic losses that result from geologic hazards.

Policy 17.A.2. Enhance existing policies that will reduce the potential damaging effects of hazards without hindering other County goals.

Implementation Program 17.A.b. Update the County's General Plan and Ordinance Code as new Federal and State laws regarding geologic hazards and requirements are enacted.

Policy 17.A.3. Protect Tuolumne County's most vulnerable populations, buildings and critical facilities through the implementation of cost-effective and technically feasible mitigation projects.

Implementation Program 17.A.c. Maximize the use of hazard mitigation grant programs to protect the most vulnerable populations and structures.

Policy 17.A.6. Ensure that all new construction is completed in a way most resistant to loss or damage from natural hazards.

Implementation Program 17.A.e. Through the development review process, ensure that projects located in or near areas that may pose public health and safety hazards are designed to minimize potential impacts on people and property.

Implementation Program 17.A.f. Locate vital/critical facilities where they are protected from natural hazards, such as fault zones, flooding and inundation areas.

Policy 17.D.1. Direct development away from areas with known seismic and geologic hazards as required by local, state, and federal codes.

Implementation Program 17.D.a. Designate areas within 100 feet of capable faults as non-urban, including, but not limited to, Open Space, Agriculture or Parks and Recreation on the General Plan land use diagrams and zone these areas for open space preservation, agriculture, recreation or other non-urban uses. For lands owned by a public agency, the designation of Public is also compatible.

Policy 17.D.2. Map areas determined to be potentially seismically active or otherwise subject to geologic hazards and apply restrictions to development within the affected areas.

Implementation Program 17.D.b. Apply zoning and other land use controls to regulate development in known hazardous areas capable of seismic activity.

Implementation Program 17.D.c. Require as part of the application review process when a potential hazard exists, a geologic, seismic, and/or geotechnical engineering report to be provided by the applicant.

Implementation Program 17.D.d. Establish a program for geologic, seismic, and geotechnical engineering reports required for proposed developments to be reviewed by a technically qualified consultant under contract to the County of Tuolumne.

Implementation Program 17.D.e. Identify the public costs which would be incurred if emergency or remedial actions became necessary in populated areas where seismic hazards exist.

Implementation Program 17.D.f. Review contingency plans for major disasters and emergencies and update as necessary to verify that the potential for damage and destruction due to earthquakes and geologically induced dam failure with accompanying flooding continues to be addressed.

Implementation Program 17.D.g. Use the General Plan's Geotechnical Interpretive Maps, which show the approximate boundaries of various hazard and resource zones (such as fault zones, erosive soil areas, limestone deposits, etc.) as a basis for future planning.

Implementation Program 17.D.h. Update the Geotechnical Interpretive Maps on a periodic basis to reflect new geologic and seismologic information.

Implementation Program 17.D.i. Increase public awareness of geoseismic hazards, their location, and their severity by making the Geotechnical Interpretive Maps readily available to the public.

Policy 17.D.3. Incorporate criteria into the design for dams and other important structures possibly affected by capable fault zones that provide an acceptable level of safety.

Implementation Program 17.D.j. Require developers of dams and critical use and high occupancy structures within 100 feet of capable fault zones to submit plans to the County of Tuolumne demonstrating that the proposed design and construction can accommodate the expected fault offset of the design earthquake and the structure can continue to function. The capable fault zones are defined along presently identified capable faults on the Geotechnical Interpretive Maps.

Implementation Program 17.D.k. Establish design review procedures that address safety issues for structures proposed for human occupancy which are to be located within 100 feet of a capable fault zone.

Implementation Program 17.D.l. Apply special requirements to critical use and high occupancy structures proposed within 100 feet of capable fault zones. These requirements should:

- Require special geologic and seismic studies to accurately locate all capable fault traces.
- Establish requirements for existing critical use and high occupancy structures within the capable fault zones and initiate a special building inspection program whose purpose is to locate existing critical-use and high occupancy structures within 100 feet of the capable fault zones and to evaluate the safety of such structures under expected seismic conditions.
- Require necessary training for building inspectors to evaluate the safety (under probable earthquake accelerations) of critical-use and high occupancy structures.

Implementation Program 17.D.m. Consider developing a hazardous structures mitigation program and enforcement regulations for critical use and high occupancy buildings located within 100 feet of a capable fault zone.

Policy 17.D.4. Ascertain that existing or proposed structures, particularly critical-use and high occupancy structures, can withstand the ground motion of the design earthquake without catastrophic failure or loss of critical services.

Implementation Program 17.D.n. Review plans for existing and proposed structures to see that they are designed and built in accordance with the California Building Code standards for Seismic Category C or D.

Implementation Program 17.D.o. Require that critical use and high occupancy structures be designed and built to retain their structural integrity when subjected to probable ground accelerations generated by the design earthquake.

Implementation Program 17.D.p. Prior to approval of proposed critical use and high occupancy facilities, require that the plans demonstrate that the proposed building can withstand, without collapse, the probable ground acceleration generated by the design earthquake. Require development plans to show that critical facilities, such as utilities and access roads, for critical use and high occupancy structures are adequately designed and constructed to withstand the design earthquake. Also require plans to show that, in the event of the failure of these structures, potential hazards created by the loss of utilities, roads, etc. have been identified and mitigated.

Implementation Program 17.D.q. Periodically inspect existing critical use and high occupancy buildings within the County to identify and require correction of potential hazards in the event of a major earthquake.

Implementation Program 17.D.r. Develop a hazardous structures mitigation program and enforcement regulations for critical use and high occupancy buildings. This shall include a database of the identified critical-use and high occupancy buildings existing in the County that do not meet modern standards for earthquake safety, and are, therefore, considered "hazardous." Descriptions of the buildings shall be included along with possible hazard mitigation measures.

Policy 17.D.5. Monitor development to see that construction in landslide or unstable slope areas is accomplished safely.

Implementation Program 17.D.s. Require detailed engineering studies in unstable slope or landslide areas, including, but not limited to those areas delineated on the Geotechnical Interpretive Maps, prior to approval of urban development. The studies should identify the extent of instability or potential for landslides, and recommend design alterations, considerations or other features which could reduce the potential hazards to an acceptable level. The feasible recommendations from the study(s) shall be required as part of the project approval process.

Policy 17.D.6. Reduce the potential for erosion and sedimentation from earthmoving and construction activities.

Implementation Program 17.D.t. Apply Chapter 12.20 of the Tuolumne County Ordinance Code, the Grading Ordinance, in order to protect soil stability and natural topography and to prevent soil erosion and creation of unstable slopes. Areas identified as having erosive soils, either by the Geotechnical Interpretive Maps or by other means, shall receive special consideration related to the erosive potential of grading and earthmoving activities.

Implementation Program 17.D.u. Apply Chapter 12.20 of the Tuolumne County Ordinance Code, the Grading Ordinance, to address the impacts of earth-disturbing development activities on any slope, whether or not it is shown as potentially unstable on the geotechnical maps.

## Tuolumne County Code

### Tuolumne County Grading Ordinance

Title 12 – Streets, Sidewalks, and Public Places, Chapter 12.20 – Grading, establishes minimum standards and provides regulations for the construction and maintenance of excavations, site reclamation, drainage control, stockpiling, as well as for protection of exposed soils surfaces, and cut and clearing of vegetation related to any or all of these practices in order to promote the safety, public health, convenience and general welfare of the community. This chapter is intended to fulfill the requirements for grading/stockpiling and erosion control as contained in Section 66411 of the Subdivision Map Act, establish the administrative procedure for issuance of permits, and provide for approval of plans and inspection of grading construction.

### Tuolumne County Building Code

Title 15 - Buildings and Construction, Chapter 15.04 – Construction Codes, Section 15.04.010 – Adoption of Codes, indicates Tuolumne County has incorporated the most recent version of the CBC, including the State of California Amendments, based on the most recent version of the International Code Council's International Building Code.

### Installation of Septic Tanks

General Plan Update, Chapter 13.08 of the Tuolumne County Ordinance Code describes requirements for septic tanks that would ensure soil conditions would adequately support such facilities. As part of the code requirements, any new disposal systems or modifications to an existing system require a permit from the County's Environmental Health Division, which would review the site and location of such systems and confirm that the installation of such a system at that location is feasible and would not result in significant impacts.

## City of Stockton

### City of Stockton 2040 General Plan

The City's 2040 General Plan contains a safety element that addresses environmental hazards, including but not limited to seismic hazards. Relevant safety element policies include the following:

Policy SAF-2.1. Ensure that community members are adequately prepared for natural disasters and emergencies through education and training.

Policy SAF-2.2. Prepare sufficiently for major events to enable quick and effective response.

### Stockton Municipal Code

#### Section 15.48.050, Construction and Application

This code includes a requirement that seeks to mitigate hazards associated with erosion: "During construction, construction activities shall be designed and conducted to minimize runoff of sediment and all other pollutants onto public properties, other private properties and into the waters of the United States." Section 15.48.110, "Erosion Control Requirements," contains specific provisions for erosion control for those construction projects where a grading permit is not required. Section 15.48.070 includes requirements for a grading permit that apply to most construction projects. Such permits require implementation of erosion control measures, often referred to as Best Management Practices.

## 3.6.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to geology and soils are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to geology and soils would occur if the project would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.
  - Strong seismic ground shaking.
  - Seismic-related ground failure, including liquefaction.
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

## 3.6.4 Impact Analysis

### 3.6.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to geology and

soils. The impact analysis evaluates potential project impacts during both construction and operation. The following analysis of impacts related to geology, seismicity and soils is based on publicly available information and site-specific geotechnical investigations, which address site-specific geotechnical issues, such as ground shaking, liquefaction, landslides, and any other geotechnical hazards found to be present. A final design level geotechnical report, based on final building plans, will also presumptively be required by local building officials prior to commencement of construction, as commonly practiced for all development, As such, a design level geotechnical report based on the finished construction and building plans will be prepared and reviewed by Lassen County, Tuolumne County, and the City of Stockton prior to issuance of building permits, in accordance with building code requirements.

In December 2015, the California Supreme Court found that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents." In *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 392, the Supreme Court explained that except under a limited number of circumstances specifically identified in CEQA, an agency is only required to analyze the potential impact of such hazards on future residents if the project would worsen those existing environmental hazards or conditions. CEQA analysis is, therefore, concerned with a project's impact on the environment, rather than the environment's impact on a project, including its users or residents. Thus, with respect to geologic and seismic hazards, the EIR is not required to consider the effects of bringing people or structures into an area where such hazards exist, because (with some exceptions) the project itself would not worsen or otherwise affect the geologic conditions that create those risks. Nonetheless, in order to provide a complete picture of the proposed project, these impacts are discussed below.

### 3.6.4.2 Project Impacts

Impact GEO-1a The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault.

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities. Feedstock acquisition would not include construction or operation of structures or infrastructure. As a result, no fault-related structural impacts would occur with respect to project feedstock acquisition. In addition, feedstock acquisition would not directly or indirectly cause rupture of a known earthquake fault, resulting in risk of loss, injury, or death. **No impacts** would occur.

## Wood Pellet Production

### Lassen Facility

As discussed in Section 3.6.1, the Lassen Facility site is not within a State of California Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act. In addition, no known active earthquake faults underlie the site. Construction and operation of the wood pellet production facilities would not cause or exacerbate the potential for rupture to occur on any regional faults. As a result, the project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault. **No impacts** would occur.

### Tuolumne Facility

As discussed in Section 3.6.1, the Tuolumne Facility site is not within a State of California Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act. In addition, no known active earthquake faults underlie the site. Construction and operation of the wood pellet production facilities would not cause or exacerbate the potential for rupture to occur on the nearby potentially active Foothills Fault Zone, or any other regional fault. As a result, the project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault. **No impacts** would occur.

## Transport to Market

### Port of Stockton

As discussed in Section 3.6.1, the Port is not within a State of California Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act. In addition, no known active earthquake faults underlie the site. Construction and operation of the Port facilities would not cause or exacerbate the potential for rupture to occur on any regional faults. As a result, the project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault. **No impacts** would occur.

Impact GEO-1b The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

## Feedstock Acquisition

### Sustainable Forest Management Projects

As described above for Impact GEO-1a, feedstock acquisition would not include construction or operation of structures or infrastructure. As a result, no seismic-related structural impacts would occur with respect to project feedstock acquisition. In addition, feedstock acquisition would not directly or indirectly cause seismic ground shaking, resulting in risk of loss, injury, or death. **No impacts** would occur.

## Wood Pellet Production

### Lassen Facility

As discussed in Section 3.6.1, the Lassen Facility site is not in a highly seismic area. Regardless, it is possible that the facility may be subject to strong seismic ground shaking during the life of the project. The project facilities would

be designed and constructed in accordance with the recommendations set forth in the project-specific, preliminary geotechnical report (Appendix E1) and the then-applicable version of the CBC. The geotechnical investigation provides preliminary seismic design criteria based on the American Society of Civil Engineers Standard 7-16 for seismic design. The CBC specifies that the maximum considered earthquake ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures, thus minimizing the potential for damage as a result of seismically induced ground failure. The Lassen County Planning and Building Services Department ensures that all new construction complies with current codes and ordinances regarding earthquake safety. In addition, construction and operation of the proposed wood pellet facility would not cause or exacerbate the potential for earthquakes to occur. As a result, the project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. **Less than significant** impacts would occur.

#### Tuolumne Facility

As discussed in Section 3.6.1, although the potentially active Foothill Fault System is in proximity to the Tuolumne site, Tuolumne County is not a highly seismic area. Regardless, it is possible that the facility may be subject to strong seismic ground shaking during the life of the project. As described for the Lassen Facility, the project facilities would be designed and constructed in accordance with the recommendations set forth in the project-specific, preliminary geotechnical report (Appendix E3) and the then-applicable version of the CBC, thus minimizing the potential for damage as a result of seismically induced ground failure. The Tuolumne County Building and Safety Division ensures that all new construction complies with current codes and ordinances regarding earthquake safety. In addition, construction and operation of the proposed facilities would not cause or exacerbate the potential for earthquakes to occur. As a result, the project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. **Less than significant impacts** would occur.

### Transport to Market

#### Port of Stockton

As discussed in Section 3.6.1, the Port is located in a moderately seismic area that may be subject to strong seismic ground shaking during the life of the project. As described for the Lassen Facility, the project facilities would be designed and constructed in compliance with the CBC, which requires construction in accordance with a project-specific geotechnical report, thus minimizing the potential for damage as a result of seismically induced ground failure. The City of Stockton Building Division ensures that all new construction complies with current codes and ordinances regarding earthquake safety. In addition, construction and operation of the proposed facilities would not cause or exacerbate the potential for earthquakes to occur. As a result, the project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. **Less than significant impacts** would occur.

Impact GEO-1c The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismically related ground failure, including liquefaction.

## Feedstock Acquisition

### Sustainable Forest Management Projects

As described above for Impact GEO-1a, feedstock acquisition would not include construction or operation of structures or infrastructure. As a result, no seismic-related structural impacts would occur with respect to project feedstock acquisition. In addition, feedstock acquisition would not directly or indirectly cause seismic related ground failure, resulting in risk of loss, injury, or death. **No impacts** would occur.

## Wood Pellet Production

### Lassen Facility

Based on the presence of shallow groundwater and alluvial soils, the potential exists for liquefaction to occur at the site. Lateral spreading would not occur based on the lack of slopes at the site. However, total settlement up to 1.0 inch and seismically induced differential settlement up to 0.5 inch, over 50 linear feet, could potentially occur (Appendix E1). Seismically induced settlement is a result of non-uniform movement of soils (i.e., soil settlement at different rates), ) which can result in foundation cracking and pipeline/utility damage. However, as described for Impact GEO-1b, project design and construction would occur in accordance with recommendations set forth in the project-specific geotechnical investigation (Appendix E1) and the provisions of the then-applicable version of the CBC, thus minimizing the potential for damage as a result of seismically induced liquefaction and differential settlement. The Lassen County Planning and Building Services Department ensures that all new construction complies with current codes and ordinances regarding earthquake safety. Furthermore, development of the proposed project would not directly or indirectly cause or exacerbate adverse effects involving seismic related ground failure, including liquefaction. As a result, wood pellet facility construction and operation would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving seismic related ground failure. **Less than significant** impacts would occur.

### Tuolumne Facility

The potential for liquefaction, lateral spreading, and seismically induced differential settlement is low due to shallow bedrock conditions and generally low seismicity in the area (Appendix E3). Seismically induced landslides would not occur, as the topography of the site is relatively flat to gently sloping. However, strong seismically induced ground shaking and associated ground failure could occur at the site. Project design and construction would occur in accordance with provisions of the then-applicable version of the CBC and recommendations set forth in the project-specific geotechnical report (Appendix E3), thus minimizing the potential for damage. The Tuolumne County Building and Safety Division ensures that all new construction complies with current codes and ordinances regarding earthquake safety. Furthermore, development of the proposed project would not directly or indirectly cause or exacerbate adverse effects involving seismic related ground failure, including liquefaction. As a result, construction and operation of the wood pellet facility would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving seismic related ground failure. **Less than significant** impacts would occur.

## Transport to Market

### Port of Stockton

As discussed in Section 3.6.1, regional seismic activity could cause accelerations severe enough to cause major damage to structures and foundations in the Port not designed to resist the forces generated by earthquakes. Underground utility lines are also susceptible where they lack sufficient flexibility to accommodate the seismic ground motion. A geotechnical investigation completed in 2020 for a site within the Port indicated that the top 50 feet of soil have a moderate vulnerability to liquefaction, but that there is sufficient non-liquefiable soil on top of potentially liquefiable soil to prevent secondary liquefaction effects (e.g., sand boils or lurch cracking) following a major earthquake (Port of Stockton 2022). Based on the relatively flat topography of the site, the potential for lateral spreading is low. In addition, seismically induced landslides would not occur, as the topography of the site is relatively flat to gently sloping. Seismically induced differential settlement could potentially occur, resulting in foundation cracking and pipeline/utility damage. However, project design and construction would occur in accordance with provisions of the then-applicable version of the CBC and recommendations in the required project-specific geotechnical report, thus minimizing the potential for damage as a result of seismically induced differential settlement. The City of Stockton Building Division ensures that all new construction complies with current codes and ordinances regarding earthquake safety. As a result, construction and operation of the Port facilities would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving seismic related ground failure. **Less than significant** impacts would occur.

Impact GEO-1d The project would potentially directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

## Feedstock Acquisition

### Sustainable Forest Management Projects

As discussed in Section 3.6.1, the portion of the Working Area near the Lassen Facility covers parts of several geomorphic provinces of northern California, including the Modoc Plateau, Basin and Range, Cascade Range, Sierra Nevada, and Klamath Mountains provinces. The portion of the Working Area near the Tuolumne Facility covers parts of the Sierra Nevada and Great Valley provinces (Figure 3.6-1). Each of these geomorphic provinces include steep hillsides and mountains. As set forth in Section 2.4, each Sustainable Forest Management Project could include construction of up to 1.0 mile of low-standard (i.e., unpaved) roads. In addition, existing unpaved roads would be improved and maintained as part of feedstock acquisition. Creation of new roads in hillside areas typically results in creation of oversteepened slopes immediately upslope of the road (i.e., construction of roadcuts). Similarly, maintenance of existing roads can result in removal of slough and rocks on the upslope side of the road, which would require minor excavations into the hillside. Depending on the rock type, bedding orientation, and steepness of slope, creation of new roadcuts and maintenance of existing roadcuts could undermine the stability of the slope and result in landslides, which is a **potentially significant** impact.

However, Project Design Features (PDFs) (see Section 2.4) would minimize the potential for slope instability during feedstock acquisition operations. PDF-GEO-1 requires suspension of mechanical treatments during wet winter weather, thus reducing the potential for creating slope instability in saturated soils. PDF-GEO-2 requires new road construction and maintenance in slope areas in excess of 50% (27 degrees) to be completed under the guidance of a California Engineering Geologist, who would evaluate the road route for potential slope instability and implement slope stability measures, as appropriate. PDF-GEO-3 requires implementation of a SWPPP or equivalent

document, which would reduce the potential for soil erosion and associated slope instability. PDF-GEO-4 requires avoidance of slopes steeper than 75% (37 degrees), thus minimizing the potential for slope instability during wildfire fuel reduction operations. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion and associated slope instability. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable areas, thus minimizing the potential for slope instability during treatment operations. With implementation of **PDF-GEO-1** through **PDF-GEO-6** potentially significant landslide impacts would be reduced to less than significant levels.

## Wood Pellet Production

### Lassen Facility

As previously discussed in Section 3.6.1, the topography of the Lassen Facility site is relatively flat to gently sloping. Therefore, the project site would not be subject to damage due to landslides. However, potentially oversteepened temporary slopes during construction may be prone to failure. Saturated sidewalls of excavations and trenches could also result in caving and sloughing. Design and construction of the project would be in compliance with the CBC, which includes adherence to recommendations of the project-specific geotechnical report (Appendix E1). The geotechnical report includes recommendations for stabilization of temporary slopes. The recommendations indicate the contractor should be prepared to brace and/or shore excavation slopes as needed. Temporary slopes of excavations less than 20 feet deep should be constructed no steeper than a 1.5:1 (horizontal to vertical) inclination, if properly dewatered. Temporary slopes likely will stand at this inclination for the short-term duration of construction, provided significant pockets of loose and/or saturated granular soils are not encountered. Flatter slopes would be required if these conditions are encountered. With incorporation of recommendations of the project-specific geotechnical report, the project would not cause substantial adverse effects involving landslides and impacts would be **less than significant**.

### Tuolumne Facility

As previously discussed in Section 3.6.1, the topography of the Tuolumne Facility site is gently sloping, with very low-lying hills. Therefore, there is no potential for existing landslides to adversely affect the site. However, there is a modest risk that displacement and/or movement could occur on proposed 5 to 10 foot slopes in the event of strong seismically induced ground shaking. As a result, the project geotechnical report (Appendix E3) recommends that all cut and fill slopes be constructed no steeper than 2:1 or 3:1 (horizontal to vertical), depending on tolerance for minor slope failure. With incorporation of recommendations of the geotechnical report, the project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides. Project impacts would be l**ess than significant**.

## Transport to Market

### Port of Stockton

As previously discussed in Section 3.6.1, the topography of the Port is relatively flat to gently sloping. Therefore, landslides would not occur in association with construction and operation of the proposed wood pellet unloading facility. As a result, the project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides. **No impacts** would occur.

Impact GEO-2 The project would potentially result in substantial soil erosion or the loss of topsoil.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Soil Erosion

Soil erosion is caused by the detachment and entrainment of soil particles through the action of water and wind and can be classified into four general types: rain splash, sheet, rill, and gully erosion. Sheet erosion is the removal of soil of a generally uniform depth across a slope and is caused by non-concentrated runoff. Rill erosion refers to the removal of soil in shallow (i.e., less than approximately 6 inches deep), usually parallel, channels from a slope and is caused by concentrated runoff. Gully erosion consists of removal of soil from deeper channels and is also caused by concentrated runoff. Although usually less conspicuous than rill and gully erosion, sheet erosion tends to result in greater soil loss over a wide area. Soils most susceptible to erosion are those high in coarse silt- and fine sand-sized particles (Balasubramanian 2017), particularly when organic matter content is low and soil structure is weak or nonexistent. Erosion can be substantially minimized by avoiding certain actions on highly erosive soils, choosing management activities appropriate for given slopes, and by managing the maintenance of soil cover (USFS 2009).

Forest thinning activities could potentially result in sediment releases due to exposure of previously stabilized soils to rainfall/runoff and wind. Such activities include the removal of vegetation and disturbance of soil by equipment. Environmental factors that affect erosion include topographic, soil, and rainfall characteristics. Erosion and sedimentation affect water quality and interferes with photosynthesis; oxygen exchange; and the respiration, growth, and reproduction of aquatic species. According to the USGS National Hydrography Dataset, the Northern California Feedstock Area intersects 157 watersheds and 42,476 linear miles of streams, rivers, canals, and ditches (USGS 2023). (See Section 3.3, Biological Resources for additional information.)

In addition to water quality impacts related to erosion, maintaining long-term soil productivity is imperative to protect and enhance long-term productivity of forests. Soil is a fundamental and largely non-renewable resource that is the basis for high-level sustained yields of all other resources. Therefore, loss of soil due to erosion is detrimental to long-term productivity of vegetation growth and all natural aspects of the forests. Changes in the productive qualities of soil resources can occur as a result of disturbances arising from management actions on the land. Compaction and surface erosion are examples of disturbances that modify the moisture holding capacity of soil, reducing moisture availability for seedling growth. The magnitude of change is associated with the type of disturbance, the size or extent of the affected area, and inherent soil properties (USFS 1980, 2009). Although most soil compaction occurs within ten vehicle trips (Gent et al. 1984), the greatest increases in bulk density occur within the first several trips (Froehlich et al. 1985). Increased soil moisture also usually results in increased levels of soil compaction (Alexander and Poff 1985).

In order to safeguard soil productivity, soil cover should be sufficient to prevent the rate of accelerated soil erosion from exceeding the rate of soil formation; soil porosity 4 to 8 inches beneath the soil surface should be at least 90% of the total porosity found under undisturbed or natural conditions; and organic matter should be present in sufficient amounts to prevent significant short or long-term nutrient cycle deficits and to help avoid adverse physical soil characteristics. To preserve hydrologic function, soil permeability and infiltration rates should not be adversely impacted. Overall soil health should be considered such that soil reaction class, buffering or exchange capacities, or biological populations are not altered to the degree that significantly affects soil productivity, soil hydrologic function, or the health of humans and animals (USFS 1980, 2009).

The likelihood of erosion is greater when the vegetative cover is removed or reduced, the soil is otherwise disturbed, or when both of these conditions exist. Soil erosion by water is more aggressive on steep slopes than on shallow slopes (e.g., 10% gradient or less), because at lower slope gradients surface runoff cannot reach peak velocities necessary to erode the soil. In general, areas with less vegetative cover are more prone to soil erosion than heavily vegetated areas, because surface cover and additional soil structure from plant roots can reduce soil erosion potential. Soil erosion can also be caused by wind in areas with a combination of high winds, removed or disturbed vegetation, fine sandy or silty textures, and low organic matter content. The erosion rate of a particular soil in the absence of human activities is referred to as the natural (background) or geologic erosion rate. Soil erosion in excess of the natural erosion rate is called accelerated soil erosion and is usually caused by poorly implemented human activities such as timber harvesting, road construction, grading, and other land-disturbing activities (Robichaud et al. 2010).

Studies by the CGS indicate that areas with more abundant landslides result in excessive erosion and sedimentation of downstream drainages. This is particularly true for watersheds underlain by the Franciscan Formation, a widespread geologic formation in California characterized by abundant deep-seated landslides and earthflows. Long duration precipitation results in localized shallow failures, gully erosion, and erosion of the in-channel toes of these large unstable features, which in turn results in excessive sedimentation of water bodies (CGS 2002b).

### Roads and Erosion

Roads are ubiquitous in the forest environment. Forest roads are needed for economical removal of forest products, resource management activities, recreation activities, and public access. From a fuel management perspective, forest roads are needed to conduct thinning and timber harvest operations. The majority of forest roads are unpaved. These compacted road surfaces typically have very low infiltration rates and, as a result, generate large amounts of surface runoff. Road surfaces are subjected to rain-splash, and the combination of rain-splash with large amounts of surface runoff results in surface erosion rates that are several orders of magnitude higher than the adjacent undisturbed forest. Research has consistently shown that roads, including tractor skid trails and log landings, have the greatest effect on erosion of all practices associated with forest management. Although other forest management activities usually occur on a larger proportion of the landscape, the erosion rates on roads are the dominant source of sediment in most managed forests. Erosional impacts vary by the amount of roads and landings constructed, the season of construction, the type of soils, road surfacing and design, and especially the sensitivity of the soils on which roads are constructed. Constructing roads during the rainy season encourages surface runoff, erosion, and sedimentation. New roads are highly erodible during the first rains and/or snowmelt following construction (Robichaud et al. 2010; USFS 1980, 2012).

Roads having high cutbanks tend to produce more sediment than roads with low cutbanks. Freezing and thawing, heating and cooling, and raindrop action dislodge soil particles that travel into drainage ditches and are transported to streams. Road construction on slopes exceeding 70% often produce sidecast material that can bury downslope vegetation and create droughty conditions, resulting in reduced soil-site productivity. Improper location and inadequate number or size of drainage facilities can increase the incidence of road failures and road surface erosion (USFS 1980).

Runoff can detach and transport the fine material available on unpaved road surfaces. Without vehicle traffic, the sediment concentration in the road runoff decreases over time. However, vehicle traffic, especially heavy trucks, can crush road surface aggregate material and this generates more fine particles that are available for transport by runoff. In addition, the pressure of vehicular tires on saturated road aggregate can force fine particles from below

the surface to move to the surface. In western Oregon, 20% of the material finer than 0.003 inches (0.075 mm) diameter was eroded over three months from a structurally weak road aggregate that was subjected to 26 inches (660 mm) of rainfall and 884 logging truck trips. The authors concluded that truck traffic generated 11 tons of fines per acre of road surface (Robichaud et al. 2010).

Road erosion rates generally increase with increased traffic, and heavy vehicles tend to cause more erosion than light vehicles. Higher use also is associated with more frequent maintenance operations, and grading increases the amount of available sediment and road erosion rates. Measurements were completed of sediment production from two forest roads in southwestern Washington—one mainline road with high traffic and one secondary road with little traffic. Routine maintenance was performed on the mainline road once or twice per week while maintenance was done on the secondary road every 7 to 8 weeks. Sediment production over the 23-week study period was 2.5 times greater for the mainline road than for the secondary road (Robichaud et al. 2010).

Many techniques used to estimate road sediment production assume factors that influence it (for example, rainfall, traffic, roadway material, etc.) are additive. For example, in the Washington Forest Practices (Washington State Department of Ecology 1993) analysis method, sediment production estimates are independently modified by factors for traffic and surface material. However, a study in western Oregon found little difference in sediment production between road plots that were subjected to traffic and those that were recently graded but had no traffic. They concluded that applying adjustment factors independently overestimated the effect of traffic on new roads or recently maintained roads (Robichaud et al. 2010).

Each Sustainable Forest Management Project could include construction of up to 1.0 mile of unpaved roads. In addition, existing unpaved roads would be improved and maintained as part of feedstock acquisition. As previously discussed, road construction and maintenance in hillside areas typically involves pushing sediments over the downslope side of the road (i.e., sidecast material), which can result in thick accumulation of sediments on the hillsides. These sediment accumulations would be subject to excessive erosion and siltation of down-slope water bodies during precipitation events. Mass wasting events could occur during periods of high intensity precipitation, resulting in substantial quantities of sediment in downstream water bodies. Increased sediment in downstream water bodies could contribute to increased sediment that would be in excess of U.S. Environmental Protection Agency Total Maximum Daily Load requirements for sediment and turbidity. (See Section 3.10, Hydrology and Water Quality for additional information.)

Feedstock acquisition on both flat and hillside unpaved roads would result in heavy truck traffic, which could result in surface erosion rates that are several orders of magnitude higher than the adjacent undisturbed forest. As described above, research has consistently shown that roads have the greatest effect on erosion of all practices associated with forest management. Although other forest management activities usually occur on a larger proportion of the landscape, the erosion rates on roads are the dominant source of sediment in most managed forests. As a result, erosion from unpaved roads during feedstock acquisition could result in potentially significant erosion and siltation and downstream water bodies.

However, PDFs (see Section 2.4) would minimize the potential for erosion during road construction, maintenance, and use. PDF-GEO-1 requires suspension of road use during wet winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable soil

areas (i.e., soil with moderate to high erosion potential). With implementation of **PDF-GEO-1** through **PDF-GEO-6** potentially significant road related erosion impacts would be reduced to **less than significant** levels.

### Forest Thinning and Erosion

Numerous studies have evaluated the effects of timber harvest on runoff, water quality, erosion, and sediment yields. Most studies have focused on commercial harvests using relatively severe treatments such as clearcuts, patch cuts, or heavy selective cuts, while few studies have focused on forest thinning operations. Fuel management treatments conducted in accordance with the Project Design Features described in Section 2.4 are more similar to thinning operations, such as selective single tree selection or group cuts, rather than patch or clearcuts. This means that the observations and conclusions presented here are based partly on inference and extrapolation from studies of more intensive forest harvest operations, and to the extent possible, on the limited data from thinning studies that more closely correspond to the amount of disturbance that might be expected from fuel reduction treatments (Robichaud et al. 2010).

The removal of forest cover decreases interception and transpiration, and in wetter areas, this generally increases annual water yields. The increases in annual water yield following forest harvest are usually assumed to be proportional to the amount of forest cover removed, but at least 15% to 20% of the trees must be removed to produce a statistically detectable effect. In areas where the annual precipitation is less than 18 to 20 inches, removal of the forest canopy is unlikely to significantly increase annual water yields. In drier areas, the decrease in interception and transpiration is generally offset by the increase in soil evaporation, and there is no net change in runoff as long as there is no change in the underlying runoff processes (for example, a shift from subsurface stormflow to overland flow due to soil compaction). For example, removing 100% of the forest cover in a snow-dominated area with a mean annual precipitation of 21 inches resulted in an initial water yield increase of 1.1 inches per year, while a 24% reduction in forest cover in a snow-dominated area with a mean annual precipitation of 34 inches caused an initial water yield increase of 3 inches per year. In wetter environments, the combination of clearcutting and roads may increase annual water yields by 20 inches or more. Extrapolating from these and other results suggest that relatively heavy thinning operations can increase annual water yields in wetter environments. No measurable increase in runoff can be expected from thinning operations that remove less than 15% of the forest cover or in areas with less than 18 inches of annual precipitation. Since evapotranspiration rapidly recovers with vegetative regrowth in partially thinned areas, any increase in runoff due to thinning operations is likely to persist for no more than 5 to 10 years (Robichaud et al. 2010).

### Timing of Forest Thinning

The timing of the increase in runoff due to forest harvest is important because of the potential impact on water supplies, sediment transport capacity, bank erosion, and aquatic ecosystems. If forest harvest only increases low or moderate flows, one would expect little or no change in channel erosion or sediment yields. An increase in larger flows provides a mechanism for increasing annual sediment yields (Robichaud et al. 2010).

The timing of the increased runoff due to harvesting will vary with the hydrologic/ physiographic characteristics and climate regime. Because the climate in northern California is dry in summer and rainy during the winter, the largest increase in runoff occurs in the fall to early winter. This is due to the increase in soil moisture in late summer after forest harvest and the resulting increase in runoff efficiency because less precipitation is needed for soil moisture recharge. Runoff rates also will increase throughout the winter due to the reduction in interception (Robichaud et al. 2010).

In snow-dominated environments, nearly all of the increase in runoff will occur in early spring. As in rain-dominated environments, forest harvest reduces summer evapotranspiration and increases the amount of soil moisture carryover. Less snowmelt is needed for soil moisture recharge, so more of the early season melt is converted into runoff. The reduction in forest canopy also increases the amount of solar radiation that reaches the surface of the snowpack and the transfer of advective heat, and these changes increase the rate of snowmelt and may slightly accelerate the timing of peak runoff (Robichaud et al. 2010).

Several recent studies have summarized erosion and sediment yields from managed and unmanaged forests. These include a summary of erosion and sediment production data from different site preparation and timber harvest activities in the United States and suspended sediment data from areas subjected to forest harvest and road construction. These reviews indicate a general lack of data for non-commercial thinning operations (i.e., non-clearcutting and harvesting operations) and a relatively rapid decline in surface erosion rates after timber harvest activities. For example, in central Idaho, 90% of the erosion from skyline and jammer logging occurred within the first two years after harvest (Robichaud et al. 2010).

Based on the preceding discussion regarding forest thinning, increased runoff, and increased erosion, project feedstock acquisition would result in potentially significant erosion related impacts. However, PDFs (see Section 2.4) would minimize the potential for erosion during feedstock acquisition. PDF-GEO-1 requires suspension of mechanical treatments during wet winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion during feedstock acquisition. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). With implementation of **PDF-GEO-1** through **PDF-GEO-6** potentially significant erosion impacts during feedstock acquisition would be reduced to **less than significant** levels.

### Tree Felling and Erosion

Felling is the action of cutting down a tree by machine or hand. Mechanized fellers cut a tree down with a saw blade and then de-limb the tree. Some machines are designed to collect the trees using a specialized attachment (feller-buncher). Mechanized felling is faster and less hazardous than hand-felling, but the trees need to be under a certain diameter and the area has to be machine accessible. Mechanized fellers can disturb and compact the soil, and the use of these machines is a potential source of erosion. However, because they do not drag the logs on the ground, they often generate less erosion than log skidders (Robichaud et al. 2010).

The effects of felling on erosion generally have not been studied independent of yarding. Hand felling can be accomplished by one person with a chainsaw, and the amount of soil disturbance from this activity generally is considered negligible. A comparison of clearcut and thinned plots to control plots showed that hand-felling without mechanized yarding caused minimal surface disturbance and no increase in erosion (Robichaud et al. 2010).

Non-commercial thinning to reduce fuel loads is being done on an increasingly large scale using masticating machines. These machines are usually large, rubber-tired or tracked skidders with a mulching or wood grinding attachment such as a Hydro-Ax or a Bull-Hog. Some machines are designed to masticate standing trees, while others fell the trees before masticating the material. Like mechanized fellers, the movement of masticating machines can disturb or compact the soil and thereby increase the potential for erosion. The shredded wood that

remains after these operations may increase the amount of ground cover and reduce the erosion potential (Robichaud et al. 2010).

Based on the preceding discussion regarding tree felling and increased erosion, project feedstock acquisition would result in potentially significant erosion related impacts. However, PDFs (see Section 2.4) would minimize the potential for erosion during tree felling. PDF-GEO-1 requires suspension of mechanical treatments during wet winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion during tree felling operations. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). With implementation of **PDF-GEO-1** through **PDF-GEO-6** potentially significant erosion impacts during tree felling operations would be reduced to **less than significant** levels.

### Yarding and Erosion

The amount of disturbed area and bare soil due to thinning will depend largely on the amount and type of yarding activities. Tractor yarding generally produces the greatest amount of site disturbance, followed by jammer, high lead cable, skyline, and helicopter yarding. Ground-based tractor-yarding generally necessitates an extensive network of skid trails and roads, while full suspension cable yarding will cause much less ground disturbance and generally requires a less dense road network. The use of ground-based logging systems can result in increased soil disturbance by displacing soil cover through the mechanical action of machine travel. Alexander and Poff (1985) stated that commercial thinning operations which utilized tractors and rubber-tired skidders could result in 34% disturbance of a given activity area. The authors also showed that tractor logging of clearcuts can result in up to 43% areal extent of disturbance. But the authors also noted that when skid trail layout was considered, disturbance could be as low as 4% to 11% depending on skid trail spacing. Soil disturbance monitoring on the Klamath National Forest of conventional tractor logging with rubber-tired skidders showed that an average of 11.5% of a particular unit was in main skid trails and landings after harvest. Machine piling can also increase ground disturbance when the machine turns. Soil disturbance can occur when the equipment turns and the track scrapes the soil surface. In some situations, jammer logging (cut trees are cable yarded using a truck-mounted boom) can result in up to 29% more road area than tractor-logging, and the higher road density can greatly increase the total erosion rate from the project area. But increased ground disturbance, as long as it is not excessive, does not always equate with excessive surface erosion. Soils with high soil strength (loams and clay loams) show much less surface disturbance compared to low strength soils (sandy loams) (USFS 2009; Robichaud et al. 2010).

Although thinning a stand of trees to a desired density requires access to the entire stand, non-commercial thinning generally requires little or no yarding and can be one of the least disturbing forest management practices. Commercial thinning requires yarding methods appropriate for smaller trees, such as small skylines with light cables and short towers, small crawler tractors, rubber-tired skidders, horses, tractor-mounted winches, or specialty yarding machines. The use of skyline logging systems would be expected to cause smaller amounts of soil displacement than ground-based logging systems because the primary disturbance lies in the skyline yarding corridors where the butt end of logs drag over the soil surface. Unlike ground-based systems, there is no overland machine travel. Therefore, the affected area tends to be more limited. The spatial area occupied by yarding corridors in skyline operations can vary from 3% to 8%. Helicopter logging would be expected to cause even smaller amounts of soil disturbance than skyline operations, usually caused when cut trees hit the ground and cause a small depression to form in the surface soil. The level of estimated detrimental disturbance from past helicopter logging

activities has been shown to average as much as 6% within a given unit. While unit-level disturbance from helicopter logging is often minimal, this harvest method can require the construction of landings that may cause an additional loss of soil productivity. Skyline and helicopter logging is typically used on slopes greater than 45% in order to reduce the potential amount of erosion on steeper slopes. In general, the amount of disturbance caused by yarding will depend on the site characteristics, timing of yarding, and the percent of the stand that is being thinned. In most cases, the amount of disturbance from commercial thinning will be similar to selective harvest techniques (USFS 2009; Robichaud et al. 2010).

Based on the preceding discussion regarding yarding and increased erosion, project feedstock acquisition would result in potentially significant erosion related impacts. However, PDFs (see Section 2.4) would minimize the potential for erosion during yarding. PDF-GEO-1 requires suspension of mechanical treatments during wet winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion during yarding operations. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). With implementation of **PDF-GEO-1** through **PDF-GEO-6** potentially significant erosion impacts during yarding operations would be reduced to **less than significant** levels.

## Wood Pellet Production

### Lassen Facility

The proposed project would include construction of a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, project storage, and loadout area. New roads for truck access and mill personnel access would be added, including a new road for truck access from Babcock Road at the southwest corner of the site. A new rail spur connecting to the adjacent BNSF Railway line would be added for finished product load out as well as additional rail siding tracks on-site for the storage of full and empty railcars. Other improvements would include new truck scales and a graded area for overflow raw material storage.

Construction-related activities could potentially result in sediment releases due to exposure of previously stabilized soils to rainfall/runoff and wind, which in turn could result in sedimentation of downstream receiving waters. Such activities include the removal of vegetation, demolition of on-site infrastructure, and grading of the site. In addition, grass and other low-lying vegetation would be degraded due to use (e.g., equipment staging area), resulting in exposure of underlying soils. Because greater than 1.0 acre of ground disturbance would occur, project construction would adhere to required erosion control measures stipulated in a SWPPP, pursuant to the conditions of a Construction General Permit.

The project proponent would file a Notice of Intent with the SWRCB to comply with the requirements of the Construction General Permit. This process would include the preparation of a SWPPP and incorporation of BMPs to control construction-related erosion and sedimentation in dry weather and stormwater runoff. Typical BMPs incorporated into a SWPPP to protect water quality will include the following:

- Diverting off-site runoff away from the construction site.
- Vegetating landscaped/vegetated swale areas as soon as feasible following grading activities.
- Placing perimeter straw wattles to prevent off-site transport of sediment.

- Using drop inlet protection (filters and sandbags or straw wattles), with sandbag check dams within paved areas.
- Regular watering of exposed soils to control dust during demolition and construction.
- Implementing specifications for demolition/construction waste handling and disposal.
- Using contained equipment wash-out and vehicle maintenance areas.
- Maintaining erosion and sedimentation control measures throughout the construction period.
- Stabilizing construction entrances to avoid trucks from imprinting soil and debris onto the project site and adjoining roadways.
- Training, including for subcontractors, on general site housekeeping.

Compliance with existing regulations would prevent violation of water quality standards as a result of erosion induced siltation of downstream water bodies. Therefore, compliance with existing regulations would ensure that wood pellet facility construction would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface quality from construction activities. As a result, the project would not result in substantial erosion or loss of topsoil and impacts would be **less than significant**.

### Tuolumne Facility

The proposed project would include construction of a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, project storage and loadout area. New roads for truck access and mill personnel access would be added, including a new truck access from La Grange Road at the southeast corner of the site. A new rail spur connecting to the adjacent Sierra Northern Railway line would be added for finished product loadout. Other improvements would include repurposing existing truck scales and a graded area for overflow raw material storage.

Erosion related impacts would be the same as that described above for the Lassen Facility. As a result, the project would not result in substantial erosion or loss of topsoil and impacts would be **less than significant**.

## Transport to Market

### Port of Stockton Facility

The proposed project would include a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, and a ship loadout system. A new rail spur connecting to an existing nearby rail line operated by CCTC would be added for pellet receipt.

Erosion related impacts would be the same as that described above for the Lassen Facility. As a result, the project would not result in substantial erosion or loss of topsoil and impacts would be **less than significant**.

Impact GEO-3 The project would potentially be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would not include construction or operation of structures or infrastructure. As a result, no geotechnical-related impacts, such as liquefaction, lateral spreading, subsidence, or collapse would occur with respect to project feedstock acquisition. However, as described for Impact GEO-1d, grading for new roads and maintenance of existing roads could potentially destabilize hillsides, resulting in potentially significant landslides. PDFs (see Section 2.4) would minimize the potential for slope instability during feedstock acquisition operations. PDF-GEO-1 requires suspension of mechanical treatments during wet winter weather, thus reducing the potential for creating slope instability in saturated soils. PDF-GEO-2 requires new road construction and maintenance in slope areas in excess of 50% (27 degrees) to be completed under the guidance of a California Engineering Geologist, who would evaluate the road route for potential slope instability and implement slope stability measures, as appropriate. PDF-GEO-3 requires implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion and associated slope instability. PDF-GEO-4 requires avoidance of slopes steeper than 75% (37 degrees), thus minimizing the potential for slope instability during wildfire fuel reduction operations. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion and associated slope instability. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable areas, thus minimizing the potential for slope instability during feedstock acquisition. With implementation of **PDF-GEO-1** through **PDF-GEO-6** potentially significant landslide impacts would be reduced to **less than significant** levels.

## Wood Pellet Production

### Lassen Facility

As discussed for Impact GEO-1c, based on the presence of shallow groundwater and alluvial soils, the potential exists for liquefaction to occur at the site. Lateral spreading would not occur based on the lack of slopes at the site. As indicated in Impact GEO-1d, landslides would not occur at the site due to a lack of existing slopes However, potentially oversteepened temporary slopes may be prone to failure. Saturated sidewalls of excavations and trenches could also result in caving and sloughing. As indicated in Section 3.6.1, the site is not in an area of known subsidence due to groundwater pumping, peat loss, or oil extraction. Seismically induced differential settlement could potentially occur in shallow excavations into unconsolidated topsoil, existing fill, or alluvium, resulting in foundation cracking and pipeline/utility damage.

However, as discussed for Impact GEO-1b, design and construction of the project would be in compliance with the CBC, which includes adherence to recommendations of the project-specific geotechnical report (Appendix E1). This report provides seismic design criteria for the proposed project, thus minimizing the potential for damage as a result of seismically induced ground failure. The Lassen County Planning and Building Services Department ensures that all new construction complies with current codes and ordinances regarding earthquake safety. In addition, construction and operation of the proposed wood pellet facility would not cause or exacerbate the potential for earthquakes to occur. In addition, as described for Impact GEO-1d, the geotechnical report includes recommendations for stabilization of temporary slopes. As a result, construction would occur in compliance with standard geotechnical engineering, the CBC, and Cal/OSHA, such that onsite geologic units or soil would not become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. As a result, impacts would be **less than significant**.

### Tuolumne Facility

As discussed for Impact GEO-1c, the potential for liquefaction, lateral spreading, and differential settlement is low due to shallow bedrock conditions and generally low seismicity in the area. As indicated in Impact GEO-1d, there is no potential for existing landslides to adversely affect the site. However, there is a modest risk that displacement and/or movement could occur on proposed 5 to 10 foot slopes in the event of strong seismically induced ground shaking. As a result, the project geotechnical report (Appendix E3) recommends that all cut and fill slopes be constructed no steeper than 2:1 or 3:1 (horizontal to vertical), depending on tolerance for minor slope failure. With incorporation of recommendations of the geotechnical report, construction and operation of the facility would not result in significant impacts related to on- or off-site landslides.

As indicated in Section 3.6.1, the site is not in an area of known subsidence due to underground mining, groundwater pumping, peat loss, or oil extraction. Based on the soil survey for the project area, and the site-specific geotechnical report (Appendix E3) competent bedrock is present at shallow depths. Therefore, any potential deep excavations for proposed structures would likely be completed into bedrock not susceptible to caving and collapse. Seismically induced differential settlement could potentially occur in shallow excavations into unconsolidated topsoil or existing fill, such as for standard slab-on-grade foundations, resulting in foundation cracking and pipeline/utility damage. However, for the reasons described above for the Lassen Facility, construction and operation of the facility would not result in significant impacts related to on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. Impacts would be **less than significant**.

## Transport to Market

### Port of Stockton

As discussed in Section 3.6.1, regional seismic activity could cause accelerations severe enough to cause major damage to structures and foundations in the Port not designed to resist the forces generated by earthquakes. Underground utility lines are also susceptible where they lack sufficient flexibility to accommodate the seismic ground motion. A geotechnical investigation completed in 2020 for a site within the Port indicated that the top 50 feet of soil have a moderate vulnerability to liquefaction, but that there is sufficient non-liquefiable soil on top of potentially liquefiable soil to prevent secondary liquefaction effects (e.g., sand boils or lurch cracking) following a major earthquake. Based on the relatively flat topography of the site, the potential for lateral spreading is low. In addition, seismically induced landslides would not occur, as the topography of the site is relatively flat to gently sloping. Seismically induced differential settlement could potentially occur, resulting in foundation cracking and pipeline/utility damage. However, for the reasons described above for the Lassen Facility, construction and operation of the facility would not result in significant impacts related to on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. Impacts would be **less than significant**.

Impact GEO-4 The project would not be located on expansive soil, creating substantial direct or indirect risks to life or property.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would not include construction or operation of structures or infrastructure. As a result, no geotechnical-related impacts related to expansive soils would occur. **No impacts** would occur.

## Wood Pellet Production

### Lassen Facility

Based on the soil survey for the project area, surficial soils consist primarily of Pit silty clay. Laboratory tests performed on near surface soils indicated these clays have a medium to high expansion potential. As a result, near-surface soils could exert significant expansion pressures on building foundations, interior floor slabs, exterior flatwork, and pavements (Appendix E1). However, project development would comply with recommendations of the project specific geotechnical report, with the Lassen County Building Code, and with the CBC, which would mitigate potential risks to proposed structures associated with expansive soils. The geotechnical report recommends the upper 12 inches of soil beneath proposed foundations consist of nonexpansive, well-graded, granular soils, with a plasticity index of 15 or less, when tested in accordance with ASTM D4318, or an expansion index of 20 or less, when tested in accordance with ASTM D4829. The Lassen County Planning and Building Services Department ensures that all new construction complies with current codes and ordinances regarding earthquake safety. Lassen Facility construction and operation would not foreseeably create hazards or risks to life or property from expansive soils given the soil engineering that would be done prior to project construction, in accordance with the recommendations of the geotechnical report. As a result, construction and operation of the facility would not result in significant impacts related to expansive soils. Impacts would be **less than significant**.

### Tuolumne Facility

Based on the soil survey for the project area, surficial soils consist primarily of loam, which is soil with roughly equal proportions of sand, silt, and clay. Laboratory tests performed on near-surface soils indicated these soils have a low plasticity index when tested in accordance with ASTM D4318. Therefore, the near-surface weathered bedrock should not exhibit significant expansion (shrink/swell) characteristics. In addition, although highly plastic, the silt encountered in test pits should also not exhibit significant expansion characteristics. Accordingly, measures to resist or control potential soil expansion pressures are not considered necessary (Appendix E3) and impacts would be **less than significant**.

## Transport to Market

### Port of Stockton

The Port area is underlain by artificial fill and silty clay loam. Based on the presence of silty clay and heterogeneous unknown fill type, the potential for expansive clays exists at the site. However, for the reasons described above for the Lassen and Tuolumne facilities, construction and operation of the Facility would not result in significant impacts related to expansive soils. Impacts would be **less than significant**.

Impact GEO-5 The project would potentially have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would not include construction or operation of structures requiring wastewater disposal. As a result, no impacts related to wastewater disposal would occur. **No impacts** would occur.

## Wood Pellet Production

### Lassen Facility

Sanitary sewers are not available for wastewater disposal; therefore, a septic system would be required during project operations. Based on percolation testing at two on-site locations, the site may not be suitable for infiltration as the infiltration at the site will be very low to non-existent. In addition, the shallow depth of existing groundwater for the site is a concern with respect to the distance between the bottom of the system and groundwater. The geotechnical report recommends that the drainage system be designed by an experienced and qualified engineer familiar with the applicable regulatory agencies requirements and an appropriate factor of safety should be included in the overall design (Appendix E1).

As a result, use of a standard septic tank system may result in a potentially significant impact to groundwater quality.

An engineered septic tank system, which is designed to treat the effluent prior to discharge to the subsurface, would prevent potential adverse bacterial impacts to groundwater beneath the site. The requirement for such a system is described in mitigation measure **MM-GEO-1.** With the implementation of this Mitigation Measure, impacts would be reduced to **less than significant** levels.

### Tuolumne Facility

Sanitary sewers are not available for wastewater disposal; therefore, a septic system would be required during project operations. A geotechnical investigation completed at the site (Appendix E3) included percolation tests at two locations on-site. In addition, a test pit was excavated near the percolation test locations to determine the depth of weathered bedrock. Resistant bedrock was encountered at a depth of about 3.5 feet below ground surface, overlain by low plastic clay (residual soil). Based on the percolation testing, which were completed at depths of 1 and 2 feet, respectively, the percolation rate was 150 and 300 minutes per inch, which is very slow.

Based on Section 13.08.220 of the Tuolumne County On-Site Sewage Treatment and Disposal Code (Chapter 13.08), “there shall be a minimum of five feet of permeable soil below the bottom of a leach trench or bed” with permeable soil defined as soil with a percolation rate not slower than 120 minutes per inch for standard leach trenches or beds. With the shallow bedrock conditions and slow percolation test results, a conventional absorption trench, bed or pit sewage treatment system will not meet Tuolumne County criteria. The geotechnical report recommended that a mound system or a system that incorporates pre-treatment prior to evaporation or ground disposal, be constructed.

As a result, use of a standard septic tank system may result in a potentially significant impact to groundwater quality.

An engineered septic tank system, which is designed to treat the effluent prior to discharge to the subsurface, would prevent potential adverse bacterial impacts to groundwater beneath the site. The requirement for such a system is described in mitigation measure **MM-GEO-1**. With the implementation of this Mitigation Measure, impacts would be reduced to **less than significant** levels.

## Transport to Market

### Port of Stockton

The Port of Stockton is a deep-water port located within City of Stockton jurisdiction. As a result, the project would be served by existing City sewers. As a result, **no impacts** would occur.

Impact GEO-6 The project would potentially directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would not include construction or operation of structures or infrastructure requiring subsurface excavations. As a result, no impacts related to paleontological resources would occur. **No impacts** would occur.

### Lassen Facility

No paleontological resources were identified within the Lassen County project site as a result of the institutional records search or desktop geological and paleontological review. In addition, the Lassen County project site is not anticipated to be underlain by unique geologic features. The project site is underlain by Quaternary, late Pleistocene to Holocene lake deposits and have low to high paleontological sensitivity (increasing with depth beneath the ground surface). If intact paleontological resources are located onsite, ground-disturbing activities associated with construction of the proposed project, such as grading during site preparation and trenching for utilities, have the potential to destroy a unique paleontological resource or site. As such, the project site is considered to be potentially sensitive for paleontological resources, and without mitigation, the potential damage to paleontological resources during construction associated with the project is considered a potentially significant impact. Given the proximity of past fossil discoveries in the surrounding area within similar sediments as those found at the project site, the project site is highly sensitive for supporting paleontological resources below the depth of fill and weathered, Pleistocene lake deposits. However, upon implementation of **MM-GEO-2**, impacts would be reduced to **less than significant** levels.

### Tuolumne Facility

No paleontological resources were identified within the Tuolumne project site as a result of the institutional records search or desktop geological and paleontological review. In addition, the Tuolumne project site is not anticipated to be underlain by unique geologic features. The project site is underlain Triassic -Jurassic metavolcanic rocks, specifically greenschist, and has no paleontological sensitivity (Bartow et al. 1981; Morgan 1976; CDMG 1972). Given the lack of past fossil discoveries in the surrounding area within similar geological units as those found at the project site, the project site has no sensitivity for supporting paleontological resources, and potential impacts would be **less than significant**.

### Port of Stockton

No paleontological resources were identified within the Port of Stockton project site as a result of the institutional records search or desktop geological and paleontological review. In addition, the Port of Stockton project site is not

anticipated to be underlain by unique geologic features. The project site is underlain by recent stream channel and basin deposits of the Great Valley. These sediments are generally too young to preserve fossils on the surface and at shallow depths, and have low paleontological sensitivity, but are often underlain, at depth, by older Holocene and Pleistocene sediments that have high paleontological sensitivity. If intact paleontological resources are located onsite, ground-disturbing activities associated with construction of the proposed project, such as grading during site preparation and trenching for utilities, have the potential to destroy a unique paleontological resource or site. As such, the project site is considered to be potentially sensitive for paleontological resources, and without mitigation, the potential damage to paleontological resources during construction associated with the project is considered a potentially significant impact. Given the proximity of past fossil discoveries in the surrounding area within similar sediments as those found at the project site, the project site is highly sensitive for supporting paleontological resources below the depth of fill and weathered stream channel and basin deposits. However, upon implementation of **MM-GEO-2**, impacts would be reduced to **less than significant** levels.

### 3.6.4.3 Cumulative Impacts

The project would not contribute to cumulative impacts, including the risk of loss, injury, or death involving:

A. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault.
B. Strong seismic ground shaking.
C. Seismic-related ground failure, including liquefaction.
D. Landslides.

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

The geographic context of seismic hazards is a Working Area near the Lassen and Tuolumne wood pellet production facilities, where there is a general risk of experiencing a substantive earthquake on any of the regional Holocene-active faults in the area. With respect to rupture of an earthquake fault, strong seismic ground shaking, and seismic related failure, including liquefaction, no project impacts would occur, as feedstock acquisition would not include construction or operation of structures or infrastructure. As a result, no seismic-related structural impacts would occur with respect to project feedstock acquisition. In addition, feedstock acquisition would not directly or indirectly cause seismic impacts. As a result, the proposed project, in combination with cumulative projects within the Working Area of the pellet facilities, would not result in cumulatively considerable impacts.

With regard to landslides, project induced landsliding could potentially occur and impacts would be less than significant with mitigation. However, landslide risks tend to be site-specific rather than cumulative in nature, because the effects are so dependent on site-specific conditions and do not combine from site to site. For current, past, and reasonably foreseeable cumulative projects, any development occurring within the Working Area would be subject to site development construction standards and code requirements to ensure protection from substantive damage or injury. Cumulative projects would be subject to local, regional, and State regulations pertaining to slope stability, including CBC requirements when applicable. Therefore, the cumulative impact related to landslides would not be cumulatively considerable.

## Wood Pellet Production

### Lassen Facility

The geographic context of seismic hazards is a 50-mile radius of the project site, as there is a general risk of experiencing substantive ground shaking as a result of a large earthquake on any of the regional Holocene-active faults within a 50-mile radius. However, the majority of impacts from geologic hazards, such as liquefaction, landslides, and unstable soils, are site-specific and are therefore generally mitigated on a project-by-project basis. Each cumulative project, as identified in Section 3.0 of this EIR, would be required to adhere to required building engineering design, per the most recent version of the CBC, to ensure the safety of building occupants and avoid a cumulative geologic hazard. Additionally, as needed, projects would incorporate individual mitigation or geotechnical requirements for site-specific geologic hazards present on each individual cumulative project site. Therefore, a potential cumulative impact related to site-specific geologic hazards would not occur and the proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to seismicity and landslides.

### Tuolumne Facility

Impacts would be the same as that described for the Lassen Facility. The proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to seismicity and landslides.

## Transport to Market

### Port of Stockton

Impacts would be the same as that described for the Lassen Facility. The proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to seismicity and landslides.

The project could contribute to cumulative substantial soil erosion or the loss of topsoil.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Fuel management treatments generally are needed every 10 to 20 years and the associated cumulative effects occur during each access and treatment cycle. Although hillslope erosion rates recover quickly, the road system, which is typically used and maintained between treatment activities, is a chronic source of sediment. Sediment yields from high severity wildfires are much greater than the increase in sediment yields due to fuel management activities, but the recurrence interval of such wildfires can be hundreds of years. Over longer time scales, the cumulative impacts of fuel treatments, repeated at 10 to 20 year intervals, when combined with the impacts of continuous road maintenance and use, may be similar to the pulse impact from wildfires (Robichaud et al. 2010).

The cumulative effect of fuel management activities is related to their location and concentration within a given watershed as well as the degree and frequency of disturbance for each activity. The watershed-scale impacts of any fuel management activity must consider the associated activities of road use, road maintenance, increased traffic, and multiple entries with various types of equipment as well as the combined effects of all the fuel

treatments being applied. However, these effects are complex and interrelated. Few studies have examined the role of different controlling factors, much less the effects and interactions of the different activities on runoff and erosion at the watershed scale. Identifying the cumulative effects of timber harvest activities is a continuing challenge, as it is almost impossible to quantify the relative contribution of each activity at each location. It follows that determining the cumulative effects of fuel treatments, which generally cause less disturbance than timber harvesting, is even more of a challenge (Robichaud et al. 2010).

Roads greatly increase runoff and erosion rates at the plot and road segment scale. The effect of these increases at the watershed scale depends on the connectivity of the road and stream networks, but several studies have indicated that roads have minimal effect on runoff at larger spatial scales. More studies have shown that unpaved forest roads are chronic sediment sources and that roads can significantly increase sediment yields on small to moderate-sized catchments. Road building, maintenance, and obliteration can generate significant short-term increases in runoff and sediment. The effects of forest roads on runoff and sediment yields can be greatly reduced by improved road placement, road designs that dissipate runoff and direct it away from streams, and the widespread use of erosion mitigation techniques (Robichaud et al. 2010).

With respect to the proposed project, the area of influence for cumulative erosion related impacts would be the Working Area. Erosion from unpaved roads, as a result of new road construction or road maintenance during feedstock acquisition, could result in potentially significant erosion and siltation of downstream water bodies. According to the USGS National Hydrography Dataset, the Northern California Feedstock Area intersects 157 watersheds and 42,476 linear miles of streams, rivers, canals, and ditches (USGS 2023). However, with implementation of PDF-GEO-3, potential significant impacts would be reduced to less than significant with mitigation. In addition, forest thinning operations could result in increased stormwater runoff and increased erosion, resulting in potentially significant impacts. However, with implementation of PDF-GEO-4, erosion related impacts during forest thinning would be reduced to less than significant with mitigation. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would result in creation and implementation of erosion control related mitigation measures, similar to the proposed project. In addition, cumulative construction projects greater than 1.0 acre would be subject to provisions of the Construction General Permit, which requires implementation of a project-specific SWPPP and associated BMPs to minimize the potential for erosion. As a result, Impact GEO-2 would be considered potentially significant for both direct and cumulative erosion related impacts, but would be reduced to less than significant with mitigation.

## Wood Pellet Production

### Lassen Facility

The cumulative area of influence with respect to erosion is the encompassing Pit River Watershed, of the larger Sacramento River and San Francisco Bay watersheds (Figure 3.9-1, Feedstock Area Hydrologic Regions), as erosion can result in siltation of downstream water bodies. During construction activities, the project site and cumulative projects would have the potential to result in local soil erosion during excavation, grading, trenching, and soil stockpiling. Erosion could result in sediment and other pollutants (attached to sediment) entering surface water bodies and adversely affecting water quality. However, the project and the cumulative projects would be subject to the same regulatory requirements discussed in Section 3.6.4.2, Project Impacts. Compliance with existing regulations would prevent violation of water quality standards as a result of erosion induced siltation of downstream water bodies. Similar to the proposed project, any cumulative projects greater than 1.0 acre would be subject to provisions of the Construction General Permit, which requires implementation of a project-specific SWPPP and associated BMPs to

minimize the potential for erosion. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects would not result in cumulative considerable impacts with respect to erosion.

#### Tuolumne Facility

Erosion related impacts would be the same as that described for the Lassen Facility, although the cumulative area of influence with respect to erosion is the Upper Stanislaus River Watershed of the larger San Joaquin River and San Francisco Bay watersheds (Figure 3.9-1). The proposed project, in combination with past, present, and reasonably foreseeable projects would not result in cumulative considerable impacts with respect to erosion.

### Transport to Market

#### Port of Stockton

Erosion related impacts would be the same as that described for the Lassen Facility. the proposed project, in combination with past, present, and reasonably foreseeable projects would not result in cumulative considerable impacts with respect to erosion.

The project would not contribute to cumulatively considerable impacts as a result of being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

As described for cumulative Impact GEO-1, no seismic-related structural impacts would occur with respect to project feedstock acquisition. In addition, feedstock acquisition would not directly or indirectly cause seismic impacts. Similarly, no subsidence or collapse related impacts would occur with respect to project feedstock acquisition. In addition, feedstock acquisition would not directly or indirectly cause these types of impacts. As a result, the proposed project, in combination with cumulative projects within the Working Area, would not result in cumulatively considerable impacts.

With regard to landslides, project induced landsliding could potentially occur and impacts would be less than significant with mitigation. However, landslide risks tend to be site-specific rather than cumulative in nature, because the effects are so dependent on site-specific conditions and do not combine from site to site. For current, past, and reasonably foreseeable cumulative projects, any development occurring within the Working Area would be subject to site development construction standards and code requirements to ensure protection from substantive damage or injury. Cumulative projects would be subject to local, regional, and State regulations pertaining to slope stability, including CBC requirements when applicable. Therefore, the cumulative impact related to landslides would not be cumulatively considerable.

### Wood Pellet Production

#### Lassen Facility

As described for cumulative Impact GEO-1, the majority of impacts from geologic hazards, such as liquefaction, landslides, and unstable soils, are site-specific and are therefore generally mitigated on a project-by-project basis.

Each cumulative project, as identified in Section 3.0 of this EIR, would be required to adhere to required building engineering design, per the most recent version of the CBC, to ensure the safety of building occupants and avoid a cumulative geologic hazard. Additionally, as needed, projects would incorporate individual mitigation or geotechnical requirements for site-specific geologic hazards present on each individual cumulative project site. Therefore, the proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to geotechnical hazards.

#### Tuolumne Facility

Impacts would be the same as that described for the Lassen Facility. The proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to geotechnical hazards.

### Transport to Market

#### Port of Stockton

Impacts would be the same as that described for the Lassen Facility. The proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to geotechnical hazards.

The project would not contribute to cumulatively considerable impacts related to expansive soil, creating substantial direct or indirect risks to life or property.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Feedstock acquisition would not include construction or operation of structures or infrastructure. As a result, no geotechnical-related impacts related to expansive soils would occur. As a result, the proposed project, in combination with cumulative projects within the Working Area, would not result in cumulatively considerable impacts.

### Wood Pellet Production

#### Lassen Facility

As described for cumulative Impact GEO-1, the majority of impacts from geologic hazards, such expansive soils, are site-specific and are therefore generally mitigated on a project-by-project basis. Each cumulative project, as identified within Section 3.0 of this EIR, would be required to adhere to required building engineering design, per the most recent version of the CBC, to ensure the safety of building occupants and avoid a cumulative geologic hazard. Additionally, as needed, projects would incorporate individual mitigation or geotechnical requirements for site-specific geologic hazards present on each individual cumulative project site. Therefore, the proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to geotechnical hazards.

### Tuolumne Facility

Impacts would be the same as that described for the Lassen Facility. The proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to geotechnical hazards.

## Transport to Market

### Port of Stockton

Impacts would be the same as that described for the Lassen Facility. The proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with respect to geotechnical hazards.

The project would not contribute to cumulatively considerable impacts related to on-site soils being incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would not include construction or operation of structures requiring wastewater disposal. As a result, no impacts related to wastewater disposal would occur. No impacts would occur.

## Wood Pellet Production

### Lassen Facility

As described in Section 3.6.4.2, Project Impacts, inadequate percolation resulting from the -on-site soils could result in potential groundwater quality impacts. Implementation of **MM-GEO-5** would reduce this potential impact to less than significant. Additional septic systems are not proposed near the project site in the cumulative scenario. Therefore, a cumulative impact would not occur.

### Tuolumne Facility

As described in Section 3.6.4.2, Project Impacts, inadequate percolation resulting from the -on-site soils could result in potential groundwater quality impacts. Implementation of **MM-GEO-5** would reduce this potential impact to less than significant. Additional septic systems are not proposed near the project site in the cumulative scenario. Therefore, a cumulative impact would not occur.

## Transport to Market

### Port of Stockton

The Port of Stockton is a deep-water port located within City of Stockton jurisdiction. As a result, the project would be served by existing City sewers. As a result, no impacts would occur with respect to the proposed project.

The project would not contribute to cumulatively considerable impacts related to potential directly or indirectly destroying a unique paleontological resource or site or unique geologic feature.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would not include construction or operation of structures or infrastructure requiring subsurface excavations. As a result, no impacts related to paleontological resources would occur. No impacts would occur.

## Wood Pellet Production

### Lassen Facility

Potential cumulative impacts to paleontological resources would result from projects that combine to create an environment where fossils, exposed on the surface, are vulnerable to destruction by earthmoving equipment, looting by the public, and natural causes such as weathering and erosion. The majority of impacts to paleontological resources are site-specific and are therefore generally mitigated on a project-by-project basis. Cumulative projects would be required to assess impacts to paleontological resources. Additionally, as needed, projects would incorporate individual mitigation for site-specific geological units present on each individual project site. Furthermore, the project does not propose construction (including grading/excavation) or design features that could directly or indirectly contribute to an increase in a cumulative impact to paleontological resources, as the mitigation measure provided in this analysis ensures any significant paleontological resources uncovered during project excavations would be properly analyzed and salvaged by the on-site paleontological monitor. Therefore, the project, in combination with the past, present, and reasonably foreseeable future projects in the project vicinity, would result in less-than-significant cumulative impacts to paleontological resources, and no further mitigation measures are required. Moreover, impacts to paleontological resources would be avoided and/or mitigated with implementation of a paleontological mitigation program during excavations into paleontologically sensitive geological units. Therefore, the project's contribution to cumulative impacts would not be cumulatively considerable. As such, cumulative impacts on paleontological resources would be less than significant.

### Tuolumne Facility

Potential cumulative impacts to paleontological resources would result from projects that combine to create an environment where fossils, exposed on the surface, are vulnerable to destruction by earthmoving equipment, looting by the public, and natural causes such as weathering and erosion. The majority of impacts to paleontological resources are site-specific and are therefore generally mitigated on a project-by-project basis. Cumulative projects would be required to assess impacts to paleontological resources. Additionally, as needed, projects would incorporate individual mitigation for site-specific geological units present on each individual project site. Furthermore, the project does not propose construction (including grading/excavation) or design features that could directly or indirectly contribute to an increase in a cumulative impact to paleontological resources, as the mitigation measure provided in this analysis ensures any significant paleontological resources uncovered during project excavations would be properly analyzed and salvaged by the on-site paleontological monitor. Therefore, the project, in combination with the past, present, and reasonably foreseeable future projects in the project vicinity, would result in less-than-significant cumulative impacts to paleontological resources, and no further mitigation measures are required. Moreover, impacts to paleontological resources would be avoided and/or mitigated with implementation

of a paleontological mitigation program during excavations into paleontologically sensitive geological units. Therefore, the project's contribution to cumulative impacts would not be cumulatively considerable. As such, cumulative impacts on paleontological resources would be less than significant.

### Transport to Market

#### Port of Stockton

Potential cumulative impacts to paleontological resources would result from projects that combine to create an environment where fossils, exposed on the surface, are vulnerable to destruction by earthmoving equipment, looting by the public, and natural causes such as weathering and erosion. The majority of impacts to paleontological resources are site-specific and are therefore generally mitigated on a project-by-project basis. Cumulative projects would be required to assess impacts to paleontological resources. Additionally, as needed, projects would incorporate individual mitigation for site-specific geological units present on each individual project site. Furthermore, the project does not propose construction (including grading/excavation) or design features that could directly or indirectly contribute to an increase in a cumulative impact to paleontological resources, as the mitigation measure provided in this analysis ensures any significant paleontological resources uncovered during project excavations would be properly analyzed and salvaged by the on-site paleontological monitor. Therefore, the project, in combination with the past, present, and reasonably foreseeable future projects in the project vicinity, would result in less-than-significant cumulative impacts to paleontological resources, and no further mitigation measures are required. Moreover, impacts to paleontological resources would be avoided and/or mitigated with implementation of a paleontological mitigation program during excavations into paleontologically sensitive geological units. Therefore, the project's contribution to cumulative impacts would not be cumulatively considerable. As such, cumulative impacts on paleontological resources would be less than significant.

## 3.6.4.4 Mitigation Measures

MM-GEO-1 Engineered Septic System. The on-site septic system shall be an engineered system to address on-site constraints including poor soil conditions (insufficient percolation) and high groundwater. The system may consist of an aerobic treatment unit or other system with equivalent pretreatment characteristics. The system, including any dispersal system, shall be located a minimum of 100 feet from any domestic water well. The system shall meet the requirements for protection of water quality of the local environmental health agency and the Regional Water Quality Control Board.

MM-GEO-2 Paleontological Resources. Prior to commencement of any grading activity on-site, GSNR shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) (2010) guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the project. The PRIMP shall be consistent with the SVP (2010) guidelines and should outline requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the proposed project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The PRIMP shall also include a statement that any fossil lab or curation costs (if necessary due to fossil recovery) are the responsibility of GSNR. The qualified paleontologist shall attend the preconstruction meeting and a qualified paleontological monitor shall be on-site during all rough grading and other significant ground-disturbing activities (including augering) in previously undisturbed, fine-grained Pleistocene alluvial deposits. In the

event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find.

#### Wood Pellet Production

##### Lassen Facility

Mitigation Measures **MM-GEO-1** and **MM-GEO-2** shall be implemented to reduce potentially significant impacts to less than significant levels.

##### Tuolumne Facility

Mitigation Measures **MM-GEO-1** and **MM-GEO-2** shall be implemented to reduce potentially significant impacts to less than significant levels.

#### Transport to Market

##### Port of Stockton

Mitigation Measure **MM-GEO-2** shall be implemented to reduce potentially significant impacts to less than significant levels.

### 3.6.4.5 Significance After Mitigation

Impact GEO-1d The project would potentially directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

PDF-GEO-1 through PDF-GEO-6 (see Section 2.4) provide slope stability and related measures that would reduce the potential for slope instability to occur as a result of construction of new roads and maintenance of existing roads, such that potentially significant landslide impacts would be reduced to **less than significant**.

Impact GEO-2 The project would potentially result in substantial soil erosion or the loss of topsoil.

PDF-GEO-1 through PDF-GEO-6 (see Section 2.4) provide erosion control and related measures that would reduce the potential for sedimentation of downstream water bodies during construction of new roads and maintenance of existing roads and during forest thinning operations, such that potentially significant erosion-related impacts would be reduced to **less than significant**.

Compliance with existing regulations, including the requirement for preparation of a SWPPP and incorporation of BMPs to control construction-related erosion and sedimentation, provides erosion control measures that would reduce the potential for sedimentation of downstream water bodies during construction of proposed wood pellet facilities (Lassen and Tuolumne) and pellet unloading facilities (Port of Stockton), such that potentially significant erosion-related impacts would be reduced to **less than significant**.

Impact GEO-3 The project would potentially be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide.

PDF-GEO-1 through PDF-GEO-6 (see Section 2.4) provide slope stability and related measures that would reduce the potential for slope instability to occur as a result of construction of new roads and maintenance of existing roads, such that potentially significant landslide impacts would be reduced to **less than significant**.

Impact GEO-5 The project would potentially have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Implementation of **MM-GEO-1** at the Lassen and Tuolumne facility sites would reduce impacts related to groundwater to **less than significant**.

Impact GEO-6 The project would potentially directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Mitigation Measure **MM-GEO-2** provides a contingency plan for potentially encountering paleontological resources during grading and construction, such that potentially significant paleontology-related impacts would be reduced to **less than significant**.

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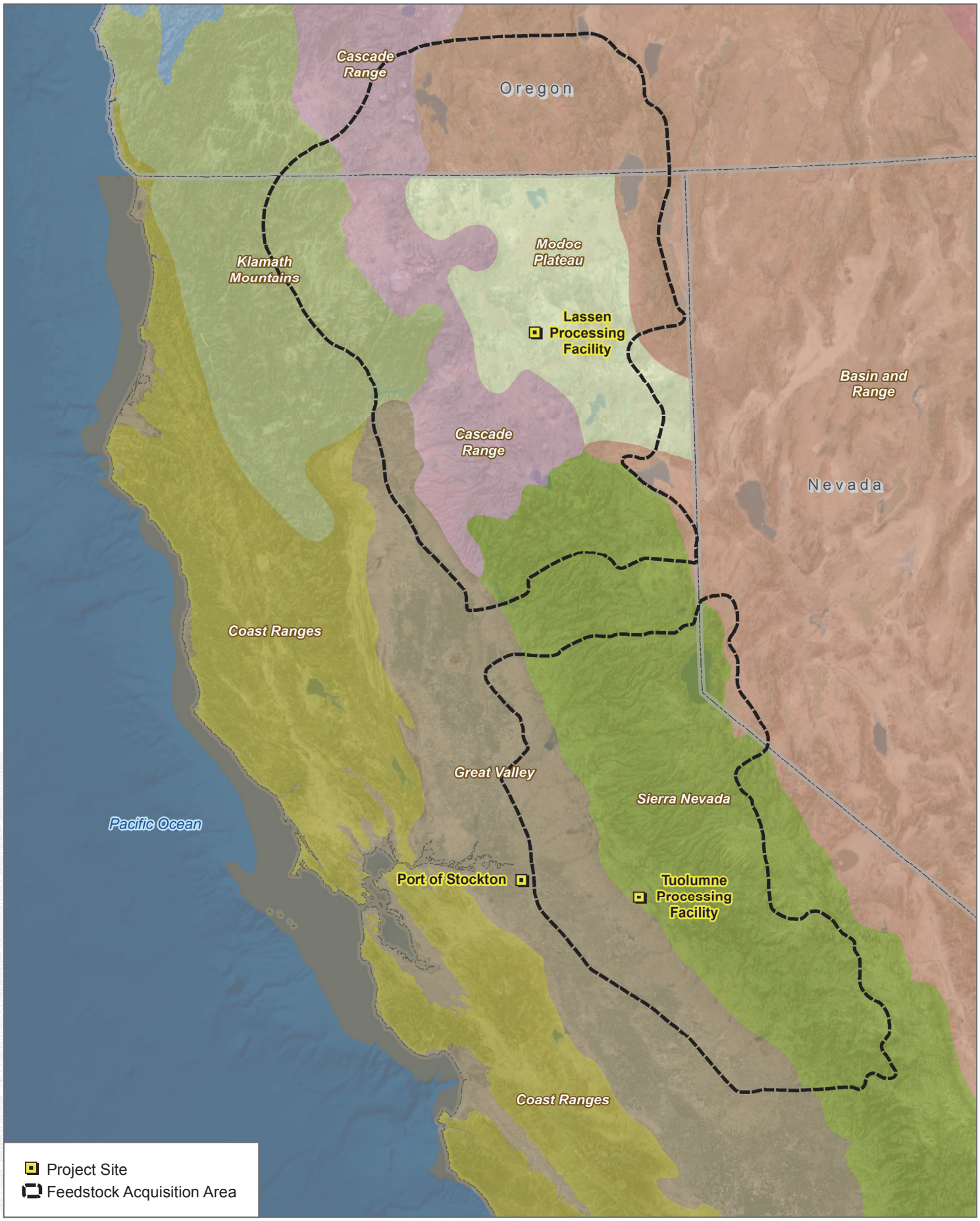


SOURCE: USGS, Bing Maps 2022

DUDEK

0 25 50 Miles

**FIGURE 3.6-1**

Geomorphic Provinces

Golden State Natural Resources Forest Resiliency Demonstration Project

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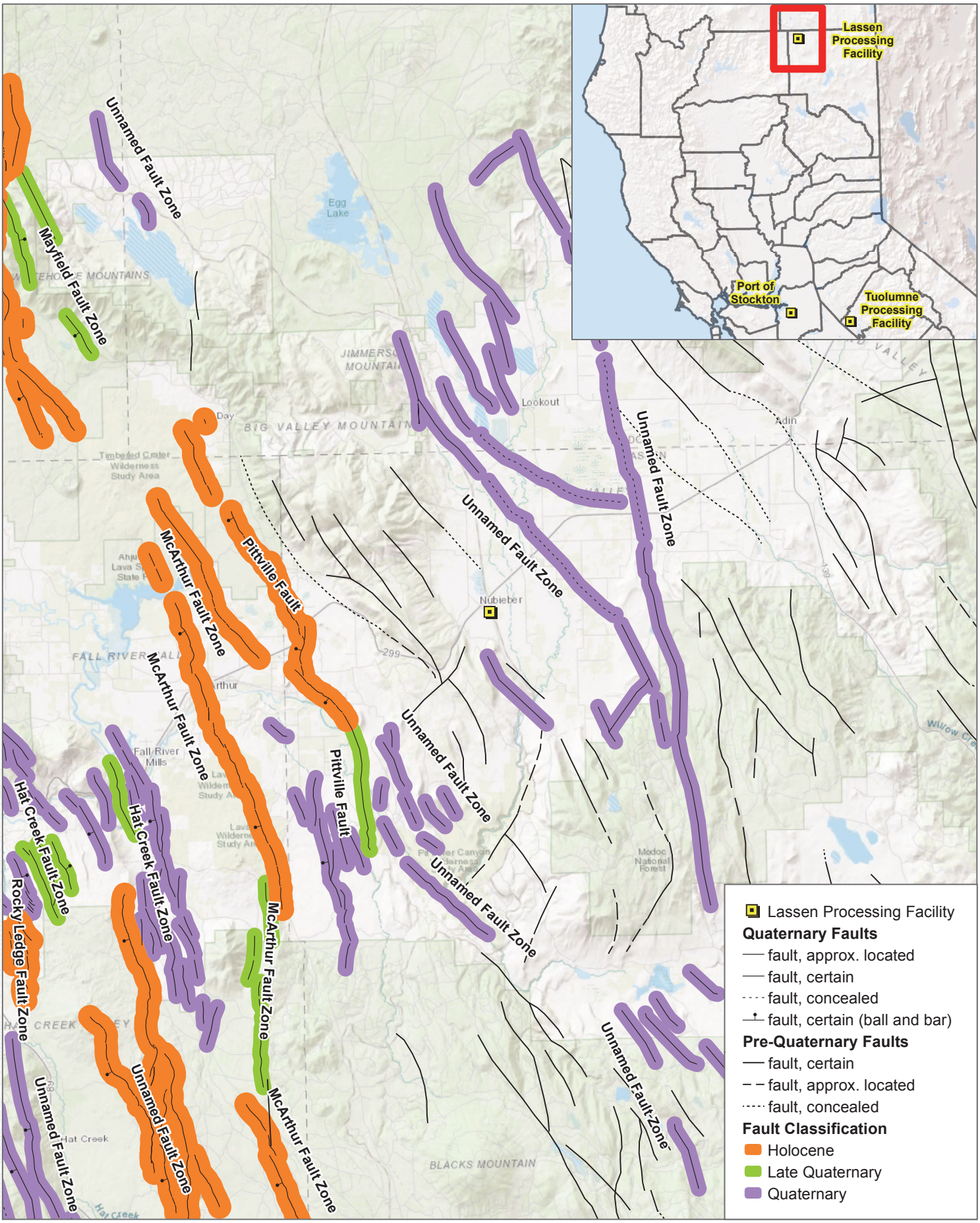


SOURCE: CGS 2022

DUDEK

0 2.5 5 Miles

**FIGURE 3.6-2**

Regional Faulting - Lassen Processing Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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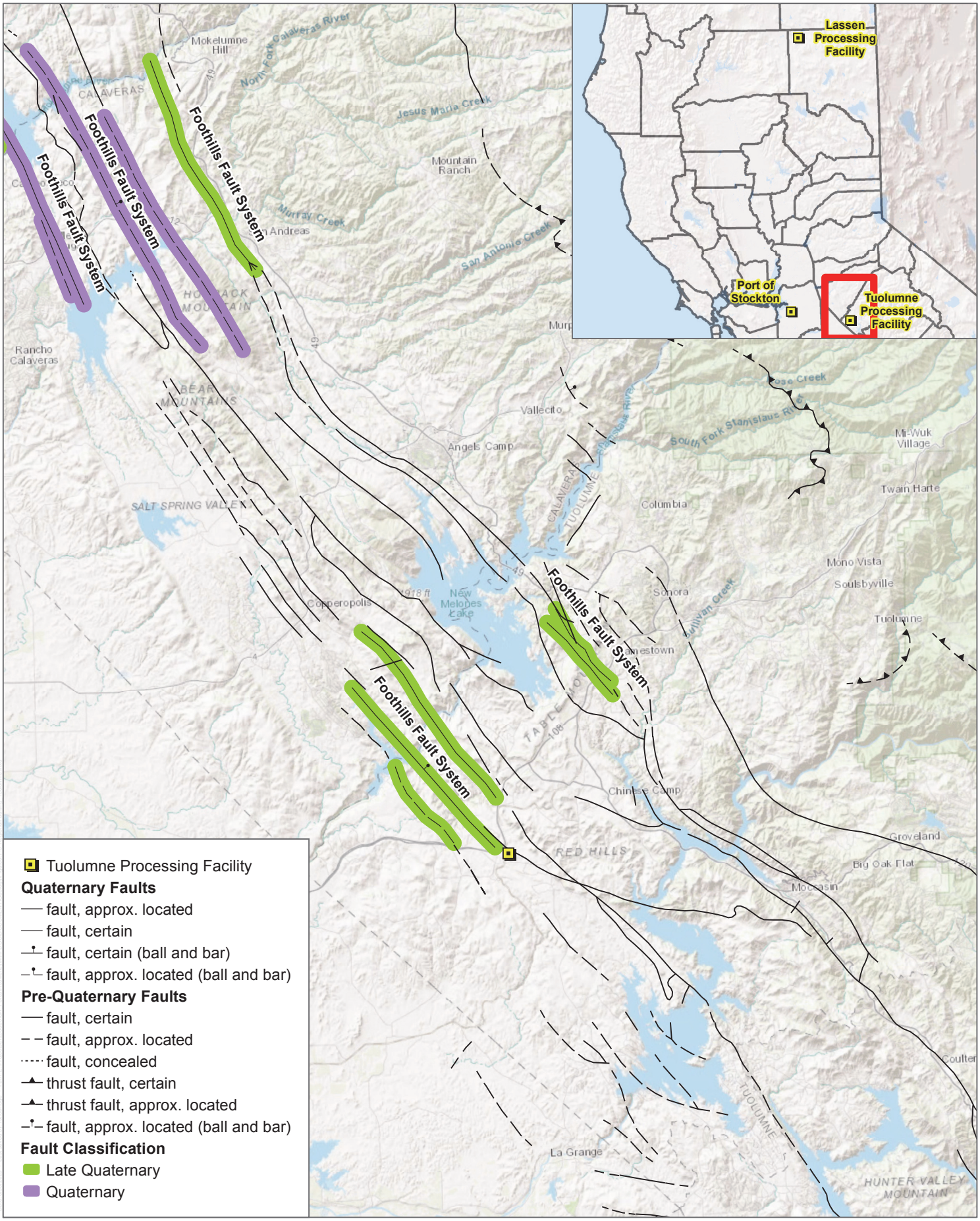


SOURCE: CGS 2022

DUDEK

0 2.5 5 Miles

**FIGURE 3.6-3**

Regional Faulting - Tuolumne Processing Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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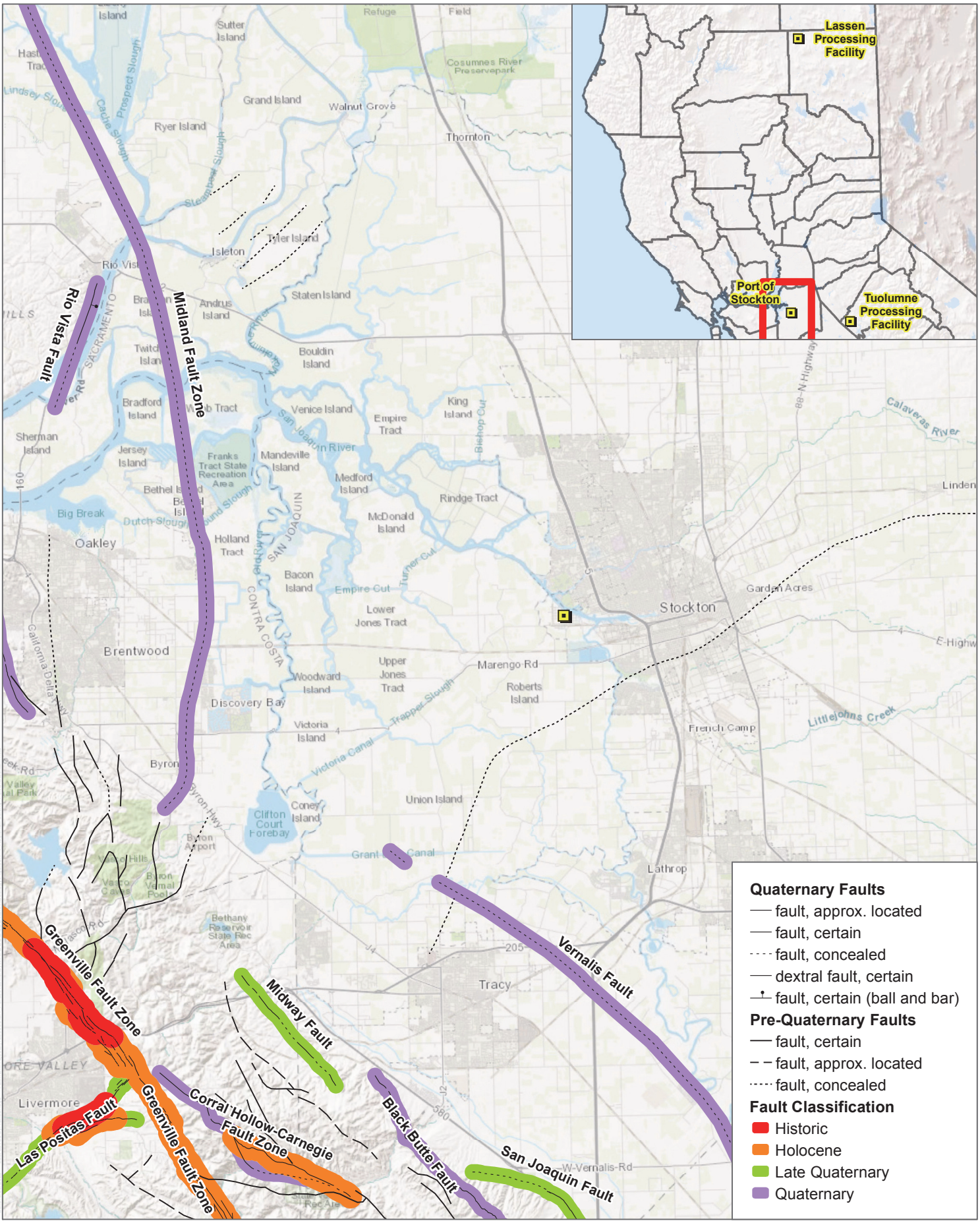


SOURCE: CGS 2022

**FIGURE 3.6-4**

Regional Faulting - Port of Stockton Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

DUDEK

0 2.5 5 Miles

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# 3.7 Greenhouse Gas Emissions

This section of the Draft EIR evaluates potential impacts to greenhouse gas (GHG) emissions associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (project or proposed project). This section describes the existing GHG emissions and climate change setting, and evaluates the potential for project-related GHG emissions impacts related to activities at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal at the Port of Stockton.

Scoping comments were received regarding GHGs in response to the Notice of Preparation (NOP) (see Appendix A). The GHG related comments included concerns associated with the construction and operational lifecycle (i.e., from harvesting, processing, feedstock transport and storage, pellet production, rail transport, port operations, overseas transport, and combustion of the pellets to make electricity) of the proposed project. Concerns related to GHGs generated during construction and operation are addressed in the Estimated GHG Emissions subsection within Section 3.7.4.2. Concerns were also related to forest carbon loss and transfer of carbon from terrestrial stocks to the atmosphere, which are addressed in Section the Forest Carbon Change subsection within Section 3.7.4.2. Finally, concerns pertaining to the proposed project's potential to conflict with California's climate goals and policies were received, which are addressed in the CARB 2022 Scoping Plan, California Forest Carbon Plan, AB 1757 California's Nature-Based Solutions, and Local GHG Reduction Plans subsections within Section 3.7.4.2.

## 3.7.1 Environmental Setting

Due to the nature of GHG emission and climate change, the following environmental setting does not provide a description of existing conditions at each site or project activity (e.g., sustainable forest management projects, Northern California [Lassen Facility], Central Sierra Nevada [Tuolumne Facility], or Port of Stockton), but rather provides a summary of climate change, GHGs, global warming potential (GWP), sources of GHG emissions, and potential effects of climate change.

### 3.7.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period (i.e., decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2024a).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2013; EPA 2024a). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 3.7.1.6, Potential Effects of Climate Change.

### 3.7.1.2 Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code, Section 38505(g), for purposes of administering many of the State's primary GHG emissions reduction programs, GHGs include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride ($SF_6$), and nitrogen trifluoride ($NF_3$). (See also CEQA Guidelines, Section 15364.5.) Some GHGs, such as $CO_2$, $CH_4$, and $N_2O$, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, $CO_2$ and $CH_4$ are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than $CO_2$, include fluorinated gases, such as HFCs, PFCs, and $SF_6$, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[1]

**Carbon Dioxide.** $CO_2$ is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of $CO_2$ include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate $CO_2$ are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

**Methane.** $CH_4$ is produced through both natural and human activities. $CH_4$ is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

**Nitrous Oxide.** $N_2O$ is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create $N_2O$. Sources of $N_2O$ include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using $N_2O$ as a propellant (e.g., rockets, racecars, and aerosol sprays).

[1] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's "GHG Inventory Glossary" (CARB 2024a), and EPA's "Overview of Greenhouse Gases" (EPA 2024b).

**Fluorinated Gases.** Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons [CFCs], hydrochlorofluorocarbons [HCFCs], and halons). The most prevalent fluorinated gases include the following:

- ***Hydrofluorocarbons:*** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- ***Perfluorocarbons:*** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- ***Sulfur Hexafluoride:*** $SF_6$ is a colorless gas soluble in alcohol and ether and slightly soluble in water. $SF_6$ is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- ***Nitrogen Trifluoride:*** $NF_3$ is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

**Chlorofluorocarbons.** CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric $O_3$.

**Hydrochlorofluorocarbons.** HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

**Black Carbon.** Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

**Water Vapor.** The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

**Ozone.** Tropospheric $O_3$, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric $O_3$, which is created by the interaction between solar ultraviolet

radiation and molecular oxygen ($O_2$), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric $O_3$, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

**Aerosols.** Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

### 3.7.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2024c). The Intergovernmental Panel on Climate Change (IPCC) developed the GWP concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is $CO_2$; therefore, GWP-weighted emissions are measured in metric tons of $CO_2$ equivalent (MT $CO_2e$).

The current version of CalEEMod (version 2022.1.1.25) assumes that the GWP for $CH_4$ is 25 (so emissions of 1 MT of $CH_4$ are equivalent to emissions of 25 MT of $CO_2$), and the GWP for $N_2O$ is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the Project.

### 3.7.1.4 Forest Carbon Storage and Sequestration

#### Stored Carbon

Compared with other terrestrial ecosystems, forests store some of the largest quantities of carbon per surface area of land (Poeplau et al. 2011). Stored carbon in forests refers to the amount of carbon that is stored within the trees, soil, and other biomass in a forest ecosystem. Forests play a crucial role in mitigating climate change by acting as carbon sinks, capturing, and storing carbon through the process of photosynthesis. Forest carbon storage in live vegetation is directly influenced by forest biomass. Forest biomass refers to the total amount of living and dead organic matter (biomass) present in a forest ecosystem. It includes all plant material, such as trees, shrubs, grasses, and other vegetation, as well as organic matter in the soil, such as roots, leaves, branches, and fallen trees. Forest biomass can be categorized into several components:

1. **Aboveground Biomass:** This includes the living components of the forest canopy, such as trees, shrubs, and vines, as well as dead material such as fallen branches and leaves. Aboveground biomass is often measured using methods such as tree inventories, satellite imagery, or aerial surveys.
2. **Belowground Biomass:** This comprises the roots of trees and other plants, as well as soil organic matter. Belowground biomass is an important but often underestimated component of forest ecosystems, as it plays a crucial role in nutrient cycling, soil structure, and carbon storage.
3. **Standing Dead Biomass and Deadwood:** Standing dead biomass refers to dead trees or standing snags that are still standing upright. Deadwood consists of fallen trees, branches, and logs that are lying on the forest floor. Unlike live trees, dead biomass releases carbon and other gases such as methane into the

atmosphere through decomposition. Worldwide, dead and decaying wood releases roughly 10.9 gigatons of carbon every year. This is roughly 115% of annual fossil fuel emissions (Seibold et al. 2021).

4. **Litter:** This includes freshly fallen leaves, branches, and other organic material on the forest floor. Litter plays a vital role in nutrient cycling, soil moisture retention, and providing habitat for soil organisms.
5. **Deadwood:** This consists of fallen trees, branches, and logs that are lying on the forest floor.

Forest biomass is an essential component of forest ecosystems and plays a crucial role in regulating the Earth's climate by storing $CO_2$ through the process of photosynthesis. Forests also provides habitat for biodiversity, supports soil fertility and structure, regulates water cycles, and offers numerous ecosystem services essential for human well-being. Understanding and managing forest biomass is therefore essential for sustainable forest management and conservation efforts.

### Carbon Storage in Forest Soils

Forest soils play a crucial role in the global carbon cycle by storing significant amounts of carbon. This carbon is primarily stored in two forms: organic carbon and inorganic carbon. Organic carbon is derived from decomposed plant and animal material, as well as microbial activity. Forest litter, dead wood, roots, and soil organic matter are major reservoirs of organic carbon in forest soils. These materials accumulate over time and contribute to soil fertility and structure. Inorganic carbon in forest soils is mainly present in the form of carbonate minerals, such as calcite and dolomite. These minerals are formed from the weathering of rocks and contribute to soil pH regulation and nutrient availability.

Overall, the specific effects of forest fuels treatments on soil carbon will depend on factors such as treatment intensity, frequency, and site characteristics. In a study of forest harvest impacts on soil organic carbon, conventional harvests were found to not result in substantial changes to soil organic carbon, whereas intensive harvests led to soil organic carbon losses in all layers of forest soils (Achat et al. 2015). Fuel treatments can positively impact carbon storage if they prevent soil loss to erosion after a high-severity fire (Campbell et al. 2012). In a study of the effects of various fuels treatment techniques on soil carbon, it was concluded that there were no significant differences in soil carbon in thinned versus untreated stands (Moghaddas and Stephens 2007).

## Carbon Sequestration

Where forest carbon storage describes the level of carbon present within a forest, carbon sequestration is the capture, removal, and storage of atmospheric $CO_2$. Generally, carbon sequestration is a key component of forest health, with forests that actively sequester large amounts of atmospheric carbon being considered healthier than those that sequester carbon at slower rates. There are three types of carbon sequestration: biological, geological, and technological. Biological carbon sequestration is the storage of atmospheric carbon in vegetation such as forests, crops, and grasslands, as well as in soils and oceans. Management practices can affect the amount of $CO_2$ stored, or “sequestered”; some management practices will increase the amount of carbon stored in vegetation and soil, while others will lead to decreases in the amount of carbon storage.

Carbon sequestration analyses provide an estimate of total sequestered carbon for a given location over a given period (e.g., annually). As opposed to carbon storage inventories that estimate total carbon for a given location for a particular point in time, sequestration analyses quantify the amount of $CO_2$ that is being removed from the atmosphere and stored within vegetation with a given action.

As forest vegetation grows, $CO_2$ is removed from the atmosphere and stored within plants, predominantly in the form of woody biomass. In forest ecosystems specifically, healthy large and mature trees remove carbon from the atmosphere at significantly greater rates compared to young, small trees (Stephenson et al. 2014). Within a single year, a fully grown living tree has the capacity to sequester over 48 pounds of $CO_2$, which becomes permanently housed within its fibers until external forces, such as fire or decomposition, trigger its release into the atmosphere (Stancil 2015). In most cases, tree growth rates have been found to increase with age. Therefore, forest management activities aimed at increasing forest carbon sequestration rates should facilitate conditions conducive to producing large diameter trees (Stephenson et al. 2014, Ontl et al. 2020). Maintaining mature and old forests that already store large amounts of carbon is a mitigation option, as suggested by the IPCC (2007).

### Forest Density, Severe Wildfire, and Carbon Sequestration

Many argue that current forest conditions are not conducive to high rates of carbon sequestration (Liang et al. 2017, Hurteau et al. 2008). In addition, present forest conditions increase the likelihood of massive carbon loss events through severe wildfires.

Wildfire is a critical component for ecosystems present within the project area. The project area's Mediterranean climate involves warm and dry summers where fuels are highly receptive to fire (Miller et al. 2012). These climatic conditions have facilitated fire adaptation with historically short fire frequency intervals. Historic frequent low intensity fire, either natural or from indigenous burning, reduced forest fuel loads and fostered moderate density, healthy forest stands. While wildfire's presence within the project area landscape was previously maintained through natural events and indigenous burning practices, California's wildfire regime been altered severely in the past century. A long history of successful fire suppression, the absence of indigenous burning, and certain forest management practices have limited the ability for wildfire to perform essential ecosystem services (Syphard et al. 2007).

Instead, a substantial increase in the size and severity of wildfire events has and is expected to occur given current and projected forest and climate conditions (Westerling et al. 2011). Fifteen of the twenty largest wildfires in California's history have occurred since 2000, and six of the twenty largest fires in state history occurred in 2020 (Kane 2019). The past few years alone have experienced unprecedented wildfire behavior. The Dixie fire occurred within the project area and burned 963,310 acres, an area larger than the entire state of Rhode Island, in the summer of 2021, burning the majority of the structures in the town of Greenville, California (Weber and Berger 2020).

Although fire suppression has resulted in increased stem density, it has resulted in fewer very large trees, reducing total live-tree carbon stocks and shifting a greater proportion of these stocks into small-diameter, fire-sensitive trees (North et al. 2009). While overstocked forests may contain more trees per unit area compared lower density stands, the rate at which these overstocked forests remove $CO_2$ from the atmosphere is lower due to smaller tree size and reduced tree growth rates as a result of tree-to-tree competition.

The current state of forests in the project area is overstocked as presented below in Table 3.7-1. It can be argued that the current high density forest conditions within the project area's forest land is unsustainable as it does not promote long term carbon sequestration and storage. The current state of many areas within the Project area leaves forests susceptible to large carbon loss events such as severe wildfire and mortality.

Stand Density Index (SDI) is a measure used in forestry to quantify the density or crowding of trees within a stand. SDI is calculated based on the number of trees per unit area and the average diameter of those trees. Stand density measurements assist managers in identifying the degree of competition among trees and the utilization of the site, aiding in the determination of appropriate management strategies to achieve specific objectives. Forest types have

a maximum SDI which sets the upper limit for forest stocking. Negative consequences from overstocking such as competition caused mortality, high susceptibility to pests and diseases, and the potential for high severity wildfire, begin to occur as forest stands encroach higher near their maximum SDI. Research suggests that forests begin to experience density-related mortality at 55% of the maximum SDI, with peak mortality occurring at 85% of maximum SDI (Sherlock 2007, Long and Shaw 2012). As presented below in Table 3.7-1, roughly 27% of the Project area's forests are considered overcrowded.

**Table 3.7-1. Project Area Stand Density Index**

| | 55%-85% of Maximum SDI | Greater than 85% of Maximum SDI | Total Overcrowded |
|---|---|---|---|
| Percent of Project Area | 20% | 7% | 27% |

**Notes:** SDI = stand density index.
Tree density related mortality has been found to begin at 55% of maximum SDI, with peak mortality occurring at 85% of maximum (Sherlock 2007).
Analysis only includes dominant forest types (California Mixed Conifer, Ponderosa Pine, White Fir) which comprise roughly 80% of the project area.

With wildfire severity rising in most of the project area's forests, implementing management actions to enhance fire resistance is justified for long-term carbon sequestration (Stephens et al. 2009). Fuel treatments that prioritize reducing surface and ladder fuels and actively thinning the majority of small trees have been found to help decrease emissions from potential future wildfires and promote the development of large, fire-resistant trees that can better stabilize carbon stocks (Hurteau and Innes 2009). The project's fuel treatments align with these characteristics and promote long term carbon sustainability.

### Type Conversion and Its Effect on Carbon Sequestration

Forest type conversion refers to the process where one type of forest ecosystem is transformed into a different type of ecosystem, often permanently. In conifer forest systems, high severity wildfire may cause type conversion to shrublands or grasslands (Steel et al. 2018, Chambers et al. 2016, Stevens-Rumann and Morgan 2019, Haffey 2014). The project area has been subject to an increase in stand clearing wildfire, or wildfires which result in large continuous patches of substantial mortality (ex. 2021 Dixie Fire, 2021 Caldor Fire, 2020 Creek Fire). Many conifer species rely on the presence of mature trees to produce seeds for regeneration. When a high-severity fire leads to extensive tree mortality, the local seed source is often eliminated or greatly reduced. This makes it difficult for conifer seedlings to establish and grow in the burned area. These impacts are expected to be exacerbated due to climate change. Researchers predict that the high rate of increasing average temperatures limits the ability of conifers to adapt their range and leaves them highly vulnerable to type conversion following high severity wildfires (Hill et al. 2023).

Type conversion of forest ecosystems results in substantial losses in carbon storage and sequestration. Forests in the Western United States store significantly more carbon compared to shrub and grasslands. Shifts from forestlands to shrublands or grasslands can result in large reductions in carbon storage (Kodero et al. 2024). In addition, the loss of existing carbon stored in forest biomass, the establishment of a new plant community composed of grasses and shrubs can alter the fire regime of the area. These species often burn more frequently and with higher intensity than conifer forests. This creates a feedback loop where recurrent high-severity fires perpetuate the new vegetation type and prevent the re-establishment of conifer forests (Haffey 2014). Therefore, ecosystems that have historically resembled atmospheric carbon sinks may become significant contributors to atmospheric carbon. Fuel treatments can positively impact carbon storage if they prevent changes to a site's carbon

storage ability (e.g., prevent soil loss to erosion after a high-severity fire, or prevent type conversion to a vegetation type that stores less carbon) (Campbell et al. 2012).

### 3.7.1.5 Sources of Greenhouse Gas Emissions

#### Global Inventory

Anthropogenic GHG emissions worldwide in 2020 (the most recent year for which data is available) totaled approximately 49,800 million metric tons (MMT) of $CO_2e$, excluding land use change and forestry (PBL 2022). The top six GHG emitters include China (28.7%), the United States (11.3%), the European Union (6.9%), India (7.1%), the Russian Federation (4.4%), and Japan (2.3%), which accounted for approximately 60% of the total global emissions, or approximately 30,270 MMT $CO_2e$ (PBL 2022). Table 3.7-2 presents the top GHG-emissions-producing countries.

**Table 3.7-2. Six Top GHG Producer Countries**

| Emitting Countries | 2020 GHG Emissions (MMT $CO_2e$)[a,b] |
|---|---|
| China | 14,300 |
| United States | 5,640 |
| European Union | 3,440 |
| India | 3,520 |
| Russian Federation | 2,210 |
| Japan | 1,160 |
| **Total** | **30,270** |

**Source:** PBL 2022.
**Notes:** MMT $CO_2e$ = million metric tons of carbon dioxide equivalent.
[a] Column may not add due to rounding.
[b] GHG emissions do not include land use change and forestry-related GHG emissions.

#### National Inventory

Per the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022, total United States GHG emissions were approximately 6,343 MMT CO2e in 2022 (EPA 2024d). Total U.S. emissions have decreased by 3.1 percent from 1990 to 2022, down from a high of 15.2 percent above 1990 levels in 2007. Emissions increased from 2021 to 2022 by 0.2 percent (14.4 MMT $CO_2e$). Net emissions (i.e., including sinks) were 5,489.3 MMT $CO_2e$ in 2022. Overall, net emissions increased 1.3 percent from 2021 to 2022 and decreased 16.7 percent from 2005 levels. Between 2021 and 2022, the increase in total GHG emissions was driven largely by an increase in $CO_2$ emissions from fossil fuel combustion across most end-use sectors due in part to increased energy use from the continued rebound of economic activity after the height of the COVID-19 pandemic. The $CO_2$ emissions from fossil fuel combustion increased by 1.0 percent from 2021 to 2022 and were 1.1 percent below emissions in 1990. Carbon dioxide emissions from natural gas use increased by 5.2 percent (84.80 MMT $CO_2e$) from 2021, while $CO_2$ emissions from coal consumption decreased by 6.1 percent (58.6 MMT $CO_2e$.) from 2021 to 2022 (EPA 2024d).

#### State Inventory

According to California's 2000–2021 GHG emissions inventory (2023 edition), California emitted 381.3 MMT CO2e in 2021, including emissions resulting from out-of-state electrical generation (CARB 2023a). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-

of-state sources, commercial and residential uses, agriculture, high-GWP substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2021 are presented in Table 3.7-3.

**Table 3.7-3. Greenhouse Gas Emissions Sources in California**

| Source Category | Annual GHG Emissions (MMT $CO_2e$) | Percent of Total |
|---|---|---|
| Transportation | 145.66 | 38.2% |
| Industrial uses | 73.97 | 19.4% |
| Electricity generation[a] | 62.53 | 16.4% |
| Residential and commercial uses | 38.89 | 10.2% |
| Agriculture and Forestry | 30.89 | 8.1% |
| High GWP substances | 21.35 | 5.6% |
| Recycling and waste | 8.39 | 2.2% |
| **Totals** | **381.3** | **100%** |

**Source:** CARB 2023a.
**Notes:** GHG = greenhouse gas; GWP = global warming potential; MMT $CO_2e$ = million metric tons of carbon dioxide equivalent. Emissions reflect 2021 California GHG inventory.
Totals may not sum due to rounding.
[a] Includes emissions associated with imported electricity, which account for 18.46 MMT $CO_2e$.

Per capita GHG emissions in California have dropped from a 2001 peak of 13.8 MT per person to 9.7 MT per person in 2021, a 30% decrease. In 2014, statewide GHG emissions dropped below the 2020 GHG Limit of 431 MMT $CO_2e$ and have remained below the Limit since that time (CARB 2023a).

### 3.7.1.6 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 IPCC Synthesis Report (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, rising sea levels, and ocean acidification (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Global surface temperature in the first two decades of the twenty-first century (2001–2020) was 0.99 [0.84 to 1.10]°C higher than 1850–1900 (IPCC 2023). Global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2000 years (IPCC 2023). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities, principally through emissions of GHGs, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850-1900 in 2011-2020 (IPCC 2023).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. OEHHA identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernible evidence that climate change is occurring in

California and is having significant, measurable impacts in the state. Changes in the state's climate have been observed including an increase in annual average air temperature, more frequent extreme heat events, more extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2022).

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in spring snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2022).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California as well as the variability of heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has been increasing.

The California Natural Resources Agency (CNRA) has released four California Climate Change Assessments (in 2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. Key projected changes for the statewide climate include the following (CNRA 2018):

- By 2100, the average annual maximum daily temperature is projected to increase by 5.6°F to 8.8°F depending on GHG emissions reductions. The greatest increase is seen with business-as-usual emissions levels.
- By 2100, water supply from snowpack is projected to decline by two-thirds. Water management practices in California face growing challenges from continued climate change and extreme weather. Promising technical adaptation options to reduce these negative water supply impacts include the use of probabilistic hydrological forecasts, groundwater storage, and better measurements of the snowpack.
- By 2050, under certain precipitation conditions, a study estimates California's agricultural production could face climate-related water shortages of up to 16% in certain regions. Hotter conditions due to climate change could lead to loss of soil moisture. Models show that increasing soil organic matter increases the soil water holding capacity, demonstrating one adaptation option.
- By 2100, if GHG emissions continue to rise, one study found that the frequency of extreme wildfires would increase, and the average area burned statewide would increase by 77%. In the areas that have the highest fire risk, wildfire insurance is estimated to see costs rise by 18% by 2055. A Fourth Assessment review of forest health literature provides further scientific backing to the State's Forest Carbon Plan to increase forest restoration and treatment, such as prescribed fire, to an average of 35,000 acres a year by 2020.

Climate change has led to the exacerbation of wildfire conditions in two major ways: earlier spring snowmelt and reduced winter precipitation has resulted in a longer wildfire season, and cycles of heavy precipitation followed by drought conditions increase fuel loading in wet years and reduce moisture-content during droughts. One study estimates that the western U.S. has experienced a doubling of area burned by wildfire due to anthropogenic climate change (Abatzoglou and Williams 2016). These conditions have resulted in the largest, most destructive, and deadliest wildfires on record in California history. Nine of the state's 10 deadliest wildfires have occurred since 2003. The project would substantially increase the pace and scale of vegetation treatments in response to increased wildfire risk.

## Existing Emissions and Effects of Wildfires

In recent years, the increasing area burned by wildfires has coincided with increasing air temperatures (OEHHA 2018). Climate change has led to the exacerbation of wildfire conditions by creating warmer and drier conditions that lead to longer and more active fire seasons, as well as reduced snowpack causing decreased water availability during hot summer conditions (EPA 2024e). Furthermore, forests store large amounts of carbon, and when they burn, they release carbon dioxide and black carbon into the atmosphere, which in turn contributes to climate change. These conditions have resulted in the largest, most destructive, and deadliest wildfires on record in California history within the last decade. The project would increase the pace and scale of vegetation treatments in response to increased wildfire risk.

According to the CARB inventory, California's natural and working lands lost approximately 140 MMT of carbon between 2001 and 2014. This is equivalent to a loss of 510 MMT of $CO_2$ that was previously sequestered in California's lands as part of the terrestrial carbon cycle. The carbon dioxide emissions from wildfires were not counted against California's emissions targets because they are not considered by CARB to be an anthropogenic source. But if they were, the wildfires would be setting California back in meeting its climate goals, with the carbon emissions from California's 2020 fire season alone also making up 49% of the state's 2030 emissions target. California's wildfire carbon dioxide emissions from 2020 were approximately two times higher than California's total greenhouse gas emission reductions since 2003 (Jerrett, Jina, & Marlier 2022). In addition, wildfires were the second most important source of emissions in 2020 behind the transportation sector.

As California seeks to address changing wildfire regimes, the severity of carbon losses from wildfires will have implications for ecosystems, biodiversity, the economy, public health, and more (CARB 2024b).

As shown in Table 3.7-4, annual $CO_2e$ emissions are correlated with acres burned from wildfire. In 2020, wildfires in California contributed approximately 107 MMT of $CO_2e$.

**Table 3.7-4. Annual GHG Emissions and Acres Burned from Wildfire, 2000-2022**

| Year | MMT $CO_2e$ | Acres Burned (million)* |
|---|---|---|
| 2000 | 5.4 | 0.2 |
| 2001 | 6.7 | 0.2 |
| 2002 | 13.5 | 0.5 |
| 2003 | 19.7 | 1.0 |
| 2004 | 5.7 | 0.3 |
| 2005 | 2.6 | 0.2 |
| 2006 | 13.5 | 0.7 |
| 2007 | 20 | 1.0 |

**Table 3.7-4. Annual GHG Emissions and Acres Burned from Wildfire, 2000-2022**

| Year | MMT $CO_2e$ | Acres Burned (million)* |
|---|---|---|
| 2008 | 42.8 | 1.4 |
| 2009 | 9.2 | 0.4 |
| 2010 | 1.9 | 0.1 |
| 2011 | 3.1 | 0.2 |
| 2012 | 11.4 | 0.7 |
| 2013 | 14.7 | 0.6 |
| 2014 | 17.2 | 0.5 |
| 2015 | 19.2 | 0.8 |
| 2016 | 10.5 | 0.5 |
| 2017 | 31.3 | 1.3 |
| 2018 | 39.1 | 1.6 |
| 2019 | 4.8 | 0.3 |
| 2020 | 106.7 | 4.1 |
| 2021 | 85.1 | 2.4 |
| 2022 | 8.9 | 0.3 |

**Source**: CARB 2023b.
**Notes:** MMT $CO_2e$ = million metric tons of carbon dioxide equivalent
* These acreages do not include areas where wildland vegetation data for model inputs are not available, e.g., developed areas and croplands

## 3.7.2 Regulatory Setting

### 3.7.2.1 International

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of global climate change.

### 3.7.2.2 Federal

#### U.S. Forest Service

The United States Forest Service (USFS), established in 1905, operates as a federal agency within the U.S. Department of Agriculture. Its primary responsibility lies in managing national forests and grasslands across the country. The USFS plays a critical role in the stewardship of natural resources, particularly forested lands that

significantly contribute to carbon sequestration and GHG mitigation. The agency's multifaceted mission encompasses maintaining ecosystem health, promoting sustainable land use practices, and carefully balancing various forest uses, including recreation, timber production, and wildlife habitat conservation. Title 16 U.S. Code Chapter 36 covers a wide range of law governing how the Forest Service and other agencies manage public lands.

In 2020, California Governor Gavin Newsom and the U.S. Forest Service signed a Joint Agreement for Shared Stewardship of California's Forests and Rangelands. The agreement is grounded in science-driven management and includes commitments to maintain and restore healthy forests and rangelands that reduce public safety risks, protect natural and built infrastructure, and enhance ecological habitat and biological diversity. Specifically, through this agreement, California and the U.S. Forest Service commit to execute the following activities together: treat one million acres per year; develop a joint plan; use sustainable vegetation treatments, expand forest management and associated infrastructure; promote ecological co-benefits; develop markets for wood products and recycle forest byproducts (including biomass energy); and fire-adapted communities.

### *Massachusetts v. U.S. Environmental Protection Agency*

In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court ruled that $CO_2$ was a pollutant and directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The elevated concentrations of GHGs—$CO_2$, $CH_4$, $N_2O$, hydrofluorocarbons, perfluorocarbons, and $SF_6$—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- **Cause or Contribute Finding**: The combined emissions of GHGs—$CO_2$, $CH_4$, $N_2O$, and hydrofluorocarbons—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

## Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (Public Law 110-140), among other key measures, would do the following in aiding the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020, and direct National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

## Federal Vehicle Standards

In 2007, in response to the *Massachusetts v. EPA* decision, the Bush Administration issued Executive Order (EO) 13432 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and the NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 through 2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, the Department of Energy, the EPA, and the NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and the NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017 through 2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of $CO_2$ in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017 through 2021 (77 FR 62624–63200). On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks.

In 2011, in addition to the regulations applicable to cars and light-duty trucks described above, the EPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014 through 2018. The standards for $CO_2$ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6% to 23% over the 2010 baselines (76 FR 57106–57513).

In August 2016, the EPA and the NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all sizes of buses and work trucks. The final standards are expected to lower $CO_2$ emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

On April 2, 2018, the EPA, under administrator Scott Pruitt, reconsidered the final determination for light-duty vehicles and withdrew its previous 2017 determination, stating that the current standards may be too stringent and therefore should be revised as appropriate (83 FR 16077–16087).

In August 2018, the EPA and the NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and to establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards then in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2% to 3% of total daily consumption, according to the Energy Information Administration) and impact the global climate by 3/1000th of 1°C by 2100 (EPA and NHTSA 2018).

In 2019, the EPA and the NHTSA published the Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program (SAFE-1) (84 FR 51310), which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle (ZEV) mandates in California. In March 2020, Part Two was issued, which set $CO_2$

emissions standards and CAFE standards for passenger vehicles and light-duty trucks for model years 2021 through 2026.

In response to Executive Order 13990, on December 21, 2021, the NHTSA finalized the CAFE Preemption rule to withdraw its portions of the Part One Rule. The final rule concluded that the Part One Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests.

In March 2022, the NHTSA established new fuel economy standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8% annually for model years 2024 and 2025, and 10% annually for model year 2026.

#### The Inflation Reduction Act of 2022

The Inflation Reduction Act was signed into law by President Biden in August 2022. The Act includes specific investment in energy and climate reform and is projected to reduce GHG emissions within the United States by 40% as compared to 2005 levels by 2030. The Act allocates funds to boost renewable energy infrastructure (e.g., solar panels and wind turbines), includes tax credits for the purchase of electric vehicles, and includes measures that will make homes more energy efficient.

The Inflation Reduction Act authorized the EPA to implement the Greenhouse Gas Reduction Fund (GGRF) program, which is a historic, $27 billion investment to mobilize financing and private capital to combat the climate crisis and ensure American economic competitiveness. The GGRF will be designed to achieve the following program objectives: reduce GHG emissions and other air pollutants; deliver the benefits of GHG- and air-pollution-reducing projects to American communities, particularly low-income and disadvantaged communities; and mobilize financing and private capital to stimulate additional deployment of GHG and air pollution reducing projects (EPA 2024f).

The Inflation Reduction Act confirms that reduction of GHGs is a core goal of the Clean Air Act and that the funding provided should allow the EPA to increase the scope of its Clean Air Act rulemakings. The Act also confirms applicability of the Inflation Reduction Act to GHGs in three specific areas: (1) California's ability to regulate GHG emissions from vehicles; (2) the EPA's authority to regulate methane emissions from oil and gas facilities; and (3) the EPA's authority to regulate GHG emissions from power plants.

### 3.7.2.3 State

The Statewide GHG emissions regulatory framework is summarized in this subsection by category: State climate change targets, building energy, renewable energy and energy procurement, mobile sources, water, solid waste, and other state actions. The following text describes Executive Orders (EOs), Assembly Bills (ABs), Senate Bills (SBs), and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

#### State Climate Change Targets

The State has taken a number of actions to address climate change. These actions are summarized below, and include EOs, legislation, and CARB plans and requirements.

### Executive Order S-3-05

Executive Order S-3-05 (June 2005) identified GHG emissions-reduction targets and laid out responsibilities among the State agencies for implementing the EO and for reporting on progress toward the targets. This EO identified the following targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

EO S-3-05 also directed the California Environmental Protection Agency to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry.

### Assembly Bill 32

In furtherance of the goals identified in EO S-3-05, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code Sections 38500–38599). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020, and initiate the transformations required to achieve the State's long-range climate objectives.

### Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG-reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050, as set forth in S-3-05. To facilitate achieving this goal, EO B3015 called for CARB to update the Climate Change Scoping Plan (Scoping Plan) to express the 2030 target in terms of millions of metric tons (MMT) $CO_2e$. The EO also called for state agencies to continue to develop and implement GHG emission-reduction programs in support of the reduction targets.

### Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions-reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to the Board as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires CARB to identify specific information for GHG emissions-reduction measures when updating the Scoping Plan.

### Executive Order B-55-18

EO B-55-18 (September 2018) identified a policy for the state to achieve carbon neutrality as soon as possible (no later than 2045) and achieve and maintain net negative emissions thereafter. The goal is in addition to the existing statewide targets of reducing the state's GHG emissions. CARB will work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

### Assembly Bill 1279

The Legislature enacted AB 1279, the California Climate Crisis Act, in September 2022. The bill declares the policy of the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter. Additionally, the bill requires that by 2045, statewide anthropogenic GHG emissions be reduced to at least 85% below 1990 levels.

### California Air Resources Board's Climate Change Scoping Plan

One specific requirement of AB 32 is for CARB to prepare a scoping plan to help achieve the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (California Health and Safety Code Section 38561[a]), and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan: The Climate Change Proposed Scoping Plan: A Framework for Change (Scoping Plan). The Scoping Plan included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission-reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (2014 Scoping Plan Update) defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EO S-3-05 and EO B-16-2012 (CARB 2014). The 2014 Scoping Plan Update concluded that California was on track to meet the 2020 target, but recommended that a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The 2014 Scoping Plan Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050 including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

In December 2017, CARB released the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update) for public review and comment (CARB 2017a). The 2017 Scoping Plan Update builds on the successful framework established in the initial Scoping Plan and 2014 Scoping Plan Update, while identifying new technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target and define the state's climate change priorities to 2030 and beyond. The strategies' known commitments include implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the Low Carbon Fuel Standard, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant (SLCP) Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, the 2017 Scoping Plan Update recommends continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20%.

CARB adopted the 2022 Scoping Plan Update in December 2022. The 2022 CARB Scoping Plan Update outlines the state's plan to reach carbon neutrality by 2045 or earlier, while also assessing the progress the state is making

toward achieving GHG reduction goals by 2030. Per the Legislative Analyst's Office, the 2022 CARB Scoping Plan identifies a more aggressive 2030 GHG goal. As it relates to the 2030 goal, perhaps the most significant change in the 2022 plan (as compared to previous Scoping Plans) is that it identifies a new GHG target of 48% below the 1990 level, compared to the current statutory goal of 40% below. Current law requires the state to reduce GHG emissions by at least 40% below the 1990 level by 2030 but does not specify an alternative goal. According to CARB, a focus on the lower target is needed to put the state on a path to meeting the newly established 2045 goal, consistent with the overall path to 2045 carbon neutrality. The carbon neutrality goal requires CARB to expand proposed actions from only the reduction of anthropogenic sources of GHG emissions to also include those that capture and store carbon (e.g., through natural and working lands, or mechanical technologies). The carbon reduction programs build on and accelerate those currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; displacement of fossil-fuel fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines); and scaling up new options such as green hydrogen (CARB 2022).

The 2022 CARB Scoping Plan Update also emphasizes that there is no realistic path to carbon neutrality without carbon removal and sequestration, and to achieve the state's carbon neutrality goal, carbon reduction programs must be supplemented by strategies to remove and sequester carbon. Strategies for carbon removal and sequestration include carbon capture and storage from anthropogenic point sources, where $CO_2$ is captured as it leaves a facility's smokestack and is injected into geologic formations or used in industrial materials (e.g., concrete); and carbon dioxide removal from ambient air, through mechanical (e.g., direct air capture with sequestration) or nature-based (e.g., management of natural and working lands) applications.

The 2022 CARB Scoping Plan Update details "Local Actions" in Appendix D. The Appendix D Local Actions include recommendations to build momentum for local government actions that align with the State's climate goals, with a focus on local GHG reduction strategies (commonly referred to as climate action planning) and approval of new land use development projects, including through environmental review under CEQA. The recommendations provided in Appendix D are non-binding (*i.e.*, not regulatory) and should not be interpreted as a directive to local governments, but rather as evidence-based analytical tools to assist local governments with their role as essential partners in achieving California's climate goals.

Importantly, the 2022 Update emphasizes that there is no realistic path to reaching the 2045 goal of carbon neutrality without removing and sequestering carbon from the atmosphere. So, in addition to programs that aim to reduce GHG emissions, the Draft Plan proposes strategies to capture and store carbon, highlighting the importance of nature-based solutions through preservation and climate smart management of the state's natural and working lands (NWLs)[2]. Modeling conducted for the 2022 Scoping Plan shows that California's NWLs are projected to be a net source of emissions (i.e., releasing more $CO_2$ emissions than they store) through 2045, which is historically due to human activities, such as land use change, and natural disturbances, such as wildfire. Therefore, the ability of the state's NWLs to act as a net sink (i.e., sequester and store more atmospheric $CO_2$ than they release) to help support the state's carbon neutrality goals is dependent on climate smart land management.

[2] It is important to note that the Third Update emphasizes that reliance on carbon sequestration in the state's NWLs will not be sufficient to address residual GHG emissions, and achieving carbon neutrality will require research, development, and deployment of additional methods to capture atmospheric GHG emissions (e.g., mechanical direct air capture).

### Executive Order B-18-12

EO B-18-12 (April 2012) directed state agencies, departments, and other entities under the Governor's executive authority to take action to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline. EO B-18-12 also identified goals for existing state buildings for reducing grid-based energy purchases and water use.

### Senate Bill 605 and Senate Bill 1383

SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state (California Health and Safety Code Section 39730) and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018 (California Public Resources Code Sections 42652–43654). SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for $CH_4$ and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon) and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its SLCP Reduction Strategy in March 2017 (CARB 2017b). The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, methane, and fluorinated gases (CARB 2017b).

### Executive Order N-82-20

EO N-82-20 (October 2020) directs state agencies to deploy nature-based strategies to remove carbon from the atmosphere and store it in the state's natural and working lands. The order sets a goal to conserve 30% of the state's land and coastal waters by 2030. To implement EO N-82-20, the CNRA developed the *Natural and Working Lands Climate Smart Strategy*, which defines the natural and working landscapes, and identifies land management actions that will help achieve carbon neutrality in alignment with EO B-55-18 and the *Draft 2022 Scoping Plan* (CNRA 2022).

### Assembly Bill 1757

AB 1757 (September 2022) requires the CNRA to determine a range of targets for natural carbon sequestration, and for nature-based climate solutions that reduce GHG emissions for future years 2030, 2038, and 2045. These targets are to be determined by no later than January 1, 2024, and are established to support the state's goals to achieve carbon neutrality and foster climate adaptation and resilience.

## Building Energy

### California Code of Regulations, Title 24, Part 6

The California Building Standards Code was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure that new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every 3 years by the Building Standards Commission and the California Energy Commission (CEC) and revised if necessary (California Public Resources Code Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, to "reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code

Section 25402[d]) and cost effectiveness (California Public Resources Code Section 25402[b][2–3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The current Title 24, Part 6 standards, referred to as the 2022 Title 24 Building Energy Efficiency Standards, became effective on January 1, 2023. The 2022 Energy Code focuses on four key areas in newly constructed homes and businesses quality (CEC 2021):

- Encouraging electric heat pump technology for space and water heating, which consumes less energy and produces fewer emissions than gas-powered units.
- Establishing electric-ready requirements for single-family homes to position owners to use cleaner electric heating, cooking, and electric vehicle (EV) charging options whenever they choose to adopt those technologies.
- Expanding solar photovoltaic (PV) system and battery storage standards to make clean energy available on site and complement the state's progress toward a 100% clean electricity grid.
- Strengthening ventilation standards to improve indoor air quality.

### California Code of Regulations, Title 24, Part 11

In addition to CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24), which is commonly referred to as California's Green Building Standards (CALGreen), establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The 2022 CALGreen standards are the current applicable standards. For nonresidential projects, some of the key mandatory CALGreen 2022 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, EV charging stations for passenger vehicles, medium heavy duty and heavy duty trucks , shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR, Part 11).

### California Code of Regulations, Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency (20 CCR 1401–1410). CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for

appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

### Senate Bill 1

SB 1 (2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the California Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy-efficiency levels and performance requirements (California Public Resources Code Sections 25780–25784). Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry. The goals included establishing solar energy systems as a viable mainstream option for both homes and businesses within 10 years of adoption and placing solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "Go Solar California," was previously titled "Million Solar Roofs."

### Assembly Bill 1470

This bill established the Solar Water Heating and Efficiency Act of 2007 (California Public Utilities Code Sections 2851–2869). The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand.

### Assembly Bill 1109

Enacted in 2007, AB 1109 required CEC to adopt minimum energy efficiency standards for general-purpose lighting to reduce electricity consumption by 50% for indoor residential lighting and by 25% for indoor commercial lighting (California Public Resources Code Section 25402.5.4).

## Renewable Energy and Energy Procurement

### Senate Bill 1078, Senate Bill 1368, Executive Order S-14-08, Executive Order S-21-09 and Senate Bill X1-2, and Senate Bill 1020

SB 1078 (2002) (California Public Utilities Code Section 399.11 et seq.) established the Renewables Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107, EO S-14-08, and EO S-21-09).

SB 1368 (2006), required CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities (California Public Utilities Code Section 8340–8341). These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC).

EO S-14-08 (2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directed state agencies to take appropriate actions to facilitate reaching this target. CNRA, in collaboration with CEC and the California Department of Fish and Wildlife, was directed to lead this effort.

EO S-21-09 (2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with CPUC and CEC to ensure that the regulation builds upon the RPS program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health, and those that can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard; however, this regulation was not finalized because of subsequent legislation (SB X1-2) signed by Governor Brown in April 2011.

SB X1-2 (April 2011) expanded RPS by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. SB X1-2 applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All these entities must meet the renewable energy goals listed above.

SB 350 (2015) further expanded the RPS program by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires CPUC, in consultation with CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100 (2018) increased the standards set forth in SB 350, establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024; 52% by December 31, 2027; and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

SB 1020 (September 2022) revises the standards from SB 100, requiring the following percentage of retail sales of electricity to California end-use customers to come from eligible renewable energy resources and zero-carbon resources: 90% by December 31, 2035; 95% by December 31, 2040; and 100% by December 31, 2045.

## Mobile Sources

### State Vehicle Standards (Assembly Bill 1493 and Executive Order B-16-12)

AB 1493 (July 2002) was enacted in response to the transportation sector accounting for a large share of California's $CO_2$ emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate

the rapid commercialization of ZEVs. It ordered CARB, CEC, CPUC, and other relevant agencies to work with the Plug-In Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve benchmark goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 identified a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare. As explained under the "Federal Vehicle Standards" description above, EPA and NHTSA approved the SAFE Vehicles Rule Part One and Two, which revoked California's authority to set its own GHG emissions standards and set ZEV mandates in California.

As also explained under Federal Regulations above, in March 2022, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate. EPA's action concludes its reconsideration of the 2019 SAFE-1 rule by finding that the actions taken under the previous administration as a part of SAFE-1 were decided in error and are now entirely rescinded.

### Heavy-Duty Diesel

CARB adopted the final Heavy-Duty Truck and Bus Regulation on December 31, 2014, to reduce DPM, a major source of black carbon, and $NO_x$ emissions from heavy-duty diesel vehicles (13 CCR, Part 2025). The rule requires that DPM filters be applied to newer heavier trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. The rule will require nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. CARB also adopted an Airborne Toxics Control Measure to limit idling of diesel-fueled commercial vehicles on December 12, 2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR, Part 2485).

### Executive Order S-1-07

EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining Low Carbon Fuel Standard for GHG emissions measured in $CO_2e$ grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel—including extraction/feedstock production, processing, transportation, and final consumption—per unit of energy delivered.

### Senate Bill 375

SB 375 (California Government Code Section 65080) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG-reduction targets for the automobile and light-truck sector for 2020 and 2035, and to update those targets every 8 years. SB 375 requires the state's 18 regional metropolitan planning organizations (MPOs) to prepare a sustainable communities strategy (SCS) as part of their Regional Transportation Plan that will achieve the GHG-reduction targets set by CARB. If an MPO is unable to devise an SCS to achieve the GHG-reduction target, the MPO must prepare an alternative planning strategy demonstrating how the GHG-reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

An SCS does not (1) regulate the use of land; (2) supersede the land use authority of cities and counties; or (3) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent

with it (California Government Code Section 65080[b][2][K]). Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process. Unlike AB 32, the California Global Warming Solutions Act of 2006, with its market mechanisms that generate cap-and-trade auction proceeds to the State for reinvestment, SB 375 does not provide any new financial resources to make the production and preservation of affordable homes near transit feasible (California Housing Partnership Corporation and TransForm 2014)

### Advanced Clean Cars Program and Zero-Emissions Vehicle Program

The Advanced Clean Cars (ACC) I program (January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of regulations: the Low-Emission Vehicle (LEV) regulation for criteria air pollutant and GHG emissions and a technology forcing regulation for ZEVs that contributes to both types of emission reductions (CARB 2024c). The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold in 2015. The ZEV program will act as the focused technology of the ACC I program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid EVs in the 2018 to 2025 model years.

The ACC II program, which was adopted in August 2022, established the next set of LEV and ZEV requirements for model years after 2025 to contribute to meeting federal ambient air quality ozone standards and California's carbon neutrality standards (CARB 2024c). The main objectives of ACC II are as follows:

- Maximize criteria and GHG emission reductions through increased stringency and real-world reductions.
- Accelerate the transition to ZEVs through both increased stringency of requirements and associated actions to support wide-scale adoption and use.

The ACC II rulemaking package also considers technological feasibility, environmental impacts, equity, economic impacts, and consumer impacts.

### Executive Order N-79-20

EO N-79-20 (September 2020) requires CARB to develop regulations as follows: (1) Passenger vehicle and truck regulations requiring increasing volumes of new ZEVs sold in the state towards the target of 100% of in-state sales by 2035; (2) medium- and heavy-duty vehicle regulations requiring increasing volumes of new zero-emission trucks and buses sold and operated in the state towards the target of 100% of the fleet transitioning to ZEVs by 2045 everywhere feasible and for all drayage trucks to be zero emission by 2035; and (3) strategies, in coordination with other state agencies, the EPA, and local air districts, to achieve 100% zero emissions from off-road vehicles and equipment operations in the state by 2035. EO N-79-20 called for the development of a ZEV Market Development Strategy, which was released February 2021, to be updated every 3 years, that ensures coordination and implementation of the EO and outlines actions to support new and used ZEV markets. In addition, the EO specifies identification of near-term actions, and investment strategies, to improve clean transportation, sustainable freight, and transit options; and calls for development of strategies, recommendations, and actions by July 15, 2021, to manage and expedite the responsible closure and remediation of former oil extraction sites as the state transitions to a carbon-neutral economy.

### Advanced Clean Trucks Regulation

The Advanced Clean Trucks (ACT) Regulation was also approved by CARB in 2020. The purpose of the ACT Regulation is to accelerate the market for ZEVs in the medium- and heavy-duty truck sector and to reduce air pollutant emissions generated from on-road mobile sources (CARB 2024d). The regulation has two components, (1) a manufacturer sales requirement and (2) a reporting requirement:

- **Zero-emission truck sales:** Manufacturers who certify Class 2b–8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b–3 truck sales, 75% of Class 4–8 straight truck sales, and 40% of truck tractor sales.
- **Company and fleet reporting:** Large employers including retailers, manufacturers, brokers, and others will be required to report information about shipments and shuttle services. Fleet owners with 50 or more trucks will be required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

### Commercial Harbor Craft Regulation

CARB adopted a Commercial Harbor Craft (CHC) Regulation in 2008 to reduce GHG emissions from vessels like tugboats and barges. These regulations required older engines to be replaced with cleaner ones. The 2022 amendments expanded the scope to more vessel types and mandated even cleaner technologies, aiming to improve public health by reducing harmful emissions. These changes began taking effect in early 2023, with ongoing assessments of low-emission technologies by a Technical Working Group until 2032.

### Mobile Cargo Handling Equipment Regulation

CARB adopted a Mobile Cargo Handling Equipment (CHE) Regulation in 2005 to reduce GHG emissions at California's ports and intermodal railyards. The regulation was fully implemented in 2017 and targets any motorized vehicle used to handle or perform activities at these ports and yards. Currently, CARB is in the process of implementing further regulation to reduce emissions with the implementation of zero-emission technologies.

### Ocean-Going Vessel Fuel Regulation

CARB approved the Ocean-Going Vessel At-Berth Regulation in 2007 to reduce GHG emissions from container ships, passenger ships, and refrigerated-cargo ships at six California ports. CARB is also committed to develop new regulations to further reduce emissions and reduce the exposure to nearby port communities.

## Water

### Senate Bill X7-7

SB X7-7, or the Water Conservation Act of 2009, required that all water suppliers increase their water use efficiency with an overall goal of reducing per capita urban water use by 20% by December 31, 2020. Each urban water supplier was required to develop water use targets to meet this goal.

### Executive Order B-29-15

In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

### Executive Order N-10-21

In response to a state of emergency due to severe drought conditions, EO N-10-21 (July 2021) called on all Californians to voluntarily reduce their water use by 15% from their 2020 levels. Actions suggested in EO N-10-21 include reducing landscape irrigation, running dishwashers and washing machines only when full, finding and fixing leaks, installing water-efficient showerheads, taking shorter showers, using a shut-off nozzle on hoses, and taking cars to commercial car washes that use recycled water.

## Solid Waste

### Assembly Bill 939, Assembly Bill 341, Assembly Bill 1826, and Senate Bill 1383

In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code Section 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board (replaced in 2010 by the California Department of Resources Recycling and Recovery, or CalRecycle), which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required CalRecycle to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that it believes would assist the state in reaching the 75% goal by 2020.

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

SB 1383 (2016) requires a 50% reduction in organic waste disposal from 2014 levels by 2020 and a 75% reduction by 2025—essentially requiring the diversion of up to 27 million tons of organic waste—to reduce GHG emissions.

SB 1383 also requires that not less than 20% of edible food that is currently disposed be recovered for human consumption by 2025.

## Other State Actions

### Senate Bill 97

SB 97 (2007) directed the Governor's Office of Planning and Research and CNRA to develop guidelines under CEQA for the mitigation of GHG emissions. CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The CEQA Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures (14 CCR 15126.4[c]). The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. CNRA also acknowledged that a lead agency could consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009).

With respect to GHG emissions, CEQA Guidelines Section 15064.4(a), as subsequently amended in 2018, states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines now note that an agency "shall have discretion to determine, in the context of a particular project, whether to: (1) Quantify greenhouse gas emissions resulting from a project; and/or (2) Rely on a qualitative analysis or performance-based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

### Executive Order S-13-08

EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009, and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014. To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of Safeguarding California: Implementation Action Plans followed in March 2016. In January 2018, CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency.

## Other State Plans and Targets

### Draft 2030 Natural and Working Lands Implementation Plan

In a joint, interagency effort, the California Environmental Protection Agency (CalEPA), California Department of Food and Agriculture (CDFA), CNRA, CARB, and California Strategic Growth Council (SGC) released the *Draft California 2030 Natural and Working Lands Climate Change Implementation Plan* in January 2019. The draft plan focuses on the natural and working lands sector, which includes farmland, rangeland, forests, grasslands, wetlands, riparian areas, seagrass, and urban green space. The draft plan addresses the carbon cycle from this sector, encompassing the constantly shifting dynamics of GHG emissions and carbon sequestration associated with natural and working lands management. It is estimated that California's natural and working lands lost approximately 170 MMT (million metric tons) of carbon between 2001 and 2014. Most of these losses were due to wildfire. This loss of carbon is equivalent to cumulative emissions of 630 $MMTCO_2e$ of previously sequestered carbon removed from the land over the same period (CalEPA et al. 2019). The draft plan strives to create an interdisciplinary approach to conserve and maintain a resilient natural and working lands sector that will gradually shift the natural and working lands sector from being a net carbon emitter to being a net carbon sink, while also producing benefits for air quality, water quality, wildlife habitat, recreation, and providing other benefits. The State will, at the least, strive to increase the rate of state-funded soil conservation practices fivefold, double the rate of state-funded forest management or restoration efforts, triple the rate of state-funded oak woodland and riparian restoration, and double the rate of state-funded wetland and seagrass restoration through 2030 (CalEPA et al. 2019). The measures included in the draft plan are projected to result in cumulative emissions of 21.6 to 56.8 $MMTCO_2e$ by 2030 and cumulative emissions reduction of -36.6 to -11.7 $MMTCO_2e$ by 2045. The benefits of the actions implemented are expected to grow substantially over time, through 2100 and beyond (CalEPA et al. 2019).

The draft plan indicates that these GHG reductions will be met through a variety of practices under four broad pathways: conservation, forestry, restoration, and agriculture. The "Improved forest health and reduced wildfire severity" suite of practices within the Forestry pathway includes prescribed fire, mechanical thinning, and understory treatment. It aims to restore health and resilience to overstocked forests and prevent carbon losses from severe wildfire, disease, pests, and water stress.

The implementation goals for this practice includes 59,000–73,000 acres of thinning per year and 23,500–25,300 acres of understory treatment per year (CalEPA et al. 2019). The draft plan notes that, although fuel reduction treatments involve near-term carbon costs, they result in long-term net carbon benefits in California. Fuel reduction activities, such as mechanical thinning and prescribed fire, reduce stand densities and fuel loads, restore the structure and composition of forest ecosystems, and lower the potential for damaging, high-severity fire, which is currently the primary cause of GHG emissions and carbon loss from the land sector. In the long-term, these activities are expected to result in climate benefits and healthier, more stable, and more resilient forests (CalEPA et al. 2019).

### California Forest Carbon Plan

In May 2018, CAL FIRE, in coordination with CNRA and CalEPA, released the *California Forest Carbon Plan*, which is the detailed implementation plan for the forest carbon goals embodied in the *2017 CARB Scoping Plan.* Today, many forests are unhealthy, with unnaturally dense stands that lack resilience, making them more susceptible to drought, disease, insect pests, and uncharacteristically large, severe wildfires. The Plan seeks to reverse these trends and firmly establish California's forests as a more resilient and reliable long-term carbon sink, rather than a GHG and black carbon emission source. This Plan describes forest conditions across California today; provides a projection of future conditions given the ongoing and expected impacts of climate change; and describes goals and

related specific actions that can be taken to improve overall forest health, including resilient carbon storage, and principles and policies to guide and support those actions (CalFIRE et al. 2018). Specifically, the plan identifies the following targets for forest restoration and treatment activities on non-federal forest lands:

- By 2030, increase forest restoration and fuels treatments, including mechanical thinning and prescribed burning, from the current rate of approximately 17,500 acres per year to 60,000 acres per year. This target is based on CALFIRE's determination of an operationally feasible increase in activity through its Vegetation Treatment Program;
- Through CAL FIRE's Forest Practice Program and the Timber Regulation and Forest Restoration Program, ensure that timber operations conducted under the Forest Practice Act and Rules contribute to the achievement of healthy and resilient forests that are net sinks of carbon, with due consideration given to all forest carbon pools;
- Promote increasing the acreage of forest carbon projects and remove barriers to their implementation; and
- To address forest health and resiliency needs identified statewide on nonfederal lands, CAL FIRE has estimated that the rate of treatment of all types would need to be increased to approximately 500,000 acres per year to make an ecologically meaningful difference at a landscape scale. This estimate is based on consideration of ecological need and predictions of capacity to implement treatments. It should be considered an aspirational target to work toward. This goal is achievable with increased resources and expanded markets for woody materials. These treatments include those that generate revenue from harvest materials, such as commercial thinning and regeneration harvests.

### AB 1757 California's Nature-Based Solutions Climate Targets

AB 1757 (September 2022) requires the CRNA to determine a range of targets for natural carbon sequestration, and for nature-based climate solutions that reduce GHG emissions for future years 2030, 2038, and 2045. These targets were released April 22, 2024, and are established to support the state's goals to achieve carbon neutrality and foster climate adaptation and resilience (CNRA 2024).

The California legislature recognizes the crucial role of NWLs in achieving the state's climate goals and carbon neutrality. EO N-82-20 instructed the CNRA to create the Natural and Working Lands Climate Smart Strategy, which outlines nature-based solutions to advance carbon neutrality. Under AB 1757, the CNRA, in collaboration with CARB and an expert advisory committee (EAC), established targets for natural carbon sequestration and nature-based climate solutions to reduce GHG emissions. The 2022 Scoping Plan proposed a target of achieving a -4% total carbon stock change by 2045 from the 2014 baseline conditions within the state's NWLs (CARB 2022).

While NWLs offer unique opportunities for long-term climate goals, CARB's modeling indicates that these lands are projected to be a net source of emissions until 2045, driven by human activities (such as land use change) and natural disturbances (like wildfire and drought). To transform the NWL sector into a reliable carbon sink, increased climate-smart land management is necessary (CARB 2022).

The AB 1757 EAC emphasizes that NWL actions can yield immediate, durable emissions reductions at a lower cost than other sectors. Over the next decade, the state could reduce $CO_2$ emissions by approximately 250-400 million metric tons through NWL management, restoration, and conservation (AB 1757 EAC 2023).

Forests make up 27% of California, or 28.7 million acres, from northern to southern California. Their trees, soils, and plants currently store the largest proportion of carbon across all of California's landscape types. Over the past

century, forests have largely served as a carbon sink that removed carbon from our atmosphere. They are now a carbon source–emitting more carbon than they remove from the atmosphere. This shift is largely a result of a century of fire exclusion practices; historic timber harvesting methods that removed large, fire-resilient trees; and climate change impacts, such as drought and pest migration. One of the largest sources of carbon emissions from California's lands over the last eight years comes from catastrophic wildfire. Limiting huge, dangerous, and catastrophic wildfires and restoring a natural wildfire regime across the state is one of the most important actions to limit carbon emissions from our landscapes (CNRA 2024).

The nature-based solutions for wildfire risk reduction include other fuel reduction activities, such as thinning; invasive species removal; prescribed herbivory (grazing); mechanical treatments (first entry and retreatments), and uneven-aged timber harvest. This solution has an acreage target of 700,000 acres/year by 2030, 800,000 acres/year by 2038, and 1 million acres/year by 2045. These targets, including fuel reduction activities, align with and build on California's shared commitment with the U.S. Forest Service to treat a minimum of 1 million acres annually by 2025. They are also complemented by targets on California's developed lands related to reducing community wildfire risk, decreasing wildfire ignition rates caused by vehicles, and treating roadside vegetation. Furthermore, through other fuel reduction activities, the target is to shift the proportion of statewide high severity wildfire to low or moderate severity wildfire such that the total percentage of low to moderate severity wildfire is 75% by 2030, 83% by 2038, and 90% by 2045 (CNRA 2024).

#### AB 1504

AB 1504 reflects California's commitment to recognizing the critical role of forests in carbon sequestration and climate mitigation. It amended the Z'berg-Nejedly Forest Practice Act of 1973, compelling the state Board of Forestry to ensure that all regulations governing commercial timber harvesting account for forests' capacity to sequester $CO_2$. The primary objective is to ensure that both public and private forests in California store sufficient $CO_2$ to meet GHG emission-reduction goals mandated by AB 32.

AB 1504 not only emphasizes the unique role of California's forests in maintaining the state's carbon balance but also promotes the sustainable production of high-quality timber products. Beyond timber, these forests provide essential ecosystem services, including carbon sequestration, recreation, watershed protection, wildlife habitat, and regional economic vitality. The bill sets a target for forests to sequester 5 MMT of $CO_2e$ annually by 2020, reinforcing their critical contribution to climate resilience and environmental well-being.

## 3.7.2.4 Local

### Lassen County

#### Lassen County General Plan

Lassen County adopted its General Plan in 2000. The County's General Plan does not include any goals or policies directly related to reducing GHG emissions.

## Tuolumne County

### Tuolumne County General Plan

Tuolumne County adopted its General Plan Update in 2018 (Tuolumne County 2018). The County's General Plan includes various goals and policies related to directly and indirectly reducing GHG emissions. Applicable goals and policies include the following:

Goal 15B. Reduce traffic congestion, vehicle trips and their emissions through more efficient infrastructure, low emission technologies, and support for trip reduction programs.

Policy 15.B.1. Create a land use pattern that will encourage people to walk, bicycle or use public transit for a significant number of their daily trips.

Policy 15.B.2. Develop a modern transportation system that incorporates alternative transportation modes into the system design.

Goal 18A. Reduce Greenhouse Gas (GHG) emissions from community activities and County government facilities and operations within the County to support the State's efforts under Assembly Bill 32 and other state and federal mandates to mitigate the County's GHG emissions impacts.

Policy 18.A.1. Prepare a Climate Action Plan (CAP), or similar GHG emission reduction plan, that establishes a GHG reduction target consistent with the Senate Bill (SB) 32 goal to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030. The CAP shall identify specific measures to reduce countywide emissions consistent with the established target and will also include adaptation strategies for the County to appropriately adjust to the environmental effects of climate change. Many of the measures in the CAP will overlap with and help implement goals, policies, and implementation programs identified in this General Plan.

### Tuolumne County Climate Action Plan

Tuolumne County adopted their Climate Action Plan in November 2022 (Tuolumne County 2022). The CAP's main objectives are to build resilience to climate related hazards that threaten the community; to reduce (or "mitigate") local GHG emissions; and to preserve and improve the county's natural resources and quality of life. Climate change mitigation and adaptation strategies are organized into five focus areas: Health and Safety, Conservation and Recreation, Buildings, Infrastructure, and Agriculture and Forestry. Furthermore, the CAP developed GHG efficiency thresholds that projects could use to determine significance for GHG analyses in CEQA documents based on the project's anticipated operational year. The following goals and policies are relevant to the project.

#### Conservation and Recreation

##### Ecosystem Preservation and Conservation

Measure 1.1: Enhance the protection of the county's natural assets and ecosystems and expand natural capital throughout the county, while building climate resilience in the environment.

Measure 1.3: Conserve areas, such as wildlife habitat and corridors, wetlands, watersheds, and groundwater recharge areas, that provide carbon sequestration benefits.

#### Agriculture and Forestry

##### Forest Resilience

Measure 6.1: Improve long-term forest resilience.

Measure 6.2: Increase forest resilience to wildfire and drought while protecting dense forest species.

Measure 6.3: Manage vegetation and reduce wildfire risk to promote sequestration.

### City of Stockton

#### City of Stockton Envision 2040 General Plan

Applicable GHG standards in the City's 2040 General Plan are contained within the Safety, and Community Health and Transportation chapters (City of Stockton 2018). The Safety and Community Health chapters contains specific goals, policies, and actions for reducing air quality and GHGs within the City. The following goals and policies are relevant to the project.

##### Safety

Goal SAF-4: Clean Air. Improve local air quality.

Policy SAF-4.1: Reduce air impacts from mobile and stationary sources of air pollution.

Policy SAF-4.2: Encourage major employers to participate in a transportation demand management program (TDM) that reduces vehicle trips through approaches such as carpooling, vanpooling, shuttles, car-sharing, bike sharing, end-of-trip facilities like showers and bicycle parking, subscription bus service, transit subsidies, preferential parking, and telecommuting.

##### Community Health

Goal CH-5: Sustainability Leadership.

Policy CH-5.1: Accommodate a changing climate through adaptation, mitigation, and resiliency planning and projects.

Policy CH-5.2: Expand opportunities for recycling, re-use of materials, and waste reduction.

##### Transportation

Goal TR-3: Sustainable Transportation. Design transportation infrastructure to help reduce pollution and vehicle travel.

Policy TR-3-2: Require new development and transportation projects to reduce travel demand and greenhouse gas emissions, support electric vehicle charging, and accommodate multi-passenger autonomous vehicle travel as much as feasible.

### City of Stockton Climate Action Plan

In August 2014, the City of Stockton adopted a CAP in compliance with a Settlement Agreement with the California Attorney General and the Sierra Club related to the City's adopted General Plan 2035 and associated EIR. The CAP "outlines a framework to feasibly reduce community GHG emissions in a manner that is supportive of AB 32 and is consistent with the Settlement Agreement and 2035 General Plan policy" (City of Stockton 2014).

The CAP sets a GHG emission reduction target of 10% below 2005 GHG emission levels by 2020, or approximately 29% below "business as usual" GHG emissions (i.e., 2020 GHG emissions that are unmitigated), which is the level by which the state has set its emission reduction goal. Approximately 83% of the reductions needed to achieve the City's GHG reduction goal are achieved through state-level programs, and 17% are achieved through City-level programs. The largest GHG reductions are identified in the areas of building energy (both energy efficiency and renewable energy), transportation, and waste. It should be noted that the GHG emission inventory on which CAP targets and policies are based did not include heavy industrial sources.

Furthermore, Appendix F of the City's CAP has a Climate Impact Study Process (CISP), which is part of the Development Review Process, that describes best management practices (BMPs) to reduce GHG emissions from construction and operational activities. Development must identify the BMPs or other mitigation that would provide the reduction in GHG emissions (City of Stockton 2014).

## Port of Stockton

### Port of Stockton Clean Air Plan

The Port of Stockton adopted a Clean Air Plan in April 2023 (Port of Stockton 2023). The Port of Stockton Clean Air Plan defines strategies for reducing air emissions in the near term while charting a long-term path for the Port to reach zero emissions. It focuses on the five main sources of Port-related emissions: heavy-duty trucks, cargo-handling equipment, harbor craft, ships, and locomotives, among other strategies. The strategies set forth in the Port of Stockton Clean Air Plan to reduce air- and climate-related community impacts are identified below.

#### Heavy-Duty Trucks

**TRUCKS-3.** Collaborate with other agencies on a regional anti-idling plan and increased enforcement of idling limits at distribution centers, warehouses or other facilities within the Port.

**TRUCKS-4.** Identify ways to enhance goods movement efficiency and improve traffic flow, particularly around neighborhoods impacted by trucks.

**TRUCKS-5.** Assist truck operators in securing grant funds for zero-emission trucks and infrastructure.

**TRUCKS-6.** Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions truck transition.

**TRUCKS-7.** In partnership with tenants, facilitate the development and implementation of Zero-Emissions Truck Transition Plans at each facility to accelerate the introduction of zero-emission trucks.

### Cargo-Handling Equipment

**EQUIP-1.** Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions equipment transition.

**EQUIP-2.** Seek grants to buy zero-emissions equipment and help terminal operators secure grants.

**EQUIP-3.** In partnership with tenants, facilitate the development and implementation of Zero-Emissions Terminal Transition Plans at each facility to accelerate the introduction of zero-emissions equipment.

**EQUIP-4.** Transition all Port-owned equipment to zero emissions by 2030 or in advance of the State regulation, whichever is earlier, when feasible.

**EQUIP-5.** Set a goal to transition tenant-owned equipment to zero emissions by 2035 or in advance of the State regulation, when feasible.

**EQUIP-6**. Evaluate the use of renewable diesel in cargo-handling equipment.

### Harbor Craft

**TUGS-1.** Provide assistance for harbor craft operators in securing grant funds to transition to cleaner tugboats and to fund zero-emission tugboat demonstrations.

**TUGS-2.** Require harbor craft operators to have shore power infrastructure at their berths and to use this infrastructure to eliminate at-berth idling emissions.

### Ships

**SHIPS-1**. Conduct technology demonstrations for barge- or land-based systems that eliminate at-berth emissions.

**SHIPS-2.** Develop an incentive program to encourage the deployment of the cleanest ships to Stockton.

### Rail

**RAIL-1.** Secure grants to help rail operators transition to the cleanest available locomotives and to demonstrate advanced zero-emission technologies.

**RAIL-2**. Evaluate the possibility of contractual conditions to require Central California Traction Company, the short-line rail operator, to deploy cleaner locomotives in advance of the State's locomotive regulation.

### Other Strategies

**FLEET-1.** Transition the Port's fleet of on-road vehicles to zero emissions by 2035.

**FLEET-2.** Develop the Port of Stockton Electric Vehicle Blueprint to identify the actions needed to support a zero-emissions on-road fleet transition.

**BARRIERS-1**. Evaluate potential locations for vegetative barriers and work with the community and regional partners to install such barriers, particularly around facilities and along truck routes in close proximity to residents, schools, and other neighborhood uses.

**TREES-1.** Expand the Port's urban greening program through more tree plantings, particularly in parts of the community that are highly impacted by trucks and Port-related uses.

## 3.7.3 Thresholds of Significance

The significance thresholds used to evaluate the project's GHG emissions impacts are based on the recommendations provided in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). For the purposes of this GHG emissions analysis, the project would have a significant environmental impact if it would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project, such as the Project, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. In addition, while GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated on a project-level under CEQA.

With respect to GHG emissions, CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or performance-based standards" (14 CCR 15064.4[a]). A lead agency may use a "model or methodology" to estimate greenhouse gas emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change" (14 CCR 15064.4[c]). The CEQA Guidelines provide that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment (14 CCR 15064.4[b]):

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In addition, the CEQA Guidelines specify that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7[c]).

The extent to which a project increases or decreases GHG emissions in the existing environmental setting should be estimated in accordance with State CEQA Guidelines Section 15064.4 titled, "Determining the Significance of Impacts from Greenhouse Gas Emissions." The State CEQA Guidelines indicate that when calculating GHG emissions resulting from a project, lead agencies shall make a good-faith effort based on scientific and factual data (Section 15064.4 (a)), and lead agencies have discretion to select the model or methodology deemed most appropriate for enabling decision makers to intelligently assess the project's incremental contribution to climate change (Section 15064.4 [c]).

The State CEQA Guidelines do not indicate an amount of GHG emissions that constitutes a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (State CEQA Guidelines Sections 15064.4[a] and 15064.7[c]).

## Governor's Office of Planning and Research Guidance

The Governor's Office of Planning and Research technical advisory titled, "CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review," states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2018). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR 2008).

## Air District Numeric Thresholds

Although several air districts have established thresholds of significance for GHG emissions, these thresholds are generally meant for evaluating GHGs associated with land use development projects, including residential, commercial, industrial, and public land uses and facilities. Thus, they are not applicable to evaluation of sustainable forest management projects under the proposed project, which include a unique mix of activities and land uses occurring across multiple air districts.

Regarding the pellet facilities and the Port of Stockton, no thresholds of significance have been established by an applicable air district or any other government agencies that is aligned with the 2030 statewide GHG target mandated by SB 32 or the 2045 statewide GHG target mandated by AB 1279.

## Approach to Determining Significance

This analysis qualitatively evaluates whether the annual GHG emissions generated by sources implemented under the project would be substantial, based upon consideration of the goals and requirements of applicable statewide, regional, or local plans for the reduction or mitigation of GHG emissions, especially in regard to the statewide GHG goals mandated by SB 32 and AB 1279. This qualitative approach best fulfils CEQA's informational purposes due to both to the lack of any established quantitative standards for a project of this nature (which includes a unique mixture of fuels treatment activities, facility construction and operations, and transportation activities), and the

uncertainties discussed below in assessing the project's carbon effects (which would render the application of any quantitative threshold speculative).

While the GHG impact thresholds will be evaluated qualitatively, project-generated construction and operational GHG emissions and the project's carbon effects have been quantified for disclosure purposes. The GHG emissions associated with implementation of the project were estimated using industry standard and accepted software tools, techniques, and emissions factors, as described in Section 3.7.4.1, Methodology, below. In addition, GHG emissions associated with potential changes to forest carbon is also estimated and disclosed as explained in further detail under the methodology section.

Due to the global nature of the GHG emissions and that project activities have the potential to occur in multiple air districts across the state, the project's GHG emission significance conclusion will evaluate the project on the whole of its actions.

## 3.7.4 Impact Analysis

### 3.7.4.1 Methodology

The project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to GHG emissions.

#### 3.7.4.1.1 Feedstock Acquisition

##### Sustainable Forest Management Projects

Operational activities associated with the acquisition of feedstock primarily involve use of offroad equipment to remove wood and transport of wood from the forest to the pellet facilities via haul trucks. As such, Sustainable Forest Management Projects were modeled as construction activities using California Emissions Estimator Model (CalEEMod) Version 2022.1.1.25. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant and CalEEMod default values when project specifics were not known. Because activity would occur within multiple air districts, emission factors representing the Statewide vehicle mix and emissions for 2025 were used to estimate emissions associated with vehicular sources.

Some feedstock acquisition activities would occur as a direct result of the project; other activities are currently occurring and would continue in the absence of the project. The feedstock activities, modeled as concurrent construction phases in CalEEMod, include Harvest Residuals, GSNR Biomass Only Thinning Projects, and Mill Residuals.

All details for construction criteria air pollutants discussed in Section 3.2.4.1.1 within Chapter 3.2, Air Quality, are also applicable for the estimation of feedstock acquisition-related GHG emissions. As such, see Section 3.2.4.1.1 for a discussion of construction emissions calculation methodology and assumptions.

### Forest Carbon Change

An assessment was conducted to quantify changes in forest carbon and GHG emissions resulting from GSNR's biomass thinning projects. By removing forest materials, the project impacts forest carbon and GHG in several ways, assessed through the following categories:

1. **Total Removed Biomass:** The removal of forest materials initially reduces the amount of carbon stored in forests.
2. **Forest Carbon Sequestration and Storage:** While fuel treatments can lead to short-term reductions in carbon storage due to biomass removal, they typically enhance the long-term rate of carbon sequestration. This is due to the enhanced growth of retained trees and improved tree vigor from reduced competition and changes in forest structure.
3. **GHG Emissions During Wildfire:** By strategically removing forest wildfire fuels, fuel treatments lower the risk of severe wildfires. Preventing high-severity fires helps maintain the carbon stored in trees and soil and decreases wildfire emissions.
4. **Tree Mortality From Wildfire:** Fuel treatments have been shown to decrease wildfire-caused mortality through decreasing wildfire severity and reducing damage to trees.

The assessment utilized the Forest Vegetation Simulator (FVS) to simulate the effects of fuel treatments on forest carbon and GHGs. FVS uses forest structure data to simulate forest growth and yield over time, allowing users to input customized fuel treatment parameters to determine how treatments alter forest dynamics. The Fire and Fuels Extension (FFE) of FVS simulates interactions between fire, fuels, and forest dynamics. FFE was used to quantify how GSNR fuel treatments will alter fire severity, carbon loss from wildfire, and wildfire emissions.

The analysis utilized LEMMA forest structure data, created in collaboration with the US Forest Service and Oregon State University. This dataset, which employs the gradient nearest neighbor (GNN) method, imputes forest characteristics to 30-meter grid cells across California, Oregon, and Washington. It is based on over 50,000 field plots and various explanatory variables, integrating vegetation measurements, environmental data, and Landsat imagery to predict forest structure. The 2017 LEMMA dataset, which provides detailed forest conditions, is widely used by organizations like CAL FIRE and the CARB for assessing the impacts of forest treatments on greenhouse gases.

Given the large spatial scale of the project, a scaling approach was used to model the effects of forest treatments. This involved modeling the effects within smaller, representative subsets of the Project area and then scaling these results to the larger area. To effectively account for forest heterogeneity, sample areas were chosen based on Forest Type (e.g., Ponderosa Pine, California Mixed Conifer, White Fir) and SDI. This approach ensures that the diversity of forest structures within the sample areas accurately reflects the forest conditions across the broader project area. For the full methodology, see Appendix B8.

## 3.7.4.1.2 Wood Pellet Production

### Lassen Facility

#### Construction

CalEEMod Version 2022.1.1.25 was used to estimate potential project-generated GHG emissions during construction of the Lassen Facility. Construction of the Lassen Facility would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2,

Air Quality are also applicable for the estimation of construction-related GHG emissions. As such, see Section 3.2.4.1.2 for a discussion of construction emissions calculation methodology and assumptions. Construction GHG emissions are amortized over the lifetime of the project, which is assumed to be 20 years based on the project's proposed activities.[3]

## Operation

As with the air quality analysis, emissions from the operational phase of the project were estimated using CalEEMod Version 2022.1.1.25. All details for criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality, are applicable for the estimation of operational GHG emissions.

### Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use and the reapplication of architectural coatings. These area sources would only contribute to criteria air pollutants and not to GHG emissions. As such, there are no GHG emissions associated with consumer product use and the reapplication of architectural coatings at the Lassen Facility.

### Energy Sources

Electricity consumption was provided by the project applicant and estimated to be 142,677,840 kWh per year. There would be no natural gas consumption at the Lassen Facility.

The CalEEMod default energy intensity factor ($CO_2$, $CH_4$, and $N_2O$ mass emissions per kilowatt-hour) for Pacific Gas and Electric Company (PG&E) has been used for this analysis, which is based on the value for PG&E's energy mix in 2025 (CAPCOA 2022). The default energy intensity factor that was applied was approximately 204 pounds (lbs) $CO_2$ per MWh, 0.033 lbs $CH_4$ per MWh, and 0.004 lbs $N_2O$ per MWh. According to PG&E's 2022 Power Content Label, PG&E's base plan has a GHG intensity factor of 56 lbs $CO_2e$ per MWh.

As explained in Section 3.7.2.3, SB 100 and SB 1020 call for further development of renewable energy, with a target of 44% by December 31, 2024; 52% by December 31, 2027; 60% by December 31, 2030; 90% by December 31, 2035; 95% by December 31, 2040; and 100% by December 31, 2045. As such, GHG emissions associated with project electricity demand would continue to decrease over time.

### Mobile Sources

All details for criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality, are applicable for the estimation of operational mobile source GHG emissions.

Regulatory measures related to mobile sources include AB 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles that are primarily used for noncommercial personal transportation in the state. In addition, NHTSA and EPA have established CAFE standards and GHG emission standards, respectively, for automobiles and light-, medium-, and

[3] Use of a long project lifetime, such as the commonly applied 30-year assumption, would result in a lower annualized construction GHG emissions value. As such, the 20-year lifetime accurately reflects the project and is more conservative than other industry standard project lifetime assumptions.

heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the Project's motor vehicles.

### Solid Waste

The project's land uses generate solid waste and therefore result in $CO_2e$ emissions associated with landfill off-gassing. The CalEEMod default generation rate was applied, which is a reasonable representation of actual conditions based upon the location and characteristics of this project site and activities. In addition, ash produced by dryer furnaces will be landfilled or used for opportunity sale for agricultural purposes. The Applicant estimated that 3,103 tons of ash would be generated per year. The CalEEMod default solid waste tonnage per year was added to the ash tonnage per year to be approximately 3,485 tons of solid waste per year. The GHG emissions associated with this amount of solid waste is expected to be conservative because the estimation is based on a municipal solid waste mix, and the presence of ash would result in less intensive GHG emissions.

### Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the on-site well at the Lassen Facility require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project and existing land uses requires the use of electricity for conveyance, along with GHG emissions generated during wastewater treatment. A septic system would be used to treat wastewater from the Lassen Facility. Emissions of $CH_4$ and $N_2O$ from septic wastewater treatment were based on default equations and emission factors from CalEEMod. Annual water use was conservatively assumed to be 50,000,000 gallons per year for purposes of this GHG analysis, which exceeds the anticipated normal operational water demand for the Lassen Facility (15.3 million gallon per year. See Chapter 3.9, "Hydrology and Water Quality").

### Refrigerants

Refrigerants are substances used in equipment for air conditioning (A/C) and refrigeration. Most of the refrigerants used today are HFCs or blends thereof, which can have high GWP values. All equipment that uses refrigerants has a charge size (i.e., quantity of refrigerant the equipment contains), and an operational refrigerant leak rate, and each refrigerant has a GWP that is specific to that refrigerant. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime, and then derives average annual emissions from the lifetime estimate. Default CalEEMod values were applied.

### Off-Road Equipment

All details for criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality, are applicable for the estimation of operational off-road equipment GHG emissions. It was assumed that 1 rough terrain forklift would operate in the log storage area, 1 tractor/loader/backhoe would operate in the fuel storage area, and 1 rubber tired loader would operate in the dryer furnace area.

### Permitted Sources

All details for permitted sources (i.e. stationary sources) criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality, are applicable for the estimation of operational permitted sources GHG emissions. Specifically, the furnace abort operations, the regenerative thermal oxidizer (RTO) burners, the regenerative catalytic oxidizer (RCO) burners, and the diesel fire pump would generate GHG emissions.

## Tuolumne Facility

### Construction

CalEEMod Version 2022.1.1.25 was used to estimate potential Project-generated GHG emissions during construction of the Tuolumne Facility. Construction of the Tuolumne Facility would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling, and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality are also applicable for the estimation of construction-related GHG emissions. As such, see Section 3.2.4.1.2 for a discussion of construction emissions calculation methodology and assumptions. Construction GHG emissions are amortized over the lifetime of the project, which is assumed to be 20 years based on the project's proposed activities.

### Operation

As with the air quality analysis, emissions from the operational phase of the Project were estimated using CalEEMod Version 2022.1.1.25. All details for criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality, are applicable for the estimation of operational GHG emissions.

#### Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use and the reapplication of architectural coatings. These area sources would only contribute to criteria air pollutants and not to GHGs. As such, there are no GHG emissions associated with consumer product use and the reapplication of architectural coatings at the Lassen Facility.

#### Energy Sources

Electricity consumption was provided by the project applicant and estimated to be 94,807,680 kWh per year. There would be no natural gas consumption at the Tuolumne Facility.

The CalEEMod default energy intensity factor ($CO_2$, $CH_4$, and $N_2O$ mass emissions per kilowatt-hour) for PG&E was applied, which is based on the value for PG&E's energy mix in 2025 (CAPCOA 2022). The default energy intensity factor that was applied was approximately 204 lbs $CO_2$ per MWh, 0.033 lbs $CH_4$ per MWh, and 0.004 lbs $N_2O$ per MWh. According to PG&E's 2022 Power Content Label, PG&E's base plan has a GHG intensity factor of 56 lbs $CO_2e$ per MWh. As such, the CalEEMod default energy intensity factor used in the analysis herein is conservative. As explained in Section 3.7.2.3, SB 100 and SB 1020 call for further development of renewable energy, with targets of 60% by December 31, 2030, 90% by December 31, 2035, and 100% by December 31, 2045. As such, GHG emissions associated with project electricity demand would continue to decrease over time.

#### Mobile Sources

All details for criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality, are applicable for the estimation of operational GHG emissions.

Regulatory measures related to mobile sources include AB 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles that are primarily used for noncommercial personal transportation in the state. In addition, NHTSA and EPA have

established CAFE standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the project's motor vehicles.

### Solid Waste

The project's land uses generate solid waste and therefore result in $CO_2e$ emissions associated with landfill off-gassing. The CalEEMod default generation rate was applied, which is a reasonable representation of actual conditions based upon the location and characteristics of this project site and activities. In addition, ash produced by dryer furnaces will be landfilled or used for opportunity sale for agricultural purposes. The Applicant estimated that 1,525 tons of ash would be generated per year. The CalEEMod default solid waste tonnage per year was added to the ash tonnage per year to be approximately 1,845 tons of solid waste per year. The GHG emissions associated with this amount of solid waste is expected to be conservative because the estimation is based on a municipal solid waste mix, and the presence of ash would result in less intensive GHG emissions.

### Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the on-site well at the Tuolumne Facility require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project and existing land uses requires the use of electricity for conveyance, along with GHG emissions generated during wastewater treatment. A septic system would be used to treat wastewater from the Lassen Facility. Emissions of $CH_4$ and $N_2O$ from septic wastewater treatment were based on default equations and emission factors from CalEEMod. Annual water use was conservatively assumed to be 25,000,000 gallons per year for purposes of this GHG analysis, which exceeds the anticipated normal operational water demand for the Tuolumne Facility (8.15 million gallon per year. See Chapter 3.9, "Hydrology and Water Quality").

### Refrigerants

Refrigerants are substances used in equipment for A/C and refrigeration. Most of the refrigerants used today are HFCs or blends thereof, which can have high GWP values. All equipment that uses refrigerants has a charge size (i.e., quantity of refrigerant the equipment contains), and an operational refrigerant leak rate, and each refrigerant has a GWP that is specific to that refrigerant. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime, and then derives average annual emissions from the lifetime estimate. Default CalEEMod values were applied.

### Off-Road Equipment

All details for criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality, are applicable for the estimation of operational off-road equipment GHG emissions. It was assumed that 1 rough terrain forklift would operate in the log storage area, 1 tractor/loader/backhoe would operate in the fuel storage area, and 1 rubber tired loader would operate in the dryer furnace area. Furthermore, 1 railcar mover (i.e., trackmobile) would move the train cars.

#### Permitted Sources

All details for criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality, are applicable for the estimation of operational permitted sources GHG emissions. Specifically, the furnace abort operations, the RTO burners, the RCO burners, and the diesel fire pump would generate GHG emissions.

### 3.7.4.1.3 Transport to Market

#### Rail Transport

##### Construction

All potential construction GHG emissions associated with the rail transport aspect of the Project are included in other parts of the analysis contained herein as follows:

- Rail spur construction at the Lassen Facility is included in the Lassen construction scenario.
- Rail spur construction at the Tuolumne Facility is included in the Tuolumne construction scenario.
- Rail spur construction at the Port of Stockton is included in the Port of Stockton construction scenario.

##### Operation

All details for criteria air pollutants discussed in Section 3.2.4.1.3 within Chapter 3.2, Air Quality, are applicable for the estimation of operational rail transport GHG emissions.

#### Port of Stockton

##### Construction

CalEEMod Version 2022.1.1.25 was used to estimate potential project-generated GHG emissions during construction of the Port of Stockton facility. Construction of the Port of Stockton facility would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling, and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 3.2.4.1.2 within Chapter 3.2, Air Quality are also applicable for the estimation of construction-related GHG emissions. As such, see Section 3.2.4.1.3 for a discussion of construction emissions calculation methodology and assumptions.

##### Operation

As with the air quality analysis, emissions from the operational phase of the project were estimated using CalEEMod Version 2022.1.1.25. All details for criteria air pollutants discussed in Section 3.2.4.1.3 within Chapter 3.2, Air Quality, are applicable for the estimation of operational GHG emissions.

##### Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use and the reapplication of architectural coatings. These area sources would only contribute to criteria air pollutants and not to GHGs. As such, there are no GHG emissions associated with consumer product use and the reapplication of architectural coatings at the Lassen Facility.

### Energy Sources

Electricity consumption was provided by the project applicant and estimated to be 12,060,000 kWh per year. There would be no natural gas consumption at the Port of Stockton facility.

The CalEEMod default energy intensity factor ($CO_2$, $CH_4$, and $N_2O$ mass emissions per kilowatt-hour) for PG&E was applied, which is based on the value for PG&E's energy mix in 2025 (CAPCOA 2022). The default energy intensity factor that was applied was approximately 204 lbs $CO_2$ per MWh, 0.033 lbs $CH_4$ per MWh, and 0.004 $N_2O$ per MWh. According to PG&E's 2022 Power Content Label, PG&E's base plan has a GHG intensity factor of 56 lbs $CO_2e$ per MWh. As such, the CalEEMod default energy intensity factor used in the analysis herein is conservative. As explained in Section 3.7.2.3, SB 100 and SB 1020 call for further development of renewable energy and GHG emissions associated with project electricity demand would continue to decrease over time.

### Mobile Sources

All details for criteria air pollutants discussed in Section 3.2.4.1.3 within Chapter 3.2, Air Quality, are applicable for the estimation of operational GHG emissions.

Regulatory measures related to mobile sources include AB 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles that are primarily used for noncommercial personal transportation in the state. In addition, NHTSA and EPA have established CAFE standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the Project's motor vehicles.

### Solid Waste

The project's land uses generate solid waste and therefore result in $CO_2e$ emissions associated with landfill off-gassing. The CalEEMod default generation rate was applied, which is a reasonable representation of actual conditions based upon the location and characteristics of this project site and activities.

### Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project and existing land uses requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment. Default CalEEMod values were applied, which are a reasonable representation of actual conditions based upon the location and characteristics of this project site and activities.

### Refrigerants

Refrigerants are substances used in equipment for A/C and refrigeration. Most of the refrigerants used today are HFCs or blends thereof, which can have high GWP values. All equipment that uses refrigerants has a charge size (i.e., quantity of refrigerant the equipment contains), and an operational refrigerant leak rate, and each refrigerant has a GWP that is specific to that refrigerant. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime, and then derives average annual emissions from the lifetime estimate. Default CalEEMod values were applied.

#### Off-Road Equipment

All details for criteria air pollutants discussed in Section 3.2.4.1.3 within Chapter 3.2, Air Quality, are applicable for the estimation of operational off-road equipment GHG emissions. It was assumed that 1 yard truck and 1 tractor/loader/backhoe would operate at the facility 24 hours per day and 100 days per year.

#### Permitted Sources

All details for criteria air pollutants discussed in Section 3.2.4.1.3 within Chapter 3.2, Air Quality, are applicable for the estimation of operational permitted sources GHG emissions. Specifically, the two diesel fire pumps would generate GHG emissions.

### Ship Transport

All details for criteria air pollutants discussed in Section 3.2.4.1.3 within Chapter 3.2, Air Quality, are applicable for the estimation of operational ship transport GHG emissions. Specifically, the cargo ships and tugboats would generate GHG emissions.

## 3.7.4.2 Project Impacts

Impact GHG-1 The project would potentially generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

### Estimated GHG Emissions[4]

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

Feedstock acquisition within the Lassen and Tuolumne feedstock areas would result in GHG emissions that are primarily associated with use of off-road equipment, vendor (i.e. water) trucks, haul trucks, and worker vehicles.

The estimated Project-generated GHG emissions from feedstock activities in the Lassen feedstock area are shown in Table 3.7-5.

**Table 3.7-5. Estimated Annual Feedstock Greenhouse Gas Emissions – Lassen Feedstock Area**

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| 2025 and Subsequent[5] | 27,105.11 | 1.01 | 1.92 | 14.17 | **27,717.13** |

[4] An example of a direct GHG emission source is combustion of fossil fuel at the site. An example of an indirect GHG emission source is from the use of electricity, which is generated at a power plant offsite. The analysis contained herein includes all direct and indirect GHG emission sources anticipated to result from project implementation.

[5] As explained in Chapter 3.2 ("Air Quality"), this analysis assumes an operational year of 2025, which represents the earliest year feedstock operations could initiate. Assuming the earliest start date for operation represents the worst-case scenario for criteria

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent.
See Appendix B1.

As shown in Table 3.7-5, the estimated total GHG emissions from feedstock acquisition activities in the Lassen feedstock area would be approximately 27,717 MT $CO_2e$ per year.

Table 3.7-6 presents the estimated Project-generated GHG emissions from feedstock activities in the Tuolumne feedstock area.

**Table 3.7-6. Estimated Annual Feedstock Greenhouse Gas Emissions – Tuolumne Feedstock Area**

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| 2025 and Subsequent | 11,822.92 | 0.45 | 0.83 | 6.28 | **12,087.81** |

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent.
See Appendix B1.

As shown in Table 3.7-6, the estimated total GHG emissions from feedstock acquisition activities in the Tuolumne feedstock area would be approximately 12,088 MT $CO_2e$ per year.

## Wood Pellet Production

### Lassen Facility

#### Construction Emissions

Construction of the Lassen Facility would result in GHG emissions that are primarily associated with use of off-road construction equipment, vendor and haul trucks, and worker vehicles. Construction GHG emissions were amortized assuming a 20-year development life after completion of construction. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, trucks, and worker vehicles—is included in Appendix B1. As with Project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the Project would be short term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis in the following text.

The estimated project-generated GHG emissions from construction activities for the Lassen Facility are shown in Table 3.7-7.

air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

**Table 3.7-7. Estimated Annual Construction Greenhouse Gas Emissions – Lassen Facility**

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| 2024[6] | 241.03 | 0.01 | 0.01 | 0.10 | 245.38 |
| 2025 | 4,816.33 | 0.14 | 0.28 | 3.03 | 4,905.45 |
| | | | | **Total** | **5,150.83** |
| | | | | *Amortized Over 20 Years* | *257.54* |

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent.
Total emissions may not sum due to rounding.
See Appendix B1.

As shown in Table 3.7-7, the estimated total GHG emissions during construction would be approximately 5,151 MT $CO_2e$ over the construction period. Estimated total Project-generated construction emissions amortized over the project's anticipated 20-year lifetime would be approximately 258 MT $CO_2e$ per year.

### Operational Emissions

Operation of the Project would generate GHG emissions through mobile sources (motor vehicle trips to and from the Lassen Facility); energy use (electricity consumed by the Project); solid waste disposal; water supply, treatment, and distribution; wastewater treatment; refrigerants; off-road equipment; and stationary sources. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 3.7.4.1.2.

Table 3.7-8 presents the estimated annual operational GHG emissions for the Lassen Facility.

**Table 3.7-8. Estimated Annual Operational Greenhouse Gas Emissions – Lassen Facility**

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| Mobile | 809.91 | 0.01 | 0.06 | 1.07 | 828.52 |
| Area | N/A | N/A | N/A | N/A | N/A |
| Energy | 13,201.30 | 2.14 | 0.26 | N/A | 13,331.84 |
| Water | 29.62 | 1.63 | 0.04 | N/A | 308.91 |
| Waste | 310.92 | 31.08 | 0.00 | N/A | 1,087.80 |
| Refrigerants | N/A | N/A | N/A | 13.22 | 13.22 |
| Off-Road Equipment | 524.08 | 0.02 | <0.01 | N/A | 525.88 |
| Stationary Equipment | 10,692.86 | 0.24 | 0.82 | N/A | 10,927.23 |
| Logging/Haul Trucks[a] | 8,205.40 | 0.28 | 1.28 | 8.75 | 8,602.09 |
| | | | | Rail[b] | 1,267.17 |
| | | | | Switcher Locomotive | 17.54 |
| | | | | *Amortized Construction Emissions (Table 3.7-9)* | *257.54* |
| | | | | **Total** | **37,167.74** |

6 The analysis assumes a construction start date of October 2024, which represents the earliest date construction was anticipated to potentially initiate at the time the analysis was performed. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent; N/A = not applicable; <0.01 = value is less than 0.005.
Total emissions may not sum due to rounding.
See Appendix B1.

[a] Logging/Haul Trucks emissions includes the emissions from all of the Lassen logging/haul trucks assuming a 54.5-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the LCAPCD boundaries concurrently. These emissions are also represented in Table 3.7-7.

[b] Rail emissions include the line haul train emissions within the LCAPCD. These emissions are also represented in Table 3.7-13.

As shown in Table 3.7-8, the estimated operational GHG emissions for the Lassen Facility would be approximately 37,168 MT $CO_2e$ per year.

Implementation of MM-AQ-9 (Operational Switcher Locomotive Exhaust Minimization – Lassen Facility) would reduce GHG emissions by requiring a Tier 4 Final engine for the on-site switcher locomotive at the Lassen Facility, which is quantified. The annual switcher locomotive emissions would be reduced from 18 MT $CO_2e$ to 13 MT $CO_2e$ per year with incorporation of MM-AQ-9, a reduction of 5 MT $CO_2e$. Therefore, with implementation of MM-AQ-9, the total annual emissions at the Lassen Facility would be approximately 37,163 MT $CO_2e$ per year.

Biomass storage at the Lassen Facility would result in emissions of methane from woody biomass decomposition. However, $CH_4$ concentrations associated with storage of wood pellets are very low, especially at shorter storage durations. Higher temperatures, longer storage periods, and higher moisture contents would result in more degradation and methane released (Yazdanpanah et al. 2014). Due to the low moisture content expected for GSNR pellets (~9%), average temperatures, and short storage duration, the methane emissions from pellet storage would be negligible.

## Tuolumne Facility

### Construction Emissions

Construction of the Tuolumne Facility would result in GHG emissions that are primarily associated with use of off-road construction equipment, vendor and haul trucks, and worker vehicles. Construction GHG emissions were amortized assuming a 20-year development life after completion of construction. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, trucks, and worker vehicles—is included in Appendix B1. As with Project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the Project would be short term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis in the following text.

The estimated project-generated GHG emissions from construction activities for the Tuolumne Facility are shown in Table 3.7-9.

**Table 3.7-9. Estimated Annual Construction Greenhouse Gas Emissions – Tuolumne Facility**

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| 2024 | 455.73 | 0.01 | 0.04 | 0.26 | 469.24 |
| 2025 | 3,257.98 | 0.08 | 0.22 | 2.09 | 3,327.81 |

## Table 3.7-9. Estimated Annual Construction Greenhouse Gas Emissions – Tuolumne Facility

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| | | | | Total | 3,797.05 |
| | | | | *Amortized Over 20 Years* | *189.85* |

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent.
Total emissions may not sum due to rounding.
See Appendix B1.

As shown in Table 3.7-9, the estimated total GHG emissions during construction would be approximately 3,797 MT $CO_2e$ over the construction period. Estimated total Project-generated construction emissions amortized over the project's anticipated 20-year lifetime would be approximately 190 MT $CO_2e$ per year.

### Operational Emissions

Operation of the Project would generate GHG emissions through mobile sources (motor vehicle trips to and from the Lassen Facility); energy use (electricity consumed by the Project); solid waste disposal; water supply, treatment, and distribution; wastewater treatment; refrigerants; off-road equipment; and stationary equipment. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 3.7.4.1.2.

Table 3.7-10 presents the estimated annual operational GHG emissions for the Tuolumne Facility.

## Table 3.7-10. Estimated Annual Operational Greenhouse Gas Emissions – Tuolumne Facility

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| Mobile | 784.61 | 0.02 | 0.04 | 1.22 | 798.63 |
| Area | N/A | N/A | N/A | N/A | N/A |
| Energy | 8,772.10 | 1.42 | 0.17 | N/A | 8,858.84 |
| Water | 15.47 | 0.81 | 0.02 | N/A | 155.12 |
| Waste | 164.61 | 16.45 | 0.00 | N/A | 575.90 |
| Refrigerants | N/A | N/A | N/A | 11.04 | 11.04 |
| Off-Road Equipment | 583.58 | 0.02 | <0.01 | N/A | 585.58 |
| Stationary Equipment | 7,184.34 | 0.15 | 0.54 | N/A | 7,341.56 |
| Logging/Haul Trucks[a] | 4,001.95 | 0.14 | 0.62 | 4.27 | 4,195.42 |
| | | | | Rail[b] | 59.30 |
| | | | *Amortized Construction Emissions (Table 3.7-11)* | | *189.85* |
| | | | | Total | 22,771.24 |

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent; N/A = not applicable; <0.01 = value is less than 0.005.
Total emissions may not sum due to rounding.
See Appendix B1.

[a] Logging/Haul Trucks emissions include the emissions from all of the Tuolumne logging/haul trucks assuming a 55.7-mile one-way trip length. This assumption is conservative because it is unlikely that all logging/haul trucks would be traveling within the TCAPCD boundaries concurrently. These emissions are also represented in Table 3.7-8.

[b] Rail emissions include the line haul train emissions within the TCAPCD. These emissions are also represented in Table 3.7-13.

As shown in Table 3.7-10, the estimated operational GHG emissions for the Tuolumne Facility would be approximately 22,771 MT $CO_2e$ per year.

Biomass storage at the Tuolumne Facility would result in emissions of methane from woody biomass decomposition. As described with the Lassen Facility, due to the low moisture content expected for GSNR pellets (~9%), average temperatures, and short storage duration, the methane emissions from pellet storage would be negligible (Yazdanpanah et al. 2014).

## Transport to Market

### Rail Transport

Rail transport would generate GHG emissions. As discussed in Section 3.2.4.1.3 within Chapter 3.2, Air Quality, emissions associated with long-term operations were quantified using a spreadsheet model.

Table 3.7-11 presents the estimated total annual GHG emissions from line haul rail travel from the Lassen Facility and the Tuolumne Facility to the Port of Stockton in each respective air district.

**Table 3.7-11. Estimated Annual Greenhouse Gas Emissions – Line Haul Rail**

| Scenario | $CO_2e$ Metric Tons per Year |
|---|---|
| **Total Emissions by Air District** | |
| Lassen County APCD | 1,267.17 |
| Northern Sierra AQMD | 1,152.17 |
| Butte County AQMD | 827.09 |
| Feather River AQMD | 669.61 |
| Sacramento Metropolitan AQMD | 550.03 |
| Tuolumne County APCD | 59.30 |
| San Joaquin Valley APCD | 784.06 |
| **Total Annual Emissions** | **5,234.28** |

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent; APCD = Air Pollution Control District; AQMD: Air Quality Management District.

As shown in Table 3.7-11, the estimated total line haul rail GHG emissions would be approximately 5,234 MT $CO_2e$ per year.

### Port of Stockton

#### Construction Emissions

Construction of the Port of Stockton facility would result in GHG emissions that are primarily associated with use of off-road construction equipment, vendor and haul trucks, and worker vehicles. Construction GHG emissions were amortized assuming a 20-year development life after completion of construction. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, trucks, and worker vehicles—is included in Appendix B1. As with Project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the Project would be short term in nature, lasting only for the

duration of the construction period, and would not represent a long-term source of GHG emissions. Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis in the following text.

The estimated project-generated GHG emissions from construction activities for the Port of Stockton are shown in Table 3.7-12.

### Table 3.7-12. Estimated Annual Construction Greenhouse Gas Emissions – Port of Stockton

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| 2024 | 144.70 | <0.01 | <0.01 | 0.03 | 146.15 |
| 2025 | 1,853.03 | 0.07 | 0.02 | 0.13 | 1,861.90 |
| | | | | **Total** | **2,008.05** |
| | | | | *Amortized Over 20 Years* | *100.40* |

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent.
Total emissions may not sum due to rounding.
See Appendix B1.

As shown in Table 3.7-12, the estimated total GHG emissions during construction would be approximately 2,008 MT $CO_2e$ over the construction period. Estimated total Project-generated construction emissions amortized over 20 years would be approximately 100 MT $CO_2e$ per year.

#### Operational Emissions

Operation of the Project would generate GHG emissions through mobile sources (motor vehicle trips to and from the Lassen Facility); energy use (electricity consumed by the Project); solid waste disposal; water supply, treatment, and distribution; wastewater treatment; refrigerants; off-road equipment; and stationary equipment. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 3.4.2.2, Operation.

Table 3.7-13 presents the estimated annual operational GHG emissions for the Port of Stockton.

### Table 3.7-13. Estimated Annual Operational Greenhouse Gas Emissions – Port of Stockton

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| Mobile | 58.71 | <0.01 | 0.01 | 0.08 | 60.56 |
| Area | N/A | N/A | N/A | N/A | N/A |
| Energy | 2,231.71 | 0.36 | 0.04 | N/A | 2,253.78 |
| Water | 10.29 | 0.54 | 0.01 | N/A | 27.68 |
| Waste | 7.95 | 0.79 | 0.00 | N/A | 27.82 |
| Refrigerants | N/A | N/A | N/A | 3.10 | 3.10 |
| Off-Road Equipment | 140.96 | 0.01 | <0.01 | N/A | 141.44 |
| Stationary Equipment | 5.22 | <0.01 | <0.01 | N/A | 5.23 |
| Ships[a] | 1,010.11 | 0.01 | 0.05 | N/A | 1,026.04 |

## Table 3.7-13. Estimated Annual Operational Greenhouse Gas Emissions – Port of Stockton

| Year | $CO_2$ | $CH_4$ | $N_2O$ | R | $CO_2e$ |
|---|---|---|---|---|---|
| | Metric Tons per Year | | | | |
| *Rail[b]* | | | | | *784.06* |
| *Switcher[c]* | | | | | *61.53* |
| *Amortized Construction Emissions (Table 3.7-14)* | | | | | *100.40* |
| **Total** | | | | | **4,491.64** |

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent; N/A = not applicable; <0.01 = value is less than 0.005.
Total emissions may not sum due to rounding.
See Appendix B1.

[a] Ships include the total emissions from cargo ships, tugboats, and pellet loadout within the SJVAPCD. These emissions are also represented in Table 3.7-14.
[b] Rail include the line haul train emissions within the SJVAPCD. These emissions are also represented in Table 3.7-11.
[c] The Port of Stockton switcher includes the total emissions for switching material from the Lassen and Tuolumne facilities.

As shown in Table 3.7-13, the estimated operational GHG emissions for the Port of Stockton would be 4,492 MT $CO_2e$ per year.

Pellet storage at the Port of Stockton would result in negligible emissions of $CH_4$ from woody biomass decomposition. However, $CH_4$ concentrations associated with storage of wood pellets are very low, especially at shorter storage durations. Higher temperatures, longer storage periods, and higher moisture contents would result in more degradation and $CH_4$ released (Yazdanpanah et al. 2014). Due to the low moisture content expected for GSNR pellets (~9%), average temperatures, and short storage duration, the $CH_4$ emissions from pellet storage would be negligible.

### Ship Transport

Ship transport would generate GHG emissions. The estimated annual GHG emissions from cargo ships, tugboats, and pellet loadout drop emissions within the SJVAPCD, as well as emissions from cargo ships and tugboats traveling through the BAAQMD are shown in Table 3.7-14.

## Table 3.7-14. Estimated Annual Greenhouse Gas Emissions – Marine

| Air District | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
|---|---|---|---|---|
| | Metric Tons per Year | | | |
| BAAQMD | 869.80 | 0.02 | 0.04 | 883.34 |
| SJVAPCD | 1,010.11 | 0.01 | 0.05 | 1,026.04 |
| **Total** | | | | **1,909.38** |

**Notes:** $CO_2$ = carbon dioxide; $CH_4$ = methane; $N_2O$ = nitrous oxide; R= refrigerant; $CO_2e$ = carbon dioxide equivalent; SJVAPCD = San Joaquin Valley Air Pollution Control District; BAAQMD = Bay Area Air Quality Management District.

As shown in Table 3.7-14, the estimated GHG emissions in the SJVAPCD and BAAQMD would be approximately 1,909 MT $CO_2e$ per year.

Overall, estimated GHG emissions associated with the project are associated with various emission sources including amortized construction emissions, stationary sources, energy sources (electricity), mobile (passenger

vehicles and trucks), train travel and switcher use (rail), ship transport (marine vessels), water and wastewater, solid waste, refrigerants, and off-road equipment usage. In total, annual GHG emissions across the state is anticipated to be approximately **95,445 MT $CO_2e$ per year**.[7]

## Forest Carbon Change

As outlined in 3.7.4.1 Methodology, an assessment of potential changes to forest carbon was performed to evaluate the balance between carbon loss as a result of fuel treatment activities and the carbon gain (carbon sequestration) through changes in forest structure and tree-to-tree competition, as well as forest carbon changes due to wildfires.

### GSNR Treated Acres

To accurately identify the effects of the project's forest treatment activities on forest carbon dynamics, the extent of annual treatment acreages was first determined. For purposes of this analysis, it was assumed that the roject's pellet processing facilities will obtain an annual feedstock of 509,740 Bone Dry tons (BDTs) from GSNR Biomass Only Thinning Projects[8]. (Residuals, which have already been cut by third-parties unaffiliated with GSNR, account for the remainder of the Project's feedstock.) The total removed biomass output from FVS was used to determine the amount of forest biomass that would be supplied from these forest treatments. After converting total biomass to BDTs, it was estimated that approximately 85,779 acres are required to be treated annually to provide the anticipated feedstock supply from GSNR Biomass Only Thinning Projects. This equates to roughly 1.7 million acres treated from GSNR Biomass Only Thinning Projects over the project's 20-year life span.

### Predicted Wildfire Impacts

Historic wildfire perimeters were utilized to predict the proportion of the project area likely to experience wildfire over the course of the 20-year Project life. This estimate is important for quantifying the breadth of wildfire impacts such as wildfire emissions, wildfire caused mortality, and forest carbon loss from wildfire. It has been estimated that 24% of the project's Working Area will likely experience wildfire over the 20-year project life, equating to roughly 1.2% annually. See Section 1.2 of Appendix B8 - *Methodology: Effect of Forest Treatments on Forest Carbon Storage and Greenhouse Gases* for a description of how estimated future wildfire impacts were determined.

### Total Removed Carbon

As discussed, forest fuel treatments result in a near-term reduction in forest carbon. The degree of near-term above-ground, live carbon loss from GSNR's fuels treatments was estimated using FVS data to be approximately 11.9 tons of carbon per acre (or 1,019,912 tons of carbon per year, based upon the annual treated acreage assumptions discussed above). Table 3.7-15 shows the impacts of this initial carbon removal over the anticipated 20-year life of the project, expressed in both tons of carbon and metric tons of $CO_2e$.[9] Note that this calculation is conservative, as it presents unadjusted figures that do not account for either increased sequestration resulting from fuel treatments or the occurrence of wildfire on affected landscapes, which are addressed in subsequent sections.

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7 This amount does not sum the total figures shown in the individual tables, due to the inclusion of certain emissions in multiple tables (e.g., logging/haul trucks; rail transport within LCAPCD, TCAPCD, SJVAPCD; ship transport within SJVAPCD), which should not be double-counted.

8 The annual feedstock assumption (509,740 BDTs) used in this Forest Carbon Change analysis is slightly more than the true annual amount of feesdtock anticipated (508,740 BDTs), which was used to determine feedstock acquisition assumptions (i.e., treatment crews, logging/haul trips, off-road equipment, etc.). Therefore, the forest carbon change analysis herein is considered conservative.

9 One ton of carbon (C) equals 3.67 tons of $CO_2e$, or ~3.33 metric tons (MT).

## Table 3.7-15. Initial Carbon Impact of GSNR Biomass Only Thinning Projects

| | Initial Carbon Removal Impact (Unadjusted) |
|---|---|
| Carbon - Tons/acre | 11.9 |
| Carbon Tons/year | 1,020,770 |
| $CO_2e$ – Metric tons/year | 3,398,519 |
| Carbon - Total tons (20 yr) Project Life | 20.4 million |
| $CO_2e$ – Total metric tons (20 yr) Project Life | 67,913,288 |

### Carbon Sequestration Effects

The effects of the project's forest treatments on carbon sequestration stem from changes in forest structure, tree-to-tree competition, and changes in wildfire severity. While forest treatments result in near-term carbon loss, they often have a long term-effect of increased carbon storage and wildfire resilience (Stephens et al. 2009, North and Hurteau 2011). In wildfire-prone forests, it has been observed that fuel treatments that target smaller diameter trees and retain large, fire-resistant trees were most effective in protecting tree-based carbon stocks over the long-term and ensuring that forests remain carbon sinks rather than carbon sources (Hurteau and North 2008). Additionally, treated forest stands have been found to retain greater levels of above ground carbon stored in live trees following wildfire. Therefore, treated stands recover baseline carbon storage more quickly than untreated, overcrowded stand (Carlson et al. 2012).

Rates of carbon sequestration were calculated by measuring changes in above-ground, live carbon over a sixty-year period (2024-2084)[10] in both untreated and treated stands. This time frame allows for the assessment of forest treatment impacts during and beyond the Project's lifespan. As shown in 3.7-16, treated stands sequester more carbon over time. In modeling scenarios where wildfire is not assumed to occur, treated stands sequester approximately 4.6 million more tons of carbon in live trees over this period compared to untreated stands. In scenarios where wildfire is assumed to occur, carbon sequestration in treated stands equates to roughly 4.8 million more tons of carbon in live trees over this period compared to untreated stands.

## Table 3.7-16. Effects of GSNR Biomass Only Thinning Projects on Carbon Sequestration

| | Sequestered Above Ground, Live Carbon (2024-2084) | | |
|---|---|---|---|
| Forest Condition | Carbon – Tons/acre | Carbon – Total tons | CO2e – Total metric tons |
| Untreated, no fire | 51.02 | 87.5 million | 291.3 million |
| Treated, no fire | 53.66 | 92.1 million | 306.6 million |
| Untreated, with fire | 50.68 | 86.9 million | 289.3 million |
| Treated, with fire | 53.46 | 91.7 million | 305.3 million |

As an initial matter, this data in Table 3.7-16 (an average of 305.9 MMT $CO_2e$ over 60 years under no fire and with fire conditions) demonstrates that the carbon sequestration of the treated forest acreage more than recovers the

[10] The 60-year time scale is utilized to assess the impacts of GSNR Biomass Only Thinning Projects because forest thinning treatments have lasting impacts, and the forest responds to the improved growing conditions over a longer period than the anticipated life of the project.

initial carbon loss noted in Table 3.7-15 (67,913,288 MT $CO_2e$ over 20 years) as a result of the project's feedstock acquisition activities. Carbon sequestration also occurs in untreated stands, but at a lower rate compared to treated stands (an average of 290.3 MMT $CO_2e$ over 60 years under no fire and with fire conditions); however, untreated stands do not involve initial carbon loss from forest management activities. Notably, there was a substantial increase in the amount of carbon sequestered on treated lands, both with and without the occurrence of wildfire on the landscape. 4.6 to 4.8 million additional tons of carbon sequestered is equivalent to approximately 15.3 to 16 MMT additional $CO_2e$ sequestered over 60 years. Similarly, while sequestered forest carbon should be evaluated on a long-term basis, when amortized over 60 years, the project's treated stands are estimated to sequester approximately 260,833 MT additional $CO_2e$ per year, or 15,650,000 MT additional $CO_2e$ over the 60-year timescale.

### Decrease in Emissions from Wildfire

Forest fuel treatments can result in substantial reductions in emissions produced by wildfires (Brodie et al. 2024, North and Hurteau 2011, Stephens et al. 2012a). Fuels treatments reduce the severity of wildfires and therefore result in reduced fuel consumption and emissions. Treated stands often experience greater levels of carbon retained in live trees compared to untreated stands following wildfire.

FVS provides particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) emissions during wildfire based on fuels composition and wildfire severity. Predicted $PM_{2.5}$ emissions from wildfires in treated and untreated stands were then cross walked to the Fire Order Fire Effects Model (FOFEM) to quantify other emission types. FOFEM uses emission factors to calculate particulate and chemical emissions based on the fuel consumed during flaming and smoldering combustion (Ward and Hardy 1991). These emission factors allow the determination of $CO_2$ and $CH_4$ (in addition to other criteria air pollutants) emissions from the known $PM_{2.5}$ emissions calculated in FVS.

As presented below in Table 3.7-17, emissions from wildfires predicted to occur over the life of the project are substantially reduced in treated stands. Carbon dioxide emissions are reduced by approximately 4 million MT $CO_2e$, and $CH_4$ (methane) emissions are reduced by roughly 1 million MT $CO_2e$, over the life of the project. Wildfire GHG emissions from each GHG were then converted to $CO_2e$ to account for the associated GWP.

**Table 3.7-17. Changes in Wildfire GHG Emissions Due to GSNR Biomass Only Thinning Projects**

| Emission Type | Untreated Stands (tons) | Treated Stands (tons) | Emissions Reduction (tons)[a] | Emissions Reduction (tons $CO_2e$)[b] | Emissions Reduction (MT $CO_2e$)[c] |
|---|---|---|---|---|---|
| $CO_2$ | 32,276,328 | 28,309,811 | 3,966,517 | 3,966,517 | 3,598,364 |
| $CH_4$ | 335,967 | 294,371 | 41,597 | 1,039,900 | 943,381 |
| | | | | **Total** | **4,541,745** |

**Notes:** $CO_2e$ = carbon dioxide equivalent; MT = metric tons.

[a] The emissions reduction in tons of $CO_2$ was calculated by subtracting the tons of $CO_2$ of treated stands from the tons of $CO_2$ of untreated stands.

[b] The emissions reduction in tons of $CO_2e$ was calculated by multiplying the tons of $CO_2$ by the global warming potential for $CO_2$, which is 1, and $CH_4$, which is 25 (IPCC 2014). [c] The emissions reduction in MT of $CO_2e$ was calculated by multiplying the tons of $CO_2e$ by the conversion factor of 0.907.

As provided above in Table 3.7-17, the project is estimated to reduce $CO_2e$ emitted by wildfires by roughly 4.5 MMT over course of the project's 20-year span, or approximately 227,087 MT or 0.2 MMT of $CO_2e$ annually. This equates

to roughly 0.06% of California's annual GHG inventory in 2021 (0.2 MMT $CO_2e$ of forest carbon benefit compared to 381.3 MMT $CO_2e$ of total statewide emissions) (CARB 2023a).

### Decreased Tree Mortality

The effect of fuels treatments on wildfire-caused tree mortality has been found to be beneficial, with fuel treatments often decreasing the rate of tree mortality (Prichard and Kennedy 2012, Stephens et al., 2009, Stephens and Moghaddas 2005, Steel et al. 2021). By removing smaller diameter trees, brush, and other highly flammable materials, fuels treatments create conditions that make it harder for fires to reach and damage larger, more resilient trees. These strategic reductions in forest fuels decrease wildfire severity and therefore allow treated stands to better withstand wildfire impacts.

FVS provides outputs for wildfire-caused mortality in the form of percent forest stand basal area experiencing mortality. This output allows for a relative comparison of wildfire caused morality between untreated and treated stands. As provided below in Table 3.7-18, the project's fuel treatments are predicted to reduce wildfire caused mortality by **24.1%** when compared to untreated, baseline conditions. These reductions are captured in carbon sequestration rates provided in Table 3.7.16, as dead trees are not actively sequestering carbon.

**Table 3.7-18. Changes in Wildfire Caused Tree Mortality Due to GSNR Biomass Only Thinning Projects**

| Forest Condition | Mortality (Percent basal area) | Mortality Reduction |
|---|---|---|
| Untreated, with fire | 56.69% | |
| Treated, with fire | 32.59% | 24.1% |

As presented in Table 3.7-18, the project's fuel treatments are expected to result in large reductions of wildfire caused mortality resulting in the retention of mature seed producing conifers. Therefore, the Project's fuel treatments are expected to decrease the potential for type conversion and help ensure that high levels of forest carbon storage will be sustained over time.

In addition, rates of non-wildfire caused tree mortality are also expected to decrease in treated forests. As forest stands become overstocked, stand density related mortality increases due to increased competition and higher likelihood of forest diseases and pests. This is especially true in drought prone regions such as the Project area. Research suggests that forests begin to experience stand density-related mortality at 55% of the maximum SDI, with peak mortality occurring at 85% of maximum SDI (Sherlock 2007). Forest treatments have been proven to reduce density and drought related mortality (Restaino et al. 2019, Zhang et al. 2019)

### Impact on Soil Carbon

As stated in Section 3.7.1.4, the specific effects of forest fuels treatments on soil carbon will depend on factors such as treatment intensity, frequency, and site characteristics. Standard forest harvests have been found to have little effect on soil organic carbon levels, whereas aggressive harvest methods resulted in carbon losses across all layers of forest soil (Achat et al. 2015). Fuels treatments have been found to have little to no effect on forest soil carbon stocks (Boerner et al. 2008, North et al. 2009, Dore et al. 2016, Stephens et al 2012b). In fact, fuel treatments may reduce future soil carbon losses by preventing soil erosion following high intensity wildfires. Based

on research on different fuel treatment methods, it was found that there were no notable disparities in soil carbon levels between thinned and untreated forest stands (Moghaddas and Stephens 2007).

The project is unlikely to result in substantial changes to soil carbon levels. Proposed fuels reduction activities are not expected to result in substantial soil disturbance or degradation through the implementation of best management practices for erosion control and soil protection. In addition, the project's fuels reduction activities resemble conventional harvest methods which do not result in a high degree of soil carbon loss observed during aggressive harvest methods. Finally, through facilitating a reduction in wildfire severity, the Project's fuels treatments are expected to reduce the likelihood of extensive soil erosion and carbon loss from high severity wildfires.

### Forest Carbon Change Summary

As shown in Table 3.7-16, treated forests sequester above-ground carbon at a faster rate compared to untreated forest stands. As such, over a timescale of 60 years, treated forests under the project would sequester more carbon compared to untreated forests under existing conditions. For the project area of effect, the project results in a range of 305.3 to 306.6 million MT $CO_2e$ sequestered for treated forests compared to a range of 289.3 to 291.3 million MT $CO_2e$ if the forest remain untreated.

However, treated forests result in an initial loss of carbon associated with treatment activities that remove biomass and associated carbon stored. The initial loss of carbon storage (i.e., the amount of carbon in a forest at a given time) is often characterized as a "one-time" loss, while carbon sequestration (i.e., the rate at which carbon is removed from the atmosphere within a given time) is often characterized as a long-term, ongoing process. Untreated forests do not undergo treatment activities so the initial loss of carbon would not occur under existing conditions. As presented in Table 3.7-15, the initial loss of carbon associated with the proposed treatment activities over 20 years is 20.4 million tons of carbon, which equates to 67,913,288 MT $CO_2e$.

Treated forests reduce the risk of density-related mortality and wildfire and associated emissions, while this benefit does not occur under untreated forest conditions. As shown in Table 3.7-17, treated forests under the project are estimated to avoid approximately 4.5 MMT $CO_2e$ over 20 years. The wildfire emissions avoidance estimate is anticipated to be undervalued as avoided wildfire benefits may continue beyond 20 years.

Table 3.7-19 presents the forest carbon considerations discussed above in terms of $CO_2e$ for treated and untreated forest stands: initial carbon removal, forest stand carbon sequestration, and avoided wildfire.

**Table 3.7-19 GSNR Biomass Only Thinning Projects Treated and Untreated Forest Stand GHG Emissions**

| | Treated Forest Stand (MT $CO_2e$) | Untreated Forest Stand (MT $CO_2e$) |
|---|---|---|
| Initial carbon removal from GSNR thinning activities (total over 20 years) | -67,913,288 | 0 |
| Forest stand carbon sequestration (total over 60 years) | 305,950,000 | 290,300,000 |
| Avoided wildfire due to GSNR thinning activities (total over 20 years) | 4,541,745 | 0 |
| **Total** | **242,578,457** | **290,300,000** |

As shown in Table 3.7-19, both treated and untreated forests sequester and store carbon, though the untreated forest condition does not involve an initial carbon removal, resulting in a greater total $CO_2e$ of the quantified factors herein, or provide avoided wildfire benefits. While not quantified, the untreated forests also do not provide reduced tree mortality benefits (beyond the wildfire avoidance benefits) anticipated to occur under the proposed forest treatment.

It is important to note that maximizing carbon stored in forest stands is not the goal of forest resiliency. Instead, as stated in the State's Forest Carbon Plan, forest health improvements aim to ensure the state's forest operate as a carbon sink (State of California 2021). Forest carbon carrying capacity, which is the amount that a forest can store and still be resilient (i.e., have low levels of mortality) to fire, drought, and other disturbances (e.g., bark beetle), is a key consideration in assessing forest health and carbon storage (U.S. Forest Service 2023). The concept of forest carbon carrying capacity emphasizes carbon stability and the level of carbon storage that forests can maintain, rather than the maximum level of carbon forests can store.

Without disturbance, forests continue to accumulate more carbon as tree size and density increases. This additional biomass beyond sustainable levels, however, makes the forest prone to disturbances, such as drought stress, pests, pathogens, and higher severity wildfire, which increase tree mortality and carbon loss. Tree mortality reduces carbon stocks as dead trees decompose and return carbon and other GHGs such as $CH_4$ into the atmosphere. Additionally, forests with stocking rates beyond appropriate carbon carrying capacity are more vulnerable to large-scale mortality and subsequent type conversion, resulting in decreased carbon sequestration as forests are replaced by other vegetation types (Campbell et al. 2012, Liang et. al. 2017). Therefore, forest carbon carrying capacity is lower than the maximum carbon storage potential of a forest but represents the biomass that can be sustainably maintained given disturbance and mortality agents in the ecosystem, which increases the stability of the forest as a carbon sink (Hall et Al. 2024). Thus, rather than managing forests to maximum the level of stored carbon at the detriment of overall forest health, management activities should aim to return forest conditions to a sustainable carbon capacity with high rates of carbon sequestration. Treatments may need to accept short-term carbon losses to achieve the desired conditions conducive to forest resiliency and their longevity as carbon sinks rather than sources (UC Berkeley 2020).

Management activities that change the amount of presently stored carbon and increase the future rate of sequestered forest carbon often result in healthier forests with sustainable levels of carbon storage and high resilience to drought, disease, and wildfire. In general, forests managed so that growth and carbon accumulation are concentrated in large trees will also have longer, more secure carbon storage than stands where growth is concentrated in a high density of small trees prone to pest, pathogen, and fire mortality (U.S. Forest Service 2023).

The project addresses the increasing wildfire risks in California by managing high hazard and unsustainable levels of forest carbon/ fuel loads and promoting economic activity in rural areas. This initiative focuses on converting low or negative value woody biomass, such as brush and small trees, into industrial wood pellets. These actions help mitigate wildfire hazards while utilizing materials from sustainable forest management practices across various land types.

This assessment evaluates the project's impact on forest carbon dynamics and GHG emissions. Despite initial carbon reductions, treated forests are projected to sequester more carbon over time and exhibit greater resilience to wildfires compared to untreated forests. Fuel treatments are modeled to significantly decrease wildfire severity, thereby maintaining carbon stocks in live trees, and substantially reducing wildfire emissions. The project is also expected to result in large reductions in wildfire caused mortality, diminishes the risk of forest type conversion to less carbon-dense ecosystems and preserving long-term carbon storage potential.

In summary, the key findings include:

- Treated stands are modeled to sequester an additional 4.6-4.8 million tons of carbon stored in live trees over 60 years compared to untreated stands, which equates to approximately 15,315,092-15,980,966 MT $CO_2e$ over 60 years. Similarly, while sequestered forest carbon should be evaluated on a long-term basis, when amortized over 60 years (20 years of project life plus an additional 40 years of long-term effects), the project's treated stands are estimated to sequester approximately 260,800 MT $CO_2e$ per year. These findings align with the State's goal of improving forest health and carbon sequestration (State of California 2021)
- The project's fuel treatments would result in an initial loss of sequestered carbon (20.4 million tons C over the life of the project); however, this is less than the amount of carbon that will naturally be sequestered by the treated lands over the relevant timescale (86.9 million tons C over 60 years with fire, or 29 million tons C over 20 years), even without accounting for the additional beneficial effects of these treatments.
- The project's fuel treatments are predicted to result in approximately 4.5 MMT of avoided $CO_2e$ emissions from wildfires. While forest fuel treatments should be evaluated on a long-term basis, for mathematical purposes, on an annual basis (total avoided $CO_2e$ divided by 20 years[11]), the project's fuel treatments are anticipated to result approximately 227,087 MT of avoided $CO_2e$ per year.
- While overall, untreated forest stands store more carbon compared to untreated forest stands due to no initial loss of carbon, forest resiliency and balanced carbon carrying capacity, which emphasizes restoring forest health and maintaining carbon stability to keep forests as a carbon sink, is the appropriate forest management goal over maximizing stored carbon.
- The project is estimated to result in an approximate 24% reduction in wildfire-caused tree mortality.

In conclusion, the project not only addresses immediate wildfire risks but also contributes to long-term carbon sequestration and forest health, aligning with state and national broader environmental and economic goals. By implementing strategic fuel treatments, the project improves forest conditions and reduces the adverse impacts of severe wildfires within the project's landscapes.

## Conclusion

Estimated GHG emissions associated with the project are associated with various emission sources including stationary sources, area sources, energy sources (natural gas and electricity), mobile (passenger vehicles and trucks), train travel and switcher use (rail), ship transport (marine vessels), water and wastewater, solid waste, refrigerants, and off-road equipment usage. In total, annual GHG emissions across the state is anticipated to be 94,922 MT $CO_2e$ per year. [12]

The potential exists for long-term, cumulative forest carbon benefits as explained above. On an annual basis (forest carbon benefits amortized over 60 years), the project's fuel treatments are predicted to result in approximately 227,087 MT of avoided $CO_2e$ emissions from wildfires and treated stands are modeled to sequester an additional approximately 260,800 MT of carbon stored in live trees compared to untreated stands. The project's fuel treatments would result in an initial loss of stored carbon (67,913,288 MT $CO_2e$ over 20 years). When considering total carbon sequestered by the GSNR-treated forest stands (an average of 305,950,000 MT $CO_2e$ over 60 years under with fire and no fire conditions), the initial stored carbon loss would be recovered; however, untreated forests

11 Fuel treatment is evaluated over 20 years to evaluate the immediate impact on wildfire emissions over the course of the project, which is 20 years.

12 This amount does not sum the total figures shown in the individual tables, due to the inclusion of certain emissions in multiple tables (e.g., logging/haul trucks; rail transport within LCAPCD, TCAPCD, SJVAPCD; ship transport within SJVAPCD), which should not be double-counted.

also continue to sequester carbon overtime (an average of 290,300,000 MT $CO_2e$ over 60 years under with fire and no fire conditions) with no initial carbon loss associated with biomass removal.

While the project would result in forest carbon benefits, the project also directly or indirectly generates substantial GHG emissions and initial loss of sequestered carbon. To meet CEQA's mandate of good faith disclosure (*California Native Plant Society v. City of Santa Cruz, supra,* 177 Cal.App.4th) by acknowledging potential future impacts in light of the uncertainties, this EIR classifies this GHG impact as **potentially significant**, recognizing the reliability of estimates of direct GHG emissions and carbon loss, and the potential uncertainty of the intended net carbon benefits of reduced wildfire intensity and increased carbon sequestration in treated areas. It is consequently possible that the project's GHG emissions may have a significant impact on the environment for purposes of Impact GHG-1. Even though the predicted long-term outcome may be beneficial, the "potentially significant" determination is intentional as an expression of GSNR's commitment to continued support of ongoing research and adjustment of carbon management approaches as the science evolves.

Mitigation measures introduced in Chapter 3.2, Air Quality and 3.14 Transportation, would also reduce GHG emissions, as listed in Section 3.7.4.4. No additional feasible GHG-specific mitigation measures have been identified. While these measures will reduce the project's direct GHG emissions, they would not mitigate those emissions to a level of insignificance.

This EIR classifies this GHG impact as **significant and unavoidable**. Even though the long-term outcome may yet become beneficial, the "significant and unavoidable" determination alerts the public to the potential that net positive emissions may persist over time, and any more definitive conclusion would be speculative in light of the above-noted uncertainties.

Impact GHG-2 The project would potentially conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

## CARB 2022 Scoping Plan

As defined by AB 32, CARB is required to develop the Scoping Plan, which provides the framework for actions to achieve the State's GHG emission targets. The Scoping Plan is required to be updated every five years and requires CARB and other state agencies to adopt regulations and initiatives that will reduce GHG emissions statewide. The first Scoping Plan (*Climate Change Proposed Scoping Plan: A Framework for Change)* was adopted in 2008, and was updated in 2014, 2017, and most recently in 2022. The Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations.[13] However, given that the Scoping Plan establishes the official framework for the measures and regulations that will be implemented to reduce California's GHG emissions in alignment with the adopted targets, a project would be found to not conflict with the statutes if it would meet the general policies in reducing GHG emissions in order to facilitate the achievement of the state's goals and would not impede attainment of those goals. CARB's 2017 Scoping Plan update was the first to address the state's strategy for achieving the 2030 GHG reduction target set forth in SB 32 (CARB 2017a), and the most recent CARB 2022 Scoping Plan update outlines the state's plan to reduce emissions and achieve carbon neutrality by 2045 in alignment with AB 1279 and assesses progress is making toward the 2030 SB 32 target (CARB 2022).

[13] The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009).

As such, given that SB 32 and AB 1279 are the relevant GHG emission targets, 2022 Scoping Plan update that outlines the strategy to achieve those targets, is the most applicable to the Project.

CARB approved the 2022 Scoping Plan in December 2022 to outline the state's plan to reduce anthropogenic emissions to 85% below 1990 levels by 2045 and achieve carbon neutrality by 2045 or earlier. The 2022 Scoping Plan also assesses the progress the state is making towards reducing GHG emissions by at least 40% below 1990 levels by 2030, as is required by SB 32 and laid out in the 2017 Scoping Plan. However, the plan found that additional reductions are needed by 2030 (i.e., 48% below 1990 levels) for the state to remain on track to achieve net zero GHG emissions by 2045. Therefore, carbon reduction programs included in the 2022 Scoping Plan build on and accelerate those currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; and displacement of fossil-fuel fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines) (CARB 2022). Implementation of the measures and programs included in the 2022 Scoping Plan largely are the responsibility of policymakers and would result in the reduction of project-related GHG emissions with no action required at the project-level.

The project would involve no natural gas consumption and would include no natural gas fireplaces, which supports the Scoping Plan's building decarbonization, other industrial manufacturing .

As discussed previously, the 2045 carbon neutrality goal required CARB to expand proposed actions in the 2022 Scoping Plan to include those that capture and store carbon in addition to those that reduce only anthropogenic sources of GHG emissions. The 2022 Scoping Plan is the first to include discussion of the Natural and Working Lands (NWL) sectors as a source of emissions and opportunity for carbon capture and storage. The Scoping Plan modeling indicates that in the near future, NWL will act as a net source of emissions, due to the effects of climate change (e.g., extreme wildfires, drought) and land management. As such, while avoided conversion of the state's NWL is important to long-term climate goals, land preservation on its own will not ensure GHG emissions or carbon storage benefits from NWL. Instead, NWL must be properly managed with climate-smart actions to support carbon neutrality and healthy and resilient lands. By converting low-value woody biomass into industrial wood pellets, the Project not only mitigates wildfire hazards but also promotes sustainable forest management practices across diverse land types. The project would accelerate natural removal of carbon and build climate resilience in our forests, thereby indirectly conserving the state's NWL.

Overall, the proposed project would comply with the regulations adopted in furtherance of the Scoping Plan to the extent applicable and required by law. As mentioned above, several Scoping Plan measures would result in reductions of project-related GHG emissions with no action required at the project-level, including those related to reduced fossil fuel use and NWL. As demonstrated herein, the project would not conflict with the majority of the CARB's 2022 Scoping Plan actions and with the state's ability to achieve the 2030 and 2045 GHG reduction and carbon neutrality goals. Further, the proposed project's consistency with the applicable measures and programs would assist in meeting GHG emission reduction targets in California. However, the project would potentially conflict with CARB's 2022 Scoping Plan VMT action, as the project's VMT impact is significant and unavoidable. Additionally, as discussed under Impact GHG-1, while the project is predicted to result in substantial forest carbon benefits, the extent of these benefits are potentially uncertain, and project activities also cause substantial GHG emissions and initial forest carbon loss. If these negative impacts occur, but the benefits are less than expected, this could result in GHG increases that conflict with the goals of the 2022 Scoping Plan.

Table 3.7-20 evaluates the project's potential to conflict with the measures from the 2022 Scoping Plan, that are relevant and applicable to the project.

## Table 3.7-20. Project Potential to Conflict with 2022 Scoping Plan

| Sector | Action | Potential to Conflict |
|---|---|---|
| GHG Emissions Reductions Relative to the SB 32 Target | 40% below 1990 levels by 2030 | ***Potential conflict.*** While the SB 32 GHG emissions reduction target is not an Action that is analyzed independently, it is included in Table 2-1 of the 2022 Scoping Plan for reference. The project is not expected to obstruct or interfere with agency efforts to meet the SB 32 reduction goal; however, in light of the uncertainties discussed above, it is possible that project emissions may not support achievement of the Scoping Plan's reduction target. |
| Smart Growth/VMT | VMT per capita reduced 25% below 2019 levels by 2030, and 30% below 2019 levels by 2045 | ***Potential conflict.*** The project's VMT impacts related to sustainable forest management projects and the Lassen Facility are significant and unavoidable. Therefore, the project would potentially obstruct or interfere with agency efforts to meet this regional VMT reduction goal, including through implementation of SB 375. |
| Light-duty Vehicle (LDV) Zero Emission Vehicles (ZEVs) | 100% of LDV sales are ZEV by 2035 | ***No conflict.*** As this action pertains to LDV sales within California, the project would not obstruct or interfere with its implementation. Furthermore, the project would support the transition from fossil fuel LDV to ZEV through its provision of EV chargers in compliance with CALGreen standards. |
| Truck ZEVs | 100% of medium-duty vehicle (MDV)/ heavy-duty vehicle (HDV) sales are ZEV by 2040 | ***No conflict.*** As this action pertains to MDV and HDV sales within California, the project would not obstruct or interfere with its implementation. Furthermore, the project would comply with the 2022 CALGreen code. |
| Ocean-going Vessels (OGV) | 2020 OGV At-Berth regulation fully implemented, with most OGVs utilizing shore power by 2027.<br>25% of OGVs utilize hydrogen fuel cell electric technology by 2045. | ***No conflict.*** As this action pertains to port technologies across California, the project would not obstruct or interfere with its implementation. The project would comply with the OGV At-Berth regulation. Furthermore, the project would work with the Port of Stockton to incorporate cleaner technologies, such as hydrogen fuel cell electric technology, as they become available. |

## Table 3.7-20. Project Potential to Conflict with 2022 Scoping Plan

| Sector | Action | Potential to Conflict |
|---|---|---|
| Port Operations | 100% of cargo handling equipment is zero-emission by 2037.<br>100% of drayage trucks are zero emission by 2035. | ***No conflict.*** As this action pertains to cargo handling equipment manufacturers across California, the project would not obstruct or interfere with its implementation. The project would comply with all CARB cargo handling equipment regulations. Furthermore, the project would work with the Port of Stockton to incorporate cleaner technologies as they become available. |
| Freight and Passenger Rail | 100% of passenger and other locomotive sales are ZEV by 2030.<br>100% of line haul locomotive sales are ZEV by 2035.<br>Line haul and passenger rail rely primarily on hydrogen fuel cell technology, and others primarily utilize electricity. | ***No conflict.*** As this action pertains to the sale of locomotives, the project would not obstruct or interfere with its implementation. The project would comply with CARB line haul locomotive regulations. The project would work with their rail operators to incorporate cleaner technologies as they become available. |
| Electricity Generation | Sector GHG target of 38 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2030 and 30 $MMTCO_2e$ in 2035<br>Retail sales load coverage[1]<br>20 gigawatts (GW) of offshore wind by 2045<br>Meet increased demand for electrification without new fossil gas-fired resources | ***No conflict***. As this action pertains to the statewide procurement of renewable energy, the project would not obstruct or interfere with its implementation. |
| New Residential and Commercial Buildings | All electric appliances beginning 2026 (residential) and 2029 (commercial), contributing to 6 million heat pumps installed statewide by 2030 | ***No conflict.*** The project would not obstruct or interfere with CARB's efforts to meet the all-electric appliance and heat pump goals. As designed, the project would be all electric and would not use natural gas. |
| Construction Equipment | 25% of energy demand electrified by 2030 and 75% electrified by 2045 | ***No conflict.*** As this action pertains to the electrification of off-road equipment across California, the project would not obstruct or interfere with its implementation. The project includes construction equipment with higher tier engines and would transition electric equipment as regulations become effective. |
| Other Industrial Manufacturing | 0% energy demand electrified by 2030 and 50% by 2045 | ***No conflict.*** The project would not obstruct or interfere with CARB's efforts to meet 0% energy demand electrified by 2030 and 50% by 2045. As designed, the |

## Table 3.7-20. Project Potential to Conflict with 2022 Scoping Plan

| Sector | Action | Potential to Conflict |
|---|---|---|
| | | project would be all electric and would not use natural gas. |
| Low Carbon Fuels for Transportation | Biomass supply is used to produce conventional and advanced biofuels, as well as hydrogen | ***No conflict***. The project would not obstruct or interfere with CARB's efforts to increase the provision of low carbon fuels for transportation. The development and use of biofuels in trucks and automobiles would occur at the state and regional level. Regardless, the project would implement MM-AQ-3 (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) which would incorporate renewable diesel as feasible. |
| Low Carbon Fuels for Buildings and Industry | In 2030s biomethane blended in pipeline<br>Renewable hydrogen blended in fossil gas pipeline at 7% energy (~20% by volume), ramping up between 2030 and 2040<br>In 2030s, dedicated hydrogen pipelines constructed to serve certain industrial clusters | ***No conflict.*** The project would not obstruct or interfere with CARB's efforts to increase the provision of low carbon fuels for use in buildings and industry. The blending of biomethane and use of renewable hydrogen in existing natural gas pipelines would happen at the scale of the utility provider and without action required by the project. Furthermore, the project would not use natural gas. |
| High GWP Potential Emissions | Low GWP refrigerants introduced as building electrification increases, mitigating HFC emissions | ***No conflict.*** The project would not obstruct or interfere with agency efforts to introduce low GWP refrigerants. The State has established a prohibition on the sale or distribution of bulk HFCs identified as having a high GWP through SB 1206. |
| Natural and Working Lands | Conserve 30% of the state's NWL and coastal waters by 2030.<br>Implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities—and in particular low-income, disadvantaged, and vulnerable communities. | ***No conflict.*** By converting low-value woody biomass into industrial wood pellets, the Project not only mitigates wildfire hazards but also promotes sustainable forest management practices across diverse land types. As discussed under Impact GHG-1, the project would accelerate natural removal of carbon through sequestration and build climate resilience in our forests, thereby indirectly conserving the state's NWL. |
| Forests and Shrublands | At least 2.3 million acres treated statewide annually in forests, shrublands/chaparral, and grasslands, comprised of regionally specific management strategies that include prescribed fire, thinning, harvesting, and other management actions. No | ***No conflict.*** The project would conduct forest thinning projects to increase forest wildfire resiliency. The Project would also increase the pace and scale of commercial thinning operations conducted by other entities through |

**Table 3.7-20. Project Potential to Conflict with 2022 Scoping Plan**

| Sector | Action | Potential to Conflict |
|---|---|---|
| | land conversion of forests, shrublands/chaparral, or grasslands. | utilization of forest biomass such as unmerchantable material. |

**Source:** CARB 2022.

Based on the analysis in Table 3.7-5, the project would not conflict with the majority of strategies and measures in the 2022 Scoping Plan. However, the project would conflict with the Smart Growth/VMT strategy, and, in light of the uncertainties regarding forest carbon benefits, also has the potential to conflict with the "GHG Emissions Reductions Relative to the SB 32 Target" strategy. Therefore, the project is deemed to conflict with the 2022 Scoping Plan.

### California 2030 Natural and Working Lands Climate Change Implementation Plan

The *Natural and Working Lands Climate Smart Strategy* provides priority actions and approaches that will help achieve carbon neutrality using nature-based solutions for the eight NWL types contained in California (CARB 2019). The Project's consistency with the priority nature-based climate solutions for the dominant NWL type (i.e., forests) is provided in Table 3.7-21.

**Table 3.7-21. Project Potential to Conflict with Natural and Working Lands Implementation Plan**

| Applicable Nature-Based Climate Solutions | Potential to Conflict |
|---|---|
| Advance proactive vegetation management, ecological thinning, managed and science-based grazing, prescribed and cultural burns, and managed natural wildfire to reduce the risk of catastrophic wildfire. | ***No conflict.*** The project increases the pace and scale of vegetation management to increase forest resiliency. By converting low-value woody biomass into industrial wood pellets, the project not only mitigates wildfire hazards but also promotes sustainable forest management practices across diverse land types. |
| Increase active reforestation efforts in areas recovering from severe wildfires and suffering from reduced natural regeneration as a result. Timely post-wildfire reforestation efforts can also prevent conversion of forest to shrublands and reduced water storage capacity in watersheds. | ***No conflict.*** The project would likely expedite the pace and scale of post-fire restoration efforts through facilitating biomass utilization of burned woody material. |
| Increase commercial thinning to achieve disturbance-resilient forest structure on federal and privately owned forested parcels. | ***No conflict.*** The project would conduct forest thinning projects to increase forest wildfire resiliency. The Project would also increase the pace and scale of commercial thinning operations conducted by other entities through utilization of forest biomass such as unmerchantable material. |

**Source:** CARB 2019.

As shown in Table 3.7-21, the proposed project would not conflict with the applicable nature-based climate solutions for the dominant NWL type for the Sustainable Forest Management Projects. Climate smart land management through Sustainable Forest Management Projects would enable forests to be resilient to future climate changes (e.g., wildfire, drought, pest, etc.) that threaten the forests' ability to store and sequester carbon.

## California Forest Carbon Plan

As described above under Impact GHG-1, it was estimated that 85,779 acres are required to be treated annually to provide the feedstock supply anticipated from GSNR Biomass Only Thinning Projects. This equates to roughly 1.7 million acres treated from GSNR Biomass Only Thinning Projects over the Project's 20-year life span. One of the California Forest Carbon Plan's goals is to increase forest restoration and fuels treatments, including mechanical thinning and prescribed burning, from the current rate of approximately 17,500 acres per year to 60,000 acres per year. As such, GSNR's Sustainable Forest Management Projects exceed the goals set in the California Forest Carbon Plan for forest fuel treatment acreages.

## AB 1757 California's Nature-Based Solutions Climate Targets

As described above under Impact GHG-1, it was estimated that 85,779 acres are required to be treated annually to provide the feedstock supply anticipated from GSNR Biomass Only Thinning Projects. This equates to roughly 1.7 million acres treated from GSNR Biomass Only Thinning Projects over the Project's 20-year life span. This nature-based solution has an acreage target of 700,000 acres/year by 2030, 800,000 acres/year by 2038, and 1 million acres/year by 2045. As such, GSNR's Sustainable Forest Management Projects would greatly contribute to the nature-based solution goal for fuel reduction treatment acreages. Furthermore, by converting low-value woody biomass into industrial wood pellets, the project would not only mitigate wildfire hazards but would also promote sustainable forest management practices across diverse land types. As described below in the Forest Carbon Change section, the project is estimated to result in an approximate 24% reduction in wildfire-caused tree mortality, thereby decreasing wildfire severity. The project would help achieve the nature-based solution percentage targets for low to moderate severity wildfire such that the total percentage of low to moderate severity wildfire is 75% by 2030, 83% by 2038, and 90% by 2045.

## Local GHG Reduction Plans

### Feedstock Acquisition

Feedstock acquisition would take place in multiple jurisdictions and counties with potential local GHG reduction plans. These activities would be temporary in nature and would follow best management practices from the applicable lead agencies to reduce GHG emissions to the extent feasible.

### Lassen Facility

Lassen County does not have an adopted local GHG reduction plan.

### Project Consistency with the Tuolumne County Climate Action Plan

The Project would be consistent with the Ecosystem Preservation and Conservation strategy in the Tuolumne CAP by directly contributing to enhancing the protection of natural assets and ecosystems. By strategically managing vegetation, such as thinning out dense forest areas, the Project helps prevent catastrophic wildfires. This, in turn, preserves wildlife habitat, wetlands, and watersheds. Additionally, reducing the risk of intense wildfires promotes climate resilience by maintaining healthy ecosystems thereby enhancing biological carbon sequestration.

The Project would enhance forest resilience by reducing the buildup of low or negative value woody biomass, such as brush and small trees. By thinning trees and removing high hazard fuels, the forest becomes more resilient to disturbances like wildfire. The Project would reduce the risk of large-scale wildfires, thereby protecting dense forest

species. As shown below in the Forest Carbon Change section, the Project would contribute to carbon sequestration by supporting both forest health and carbon storage, resulting in an additional 4.6-4.8 million tons of carbon stored in live trees over 60 years.

### Project Consistency with the City of Stockton Climate Action Plan

The City's CAP has a Climate Impact Study Process (CISP), which is part of the Development Review Process, that describes BMPs to reduce GHG emissions from construction and operational activities (see CAP Appendix F). The CISP explains that applicants can use the CISP to identify BMPs that can feasibly be included within their projects and thereby ascertain their progress towards achieving the level of citywide GHG reduction goal sought by the CAP, namely, a 29% reduction compared with unmitigated conditions (reflecting former statewide 2020 goals under AB 32). The CAP itself acknowledges, however, that it is not intended, and likely not possible for, all projects to adhere to all of the BMPs listed within the CAP.

As previously discussed, the City's CAP is qualified to 2020 and the Project would include development that would occur post-2020, which may not be covered in the CAP. Indeed, the CAP is out of date insofar as it does not address post-2020 reductions called for under SB 32 and AB 1279, and its goal of achieving a 29% reduction compared with unmitigated conditions reflected statewide goals under AB 32, which have already been achieved. In addition, state building codes have become far more stringent since the CAP was approved in 2014, and the percentage of electricity generated by renewable electricity has increased substantially.

Even so, CEQA Guidelines section 15064.4(b)(3), provides that, in determining the significance of impacts associated with GHG emissions, lead agencies should consider the extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Because the CAP remains in place, the applicable BMPs that will be implemented at the Port of Stockton facility are as follows.

**BMP-1: Alternative Fuels.** Power gasoline-powered construction vehicles by alternative fuels such as CNG rather than conventional petroleum or diesel products. As described in MM-AQ-3 (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), the project would use renewable diesel fuel in diesel-powered off-road equipment and diesel trucks during construction and operation as commercially available.

**BMP-3: Equipment and Vehicle Idling.** Reduce unnecessary idling through the use of auxiliary power units, electric equipment, and strict enforcement of idling limits. Include language in plans and specifications for construction contracts. The maximum recommended idling time is 3 minutes. While there would be few trucks at the Port of Stockton facility (primarily vendor vehicles), the project would comply with the idling times as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations (CCR).

**BMP-5: Employee Commutes.** Reduce worker-related VMT through use of carpool, vanpool, shuttle services, and utilize alternative modes of transportation, including public transit, reducing single-occupancy VMT. The project would implement MM-AQ-4 (Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton) which would provide educational materials and encourage employee commute reduction.

**BMP-7: Construction Equipment.** Require the following technical specifications during all grading and construction activities:

- Tier 2 or Tier 3 engines shall be used on all equipment.
- Global positioning systems (GPS) shall be used to guide grading equipment.
- All diesel-fueled engines used in construction and grading shall have clearly visible tags issued by the on-site designee of the applicant showing that the engine meets these conditions.

The project would comply with CARB regulations and SJVAPCD Rules aimed at requiring fuel efficient off-road construction equipment and will use construction equipment that uses Tier 2 engines at a minimum.

**BMP-14: Construction and Demolition Plan.** Implement a construction and demolition (C&D) plan that will result in at least 50% diversion of C&D waste through reuse or recycling of non-hazardous construction waste from disposal (including, but not limited to, concrete, lumber, metal, and cardboard). During construction, the proposed project would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act as amended and the CALGreen code. CALGreen requires recycling and/or salvage for reuse of a minimum of 65% of the non-hazardous construction and demolition waste.

**BMP-16: Waste Hauling.** Require at least 50% of building or construction materials that are not recyclable or re-usable for another project to be hauled to the nearest waste disposal facility or C&D recycling facility rather than transporting such materials farther from the project site, thereby generating increased emissions from waste transportation. During construction, the proposed project would be required to comply with CALGreen which requires recycling and/or salvage for reuse of a minimum of 65% of the non-hazardous construction and demolition waste. Construction debris would be hauled off site to the closest landfill to the project site such as Clean Planet, Inc. landfill, which is located approximately 1 mile southeast of the project site. Clean Planet, Inc handles construction debris, concrete and asphalt, wood lumber debris, and green waste.

The project would not conflict with the applicable BMPs included in the City's CAP.

### Project Consistency with the Port of Stockton Clean Air Plan

The project would implement all available control strategies and would implement cleaner technologies as they become available to support the Port of Stockton's goals to improve air quality and reduce GHG emissions.

There would be little to no heavy-duty trucks traveling to the Port of Stockton as a result of the project, as all material would travel from the processing facilities by rail to the Port of Stockton. Regardless, the project would comply with the idling times as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations (CCR). The project would not conflict with the Heavy-Duty Trucks strategy, nor would it obstruct the Port from implementing this strategy and its goals.

The project would comply with the Mobile Cargo Handling Equipment Regulation, which was adopted by CARB in 2005 and fully implemented in 2017. The project has committed to reducing emissions from cargo-handling equipment and off-road equipment during operation to the extent feasible. The project would implement MM-AQ-8 (Operational Equipment Exhaust Minimization – Tier 4 Final – Lassen Facility, Tuolumne Facility, and Port of Stockton), which would require Tier 4 Final engines for all diesel-powered equipment pieces that are 50 horsepower or greater. If Tier 4 Final equipment is not available, the next highest tier will be used, or battery-electric off-road equipment will be used as it becomes available. These actions would support the EQUIP-5 strategy to transition tenant-owned equipment to zero emissions by 2035 or in advance of the State regulation, when feasible. Furthermore, the project would implement MM-AQ-3 (Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton), which would require the project to

use diesel fuel in diesel-powered off-road equipment and diesel trucks as commercially available. These actions would support the EQUIP-6 strategy to evaluate the use of renewable diesel in cargo-handling equipment. Therefore, the project would not conflict with the Cargo-Handling Equipment strategy, nor would it obstruct the Port from implementing this strategy and its goals.

The project would comply with the Ocean-Going Vessel At-Berth Regulation, which was adopted by CARB in 2007. The project would work with the Port to utilize cleaner or zero-emission harbor craft and ships as they become available to limit at-berth emissions. The project would not conflict with the Harbor Craft or Ships strategies, nor would it obstruct the Port from implementing these strategies and their goals.

While GSNR does not have operational control over the line haul trains being used, the project would work with rail operators to use the cleanest locomotives as they become available. Furthermore, the project would implement MM-AQ-10 (Operational Switcher Exhaust Minimization – Port of Stockton), which would require the project to use a Tier-4 Final engine for the on-site switcher at the Port of Stockton, if feasible and approved by the Port.

The project would not conflict with any other strategies within the Port of Stockton Clean Air Plan.

### Conclusion

The project would not conflict with the majority of strategies and measures in the 2022 Scoping Plan. However, the project would conflict with the Smart Growth/VMT strategy, and, in light of the uncertainties regarding forest carbon benefits, also has the potential to conflict with the "GHG Emissions Reductions Relative to the SB 32 Target" strategy. Therefore, the project is deemed to conflict with the 2022 Scoping Plan.

The project would not conflict with the Draft California 2030 Natural and Working Lands Climate Change Implementation Plan and would in many ways support the plan by increasing the pace and scale of vegetation management through sustainable forest management practices to increase forest wildfire resiliency, thereby indirectly protecting forests and natural and working lands.

Similarly, the project would not conflict with, and would support, California's Forest Carbon Plan by exceeding the plan's treatment rate goals for annual forest fuel treatment acreages in California.

The project would also not conflict with, and would support, AB 1757 California's Nature-Based Solutions Climate Targets. GSNR's Sustainable Forest Management Projects would greatly contribute to the nature-based solution goal for fuel reduction treatment acreages. Furthermore, by converting low-value woody biomass into industrial wood pellets, the project would reduce wildfire-caused tree mortality, thereby decreasing wildfire severity. The project would also help achieve the nature-based solution percentage targets for low to moderate severity wildfire.

Regarding local GHG reduction plans, there are no applicable local GHG reduction plans for the Lassen Facility, but the project's activities within Tuolumne County would not conflict with the Tuolumne County CAP, and the project's activities within the Port of Stockton would not conflict with the City of Stockton's CAP BMPs or the Port of Stockton Clean Air Plan.

While the project is aligned with these plans and in many ways supports them to meet their goals, the conflict with the 2022 Scoping Plan is **potentially significant**. As described under Impacts TRF-2 and GHG-1, the project will implement feasible Mitigation Measures to reduce the GHG emissions generating this conflict, but those emissions cannot be mitigated to a level of insignificance. Therefore, the impact related to potential conflict with an applicable

plan, policy, or regulation of an agency adopted for the purpose of reducing emissions of GHGs is deemed to be **significant and unavoidable**.

### 3.7.4.3 Cumulative Impacts

Impact GHG-1 The project would potentially generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

GHG emissions are an inherently cumulative impact resulting from past, current, and future projects—and the cumulative projects described in Section 3.0.3.2, Cumulative Projects and Scope of Analysis, within this EIR, would likely contribute to this widespread cumulative impact given the cumulative nature of GHGs. Given the global scope of climate change, it is not anticipated that a single project would have an individually discernible effect on global climate change. It is more appropriate to conclude that if a project is anticipated to result in a substantial increase in GHG emissions, it would combine with global emissions to cumulatively contribute to global climate change.

While the project would result in substantial forest carbon benefits, the project also directly generates substantial GHG emissions. Further, the project's fuel treatments would result in an initial loss of sequestered carbon, even though it is anticipated that this loss will be recovered through biological sequestration over time. Given the reliability of estimates of direct GHG emissions, and the potential uncertainty of the intended net carbon benefits of reduced wildfire intensity and increased carbon sequestration in treated areas, it is concluded that the project would result in potentially significant and unavoidable impacts to greenhouse gas emissions and, therefore, would result in a **cumulatively considerable impact**.

Impact GHG-1 The project would potentially conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

While the project is aligned with the majority of the goals and requirements in applicable GHG reduction plans, it has been deemed to conflict with certain strategies in CARB's 2022 Scoping Plan. This impact is significant and unavoidable, and, therefore, would result in a **cumulatively considerable impact**.

### 3.7.4.4 Mitigation Measures

The following mitigation measures applied in the Chapter 3.2, Air Quality and 3.14, Transportation, of this EIR are also applicable to the reduction of GHG emissions.

MM-AQ-2 Construction and Operation Limit Truck and Equipment Idling – Feedstock Acquisition, Lassen Facility, and Tuolumne Facility. During construction and operation, GSNR shall reduce idling time of heavy-duty trucks either by requiring them to be shut off when not in use or limiting the time of idling to no more than 3 minutes (thereby improving upon the 5-minute idling limit required by the state airborne toxics control measure, 13 CCR 2485). These requirements shall be included as enforceable terms in any contract or subcontract by GSNR for these activities and GSNR shall post clear signage reminding workers to limit idling of construction equipment and heavy-duty trucks.

MM-AQ-2 is not quantified in the analysis.

MM-AQ-3 Construction and Operation Renewable Diesel Fuel – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton. During construction and operation, GSNR shall use renewable diesel fuel in diesel-powered off-road equipment and diesel trucks during construction and operation whenever commercially available. Renewable diesel fuel must meet the following criteria:

- Meet California's Low Carbon Fuel Standards and be certified by CARB Executive Officer;
- Be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100% biomass material (i.e., non-petroleum sources), such as animal fats and vegetables;
- Contain no fatty acids or functionalized fatty acid esters; and
- Have a chemical structure that is identical to petroleum-based diesel and complies with American Society for Testing and Materials D975 requirements for diesel fuels to ensure compatibility with all existing diesel engines.

Commercially available is herein defined as renewable diesel fuel sourced within 50 vehicle miles of the project/activity site and within 10% of the cost of the equivalent nonrenewable fuel. GSNR or its contractor or subcontractor performing these services must contact at least three vendors within the County of activity and submit to GSFA justification if the renewable diesel fuel is not commercially available. These requirements shall be included as enforceable terms in any contract or subcontract by GSNR for these activities.

MM-AQ-3 is not quantified in the analysis.

MM-AQ-4 Construction and Operational Worker Commute Optimization – Feedstock Acquisition, Lassen Facility, Tuolumne Facility, and Port of Stockton. GSNR or its designee will provide educational materials to encourage workers to carpool to work sites and/or use public transportation for their commutes.

MM-AQ-4 is not quantified in the analysis.

Note that MM-TRF-1 includes providing employee sponsored vanpool for sustainable forest management projects and MM-TRF-4 includes providing electric vehicle charging infrastructure and employee sponsored vanpool for the Lassen Facility, Tuolumne Facility, and Port of Stockton, which would further reduce mobile source emissions and support MM-AQ-4.

MM-AQ-9 Operational Switcher Locomotive Exhaust Minimization – Lassen Facility. During operation of the Lassen Facility, California Air Resources Board (CARB)-certified Tier 4-Final engine shall be used for the on-site switcher locomotive at the Lassen Facility.

This measure can also be achieved by using battery-electric locomotive as it becomes commercially available in Lassen County.

MM-AQ-9 is quantified in the analysis.

MM-TRF-1 Provide Employee Sponsored Vanpool for Sustainable Forest Management Projects. GSNR would be required to provide, or cause to be provided, vanpooling services consistent with CAPCOA Measure T-11 for workers traveling to jobsites when applicable (i.e., when 5 or more employees with similar work hours live close enough to one another for van pooling to be practicable). A

Transportation Manager shall be designated to coordinate vanpooling for each feedstock acquisition project and provide a report detailing recorded annual vanpool usage to the County.

MM-TRF-1 is not quantified in the analysis.

MM-TRF-4 Provide Electric Vehicle Charging Infrastructure and Employee Sponsored Vanpool for the Lassen Facility, Tuolumne Facility, and Port of Stockton. GSNR would be required to provide, or cause to be provided, vanpooling services consistent with CAPCOA Measure T-11 for workers traveling to the Lassen Facility, Tuolumne Facility, and the Port of Stockton facility when applicable (i.e., when 5 or more employees with similar work hours live close enough to one another for van pooling to be practicable). A Transportation Manager shall be designated to coordinate vanpooling at each facility and maintain a record of annual vanpool usage.

Additionally, GSNR would be required to install EV charging at the Lassen Facility, Tuolumne Facility, and the project facility at the Port of Stockton, consistent with CAPCOA Measure T-13. Per Table A5.106.5.3.2 of the 2019 California Green Building Standards, 10 percent of total parking spaces are required to be EV charging spaces to meet Tier 2 standards. The project proponent would be required to exceed the 10 percent EV charging space requirement, consistent with CAPCOA Measure T-13.

MM-TRF-4 is not quantified in the analysis.

### 3.7.4.5 Significance After Mitigation

Impact GHG-1 The project would potentially generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Mitigation measures as listed in Section 3.7.4.4 would reduce GHG emissions. No additional feasible GHG-specific mitigation measures have been identified. While these measures will reduce the project's direct GHG emissions, they would not mitigate those emissions to a level of insignificance. Similar to the reasons for the pre-mitigation significance determination, to meet CEQA's mandate of good faith disclosure and acknowledge potential future impacts in light of uncertainties, this EIR classifies this GHG impact as **significant and unavoidable**. Even though the long-term outcome may yet become beneficial, the "significant and unavoidable" determination alerts the public to the potential that net positive emissions may persist over time, and any more definitive conclusion would be speculative in light of the above-noted uncertainties.

Impact GHG-2 The project would potentially conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As described in Section 3.7.4.4, and under Impact TRF-1 (see Chapter 3.14, "Transportation"), the project will implement feasible Mitigation Measures to reduce the GHG emissions generating the conflict with CARB's 2022 Scoping Plan, but those emissions cannot be mitigated to a level of insignificance. Therefore, the impact related to potential conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing emissions of GHGs is deemed to be **significant and unavoidable.**

## 3.7.5 Additional GHG Considerations

### 3.7.5.1 "Lifecycle" GHG Analysis

#### Purpose

CEQA is intended to inform government decisionmakers and the public about the potential environmental effects of proposed activities and to prevent significant, avoidable environmental damage. An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure (CEQA Guidelines, § 15151).

The extent of an evaluation and analysis of environmental impacts in an EIR is guided by a rule of reason (Save Round Valley Alliance v. County of Inyo (2007) 157 Cal.App 4th 1437, 1467). The level of specificity required is likewise determined by the nature of the project and the rule of reason (Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners (1993) 18 Cal.App.4th 729, 741–742). Further, an EIR is not required to engage in speculative analysis. (CEQA Guidelines, § 15145.) "Common sense" applies, and "is an important consideration at all levels of CEQA review." (*Save the Plastic Bag Coalition v. City of Manhattan Beach* 2011).

Applying these principles, there is a "distinction between local impacts and impacts in areas outside the public agency's geographical boundaries. CEQA specifies that a public agency must consider any significant effect on the environment in the area affected by the project. Although…public agencies must consider effects a project will have beyond the boundaries of the project area…CEQA does not require an exhaustive analysis of all conceivable impacts a project may have in areas outside its geographical boundaries…broader environmental impacts without direct impact on the local agency's geographical area may be evaluated at a higher level of generality (Save the Plastic Bag Coalition v. County of Marin (2014) 218 Cal.App.4th 209, 221-223). "That the effects will be felt outside of the project area is one of the factors that determines the amount of detail required in any discussion. Less detail, for example, would be required where those effects are more indirect than effects felt within the project area, or where it [would] be difficult to predict them with any accuracy" (*Save the Plastic Bag Coalition v. City of Manhattan Beach* 2011).

For these reasons, both the CNRA and the courts have been somewhat skeptical of "life cycle" studies that purport to assess the global impact of particular activities or products. CNRA has twice declined to include a requirement for lifecycle analysis in the CEQA Guidelines. In 2009, CNRA amended Appendix F of the Guidelines (pertaining to analysis of energy conservation) to remove the term "lifecycle" because "[n]o existing regulatory definition of 'lifecycle' exists. In fact, comments received…indicate a wide variety of interpretations of that term" and "[m]oreover, even if a standard definition of the term 'lifecycle' existed, requiring such an analysis may not be consistent with CEQA. As a general matter, the term could refer to emissions beyond those that could be considered "indirect effects" of a project as that term is defined in section 15358 of the State CEQA Guidelines" (CNRA 2009). Similarly, in 2018, CNRA amended Section 15126.2 of the Guidelines (also pertaining to energy impacts) to caution that such impact analysis "is subject to the rule of reason, and must focus on energy demand caused by the project. This sentence is necessary to place reasonable limits on the analysis. Specifically, it signals that a full 'lifecycle' analysis that would account for energy used in building materials and consumer products will generally not be

required." (CNRA 2018) Similarly, the California Supreme Court has specifically cautioned against "overreliance on generic studies of 'life cycle' impacts associated with a particular product." (*Save the Plastic Bag Coalition v. City of Manhattan Beach* 2011)

Nonetheless, these authorities have also noted that some evaluation of a product's lifecycle "may well be a useful guide for the decision maker when a project entails substantial production or consumption of the product." (Manhattan Beach) "[P]rojects may spur the manufacture of certain materials, and in such cases, consideration of the indirect effects of a project resulting from the manufacture of its components may be appropriate" (CNRA 2009). As such, this section will provide such analysis as is reasonably feasible regarding the GHG emissions generated by those aspects of the wood pellet "life cycle" occurring outside of California, in an effort to show good-faith analysis and comply with CEQA's information disclosure requirements. (For an informational evaluation of the project's criteria air pollutant lifecycle, see Section 3.2.5.1 within Chapter 3.2, "Air Quality.")

Specifically, this section will evaluate several inter-related aspects of the larger GHG lifecycle of the wood pellets produced by the proposed project.

- First, this section will provide a conventional GHG lifecycle analysis based upon the methodologies widely accepted by regulators and industry participants, as set forth (1) Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources (Official Journal of the European Union 2009), and (2) the Sustainable Biomass Program, Instruction Document 6C: Methodology for the calculation of GHG savings (Sustainable Biomass Program 2021).
- Second, because the foregoing methodologies have been criticized by some stakeholders for disregarding emissions from the combustion of biofuels, this section will also provide an alternative lifecycle analysis that includes those emissions.
- Third, given the substantial national and international incentives that exist in many countries to transition energy generation from existing fossil fuel sources (i.e., coal) to other sources such as wood pellets ([USITC 2022]), it is reasonably likely that at least some portion of the pellets produced by this project would be used to replace coal. While the amount(s) and location(s) in which this could occur are presently unknown, this section will evaluate the effects of replacement of pre-existing fossil fuel energy sources with wood pellets to the extent feasible at this time.[14]

As will appear, due to the many uncertainties and variables discussed in this section (and Section 3.2.5.1 in Chapter 3.2, Air Quality), attempting to reach any specific impact conclusion regarding any or all of this "lifecycle" would be speculative. The analysis in this section is therefore intended to provide "a useful guide" to decision-makers and the public regarding these "lifecycle" aspects, subject to the above-mentioned "common sense" limitations.

## Conventional Biomass Lifecycle Analysis

The two applicable guidance documents followed to perform a conventional GHG lifecycle evaluation for the project are (1) *Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources* (Official Journal of the European Union 2009) and (2) the Sustainable Biomass Program,[15]

[14] These three sections collectively address the same three interconnected aspects of the wood pellet lifecycle discussed in Section 3.2.5.1 in the Air Quality chapter, i.e., "Transport to market outside of California's geographic jurisdiction," "End-use combustion of wood pellets for energy generation," and "Replacement of pre-existing fossil fuel energy sources with wood pellets."

[15] The Sustainable Biomass Program (SBP) is an independent, multi-stakeholder certification scheme designed for biomass used in large-scale energy production. Its purpose is to set standards that allow biomass sector companies to demonstrate compliance with regulatory, including sustainability requirements related to woody biomass used in energy production.

*Instruction Document 6C: Methodology for the calculation of GHG savings* (Sustainable Biomass Program 2021), which both include various biomass production pathway GHG emission sources *before* conversion to electricity, heating, and cooling, and are generally consistent with one another.

Earlier sections in this chapter set forth most of the pathway GHG emission sources captured by a conventional GHG lifecycle evaluation, to the extent applicable to the project. Emissions associated with wood cultivation are not present, as the feedstock is naturally occurring within the forest, and the project does not include activities related to growing trees. However, emissions from extraction of the feedstock were fully quantified in the preceding sections. "Land-use change" is discussed and quantified in the preceding sections relating to forest carbon change. Potential emissions from the pellet facilities were likewise thoroughly evaluated above. Transport and distribution activities within California, including truck trips from the feedstock activity areas to the pellet facilities, transport by train from the pellet facilities to the Port of Stockton, and marine vessel transport from the Port of Stockton to jurisdictional waters, were similarly discussed and quantified earlier in this chapter. Transport from California's jurisdictional waters to the wood pellet destination was too speculative for inclusion within the impact analyses above (since those destination(s) are currently unknown) but are evaluated in the lifecycle analysis herein. (See Section 3.2.5.1 within Chapter 3.2, Air Quality, for further discussion of these uncertainties.)

The conventional GHG emissions equation for the production of solid and gaseous biomass fuels also includes consideration of GHG emission savings (i.e., the ways in which the project may reduce GHG emissions). The preceding sections quantified the GHG emission savings lifecycle categories associated with biological carbon capture and storage (i.e., increased carbon sequestration and reduced wildfire emissions) within the forest carbon change analysis. While the impact analyses and significance determinations above noted that there is some uncertainty regarding the predicted extent of these benefits, they are included within this lifecycle evaluation (which, as noted above, is conducted at a higher level of generality). Finally, soil carbon accumulation via improved agricultural management and carbon capture and replacement are not features of this project and thus not applicable to this analysis.

As noted above, the conventional lifecycle calculation for wood pellets does not include the conversion of those pellets to electricity, heating, and cooling. The Directive 2009/28/EC lifecycle equation explicitly assumes that emissions from the "fuel in use" (i.e., combustion of the fuel to produce energy) is zero for biofuels and bioliquids. (Official Journal of the European Union 2009, pg. 55). However, an alternative analysis that includes these emissions is provided later in this section.

Under the conventional lifecycle analysis methodology, GHG emissions from the production and use of transport fuels, biofuels and bioliquids are calculated using the following equation, with each variable in the equation and associated number detailed below:

$$E = e_{ec} + e_l + e_p + e_{td} + e_u - e_{sca} - e_{ccs} - e_{ccr} - e_{ee}$$

Where:

E = total emissions from the use of the fuel;

$e_{ec}$ = emissions from the extraction or cultivation of raw materials;

$e_l$ = annualized emissions from carbon stock changes caused by land-use change;

$e_p$ = emissions from processing;

$e_{td}$ = emissions from transport and distribution;

$e_u$ = emissions from the fuel in use;

$e_{sca}$ = emission saving from soil carbon accumulation via improved agricultural management;

$e_{ccs}$ = emission saving from carbon capture and geological storage;

$e_{ccr}$ = emission saving from carbon capture and replacement; and

$e_{ee}$ = emission saving from excess electricity from cogeneration.

Per the above-described guidance, emissions from the manufacture of machinery and equipment shall not be taken into account. (This is also consistent with the approach taken in the CNRA FSORs noted above.)

Each individual input in the equation is discussed below along with the complete lifecycle calculation.

***$e_{ec}$ = emissions from the extraction or cultivation of raw materials***

Emissions associated with wood cultivation are not present in this case, as the feedstock is naturally occurring and the project does not include activities related to growing trees. As such, the emission from cultivation is 0 MT $CO_2e$ per year, as it is not applicable.

Regarding emissions associated with extraction of raw materials, this is evaluated above under feedstock acquisition which includes operation of off-road equipment, logging/haul trucks, and worker vehicles.

The overall annual $e_{ec}$ value is **39,805 MT $CO_2e$ per year**, which is the sum of the GHG emissions from feedstock acquisition in the Lassen feedstock area (See Table 3.7-6) and the Tuolumne feedstock area (see Table 3.7-7).

***$e_l$ = annualized emissions from carbon stock changes caused by land-use change***

As set forth in EU Directive 2009/28/EC, this category quantifies "[a]nnualised emissions from carbon stock changes due to land-use change." In this case, the project's feedstock materials will be harvested from natural growth on forested lands that will remain living forests, without any change of land use. As set forth in Chapter 2.4, the project will not engage in activities that involve the conversion of forest land to non-forest use, and will not accept any feedstock materials derived from such activities. Therefore, the "the reference land use" and "actual land use" (see EU Directive 2009/28/EC, p. 37) are identical - i.e., forest - and the "land-use change" effect is thus zero. Moreover, as demonstrated in Tables 3.7-15 and 3.7-16 above, while the project's fuel treatments have an initial carbon impact (20.4 million tons of C over the life of the project), the biological carbon sequestration of the treated acreage, even without accounting for any beneficial effects of fuel treatments, more than recovers this initial carbon loss, whether measured on an annual, 20-year, or 60-year timescale. (The initial carbon loss associated with feedstock acquisition is discussed in greater detail below, under $e_{ccr}$).

For these reasons, the annual $e_l$ value is **0 MT $CO_2e$ per year**.

***$e_p$ = emissions from processing***

Processing includes emissions from energy sources (electricity), mobile (passenger vehicles and trucks), switcher locomotive use (on-site), water and wastewater, solid waste, refrigerants, stationary sources, and off-road equipment usage at the Lassen and Tuolumne facilities. The emissions from processing also conservatively include amortized construction emissions for the Lassen, Tuolumne, and Port of Stockton facilities, although typically not included in lifecycle calculations. The emissions from processing exclude line haul rail and ship transport emissions from Tables 3.7-8 and 3.7-10, as these sources are included below in the $e_{td}$ value. The emissions from processing

also exclude logging/haul trucks emissions from Tables 3.7-8 and Table 3.7-10, as this source is included above in the $e_{ec}$ value.

The overall annual $e_p$ value is **45,915 MT $CO_2$e per year**, which is the sum of operational processing emissions at the Lassen Facility (27,041 MT $CO_2$e per year from Table 3.7-8), the Tuolumne Facility (18,327 MT $CO_2$e per year from Table 3.7-10), and the total amortized construction emissions for the Lassen, Tuolumne, and Port of Stockton facilities (548 MT $CO_2$e per year from Table 3.7-7, Table 3.7-9, and Table 3.7-12).

***$e_{td}$ = emissions from transport and distribution***

Transport and distribution include line haul (rail) travel, operational activities at the Port of Stockton, ship travel within California, and ship travel outside of California waters. All transport and distribution associated with the project are quantified in the preceding section except for ship travel outside of California waters. The emissions from transport and distribution exclude line haul rail and ship transport emissions from Table 3.7-14 to avoid double counting.

To estimate ship travel outside of California waters, the same assumptions for ship travel within California were applied and the distance was changed to reflect travel from California to Immingham, United Kingdom (see Section 3.2.5.1).[16] It was assumed that 29 Handymax vessels would make the trip per year, approximately 8,228 nautical miles one-way. Emissions were estimated assuming 24 hours per day and 46 days per trip (23 days one-way). It was assumed the ships would travel at 15 knots.

The overall $e_{td}$ value is **188,122 MT $CO_2$e per year**, which is the sum of the total line haul rail transport (See Table 3.7-11), operational Port activities (2,581 MT $CO_2$e per year from Table 3.7-13), ship travel within California (See Table 3.7-14), and ship travel outside of California waters (178,397 MT $CO_2$e per year from Appendix B2).

***$e_u$ = emissions from the fuel in use***

For this project, fuel in use refers to the combustion of wood pellets. As set forth in the above-described guidance for conventional GHG lifecycle analysis, emissions from the fuel in use shall be taken to be zero for biofuels and bioliquids (Official Journal of the European Union 2009), on the basic assumption that "over the full lifecycle of the fuel, the $CO_2$ emitted from biomass-based fuels combustion does not increase atmospheric $CO_2$ concentrations, assuming the biogenic carbon emitted is offset by the uptake of $CO_2$ resulting from the growth of new biomass." (Renewable Fuel Standard Program (RFS2) Final Regulatory Impact Analysis; Report EPA-420-R-10-006; U.S. Environmental Protection Agency: Washington, DC, USA, February 2010.)

For purposes of the conventional lifecycle calculation, the $e_u$ value is therefore taken to be **0 MT $CO_2$e per year**.

(As previously noted, an alternative analysis that quantifies and includes these emissions is provided below.)

***$e_{sca}$ = emission saving from soil carbon accumulation via improved agricultural management***

The project does not include improved agricultural management or associated soil carbon accumulation.

[16] As set forth in Chapter 3.2, "Air Quality," there is no certainty that any quantity of pellets will ultimately be shipped to this location (a Drax generating station), and the location is used here simply to model one potential emissions scenario. Note that some potential destinations for project wood pellets are located substantially closer than the United Kingdom (e.g., generating stations in Japan), making this location a fairly conservative basis for calculation.

The $e_{sca}$ value is **0 MT $CO_2e$ per year**, as it is not applicable.

***$e_{ccs}$ = emission saving from carbon capture and geological storage***

Emission saving from carbon capture and geological storage are related to emissions avoided through the capture and sequestration of emitted $CO_2$ directly related to the extraction, transport, processing and distribution of fuel. The project does not capture GHG emissions during extraction, transport, processing or distribution of fuel and therefore, is not applicable to the project.

The $e_{ccs}$ value is **0 MT $CO_2e$ per year**, as it is not applicable.

***$e_{ccr}$ = emission saving from carbon capture and replacement***

Under EU Directive 2009/28/EC, in conventional GHG lifecycle analysis, $e_{ccr}$ typically consists of "emissions avoided through the capture of $CO_2$ of which the carbon originates from biomass and which is used to replace fossil-derived $CO_2$ used in commercial products and services." However, in this case, replacement of fossil-derived $CO_2$ is evaluated later in this chapter, and the project's fuel treatments provide unique modes of carbon capture through improved biological sequestration in the forest, and reduced wildfire emissions, exclusion of which would disserve CEQA's informational purposes.

As discussed above, the project's lifetime is 20 years, but the additional carbon sequestered as a result of GSNR Biomass Only Thinning Projects is evaluated over 60 years to account for long-term effects (i.e., an additional 40 years). For the $e_{ccr}$ value in this lifecycle equation, only the delta between the carbon sequestered between GSNR-treated and untreated forest is considered to isolate the project's effect on forest carbon sequestration. As such, to attain an annual value, approximately 15,650,000 MT $CO_2e$ (discussion supporting Table 3.7-16) was amortized over 60 years, which is an additional 260,833 MT $CO_2e$ per year.[17]

It is important to note that the project's treated forest would sequester an average of 305.3 MMT $CO_2e$ over 60 years under with fire and no fire conditions, which equates to approximately 5,088,333 MT $CO_2$ per year (when amortized over 60 years), which is substantially greater than the difference in carbon sequestered between GSNR treated and untreated forest (i.e., 260,833 additional MT $CO_2e$ per year). While it may be appropriate to consider the anticipated on-the-ground forest conditions and associated full carbon sequestered by the treated forest, this conventional lifecycle analysis only takes credit for the "GHG emission savings" associated with the difference between GSNR treated and untreated forests.

When avoided GHG emissions from wildfires was considered, the $e_{ccr}$ value would increase an additional 227,087 MT $CO_2e$ per year which is a total of 4,654,951 MT $CO_2e$ avoided during the project's lifetime, divided by 20 years (Table 3.7-17). As noted above, it is anticipated that the benefit of avoided wildfire may occur well beyond the 20-year life modeled, but that extended benefit is not counted in this analysis.

Adding together annualized emissions benefits from sequestered carbon and avoided wildfires would yield a combined $e_{ccr}$ value of **487,921 MT $CO_2e$ per year**.

As with improved biological sequestration and reduced wildfire emissions, the initial carbon loss resulting from wildfire fuel treatment activities (which, as noted above, involve no change in land use) is not a typical element of

[17] Forest carbon sequestration is not linear year-to-year and instead fluctuates over time. The annualized value is provided for lifecycle analysis calculation purposes and is not intended to reflect actual values for any given year.

GHG lifecycle analysis. Since the treated area remains in forest use, and the biological carbon sequestration of the treated acreage more than recovers this initial carbon loss (in a healthier and thus more resilient and stable forest), exclusion of this carbon loss may be justifiable. As explained throughout, forest carbon loss and gain should be evaluated holistically to estimate the balance between the two as carbon loss initially occurs during forest thinning and carbon gain occurs for the project life and beyond associated with healthier forests.

Nevertheless, untreated forests would also continue to sequester additional carbon (albeit at a lower rate) and do not undergo this initial carbon loss. Given the absence of any widely-accepted guidance on this issue, and in order to function best as a "useful guide" for decision-makers, this analysis will therefore present the $e_{ccr}$ value (and resulting calculations) both with *and* without inclusion of this initial carbon loss.

As indicated above, the initial carbon loss associated with GSNR thinning activities over 20 years is 67,913,288 MT $CO_2e$ (Table 3.7-15). For mathematical purposes, when amortized over the project lifetime of 20 years, the annual carbon loss is estimated to be 3,395,664 MT $CO_2e$ per year (i.e., 67,913,288 MT $CO_2e$ ÷ 20 years). Including the initial carbon loss annualized over the project lifetime (3,395,664 MT $CO_2e$ per year), along with the annualized emissions benefits from sequestered carbon (260,833 MT $CO_2e$ per year) and avoided wildfires (227,087 MT $CO_2e$ per year), would yield an overall combined $e_{ccr}$ value of **-2,907,744 MT $CO_2e$ per year**. In this scenario, the estimated "savings" would be a negative figure (i.e., effectively, a net increase in GHG emissions), due to the initial removal of carbon and this equation only taking credit for the delta between untreated and treated stands rather than the total carbon sequestered by treated stands.

***$e_{ee}$ = emission saving from excess electricity from cogeneration***

Emission saving from excess electricity from cogeneration may be taken into account when the excess electricity produced by fuel production systems use cogeneration, except where the fuel used for the cogeneration is a co-product other than an agricultural crop residue. Because the project does not include cogeneration, $e_{ee}$ does not apply.

The $e_{ee}$ value is **0 MT $CO_2e$ per year**, as it is not applicable.

## Complete Conventional Lifecycle Calculation

The complete conventional lifecycle calculations are as follows:

### Excluding Initial Carbon Loss

**-214,079 MT $CO_2e$/year (E)** = 39,805 ($e_{ec}$) + 0 ($e_l$) + 45,915 ($e_p$) + 188,122 ($e_{td}$) + 0 ($e_u$) – 0 ($e_{sca}$) – 0 ($e_{ccs}$) – 487,921 ($e_{ccr}$) – 0 ($e_{ee}$)

### Including Initial Carbon Loss

**3,181,586 MT $CO_2e$/year (E)** = 39,805 ($e_{ec}$) + 0 ($e_l$) + 45,915 ($e_p$) + 188,122 ($e_{td}$) + 0 ($e_u$) – 0 ($e_{sca}$) – 0 ($e_{ccs}$) – (-2,907,744) ($e_{ccr}$) – 0 ($e_{ee}$)

As shown above, lifecycle emissions, calculated in the conventional manner, would be -214,503 MT $CO_2e$ per year (i.e., an overall reduction in GHG emissions) if the initial carbon loss is excluded, and 3,181,586MT $CO_2e$ per year (i.e., a net increase in GHG emissions) if the initial carbon loss were included.

## Alternative Biomass Lifecycle Analysis (Including "Fuel in Use"/Pellet Combustion)

As noted above, conventional GHG lifecycle analysis for biomass assumes that the GHG emissions from combustion of the biomass "is offset by the uptake of $CO_2$ resulting from the growth of new biomass." This assumption is the subject of controversy among some stakeholders, and several comments received during the scoping period advocated for preparation of a lifecycle analysis that accounted for these emissions. While preparation of an alternative lifecycle analysis – particularly one that deviates from internationally accepted methodology – goes well beyond CEQA's requirements for "good faith effort at full disclosure" and providing "a useful guide for the decision maker," this EIR nonetheless provides such an analysis for informational purposes.

The basic formula used for this alternative lifecycle analysis is the same as described above:

$$E = e_{ec} + e_l + e_p + e_{td} + e_u - e_{sca} - e_{ccs} - e_{ccr} - e_{ee}$$

Further, the following elements in this formula are unchanged from the conventional analysis:

- $e_{ec}$ (emissions from the extraction or cultivation of raw materials) = 39,805 MT $CO_2e$ per year.
- $e_l$ (annualized emissions from carbon stock changes caused by land-use change) = 0 MT $CO_2e$ per year.
- $e_p$ (emissions from processing) = 45,915 MT $CO_2e$ per year.
- $e_{td}$ (emissions from transport and distribution) = 188,122 MT $CO_2e$ per year.
- $e_{sca}$ (emission saving from soil carbon accumulation via improved agricultural management) = 0 MT $CO_2e$ per year.
- $e_{ccs}$ (emission saving from carbon capture and geological storage) = 0 MT $CO_2e$ per year.
- $e_{ee}$ (emission saving from excess electricity from cogeneration) = 0 MT $CO_2e$ per year.

The two elements in this formula that may vary from the conventional analysis are $e_u$ (emissions from the fuel in use) and $e_{ccr}$ (emission saving from carbon capture and replacement), both of which are discussed in greater detail below.

### $e_u$ (emissions from the fuel in use)

To estimate GHG emissions from combustion of the 1 MMT per year of wood pellets produced by the project, four different methods were applied that use project-specific data and recommended assumptions, as available and applicable. Each method is briefly discussed below along with the estimated associated annual GHG emissions.

A. The GHG emissions from the combustion of wood pellets were calculated using a combination of EPA Methodology and wood pellet heat content. This method uses the wood pellet throughput in US tons per year, wood pellet density, wood pellet heating value, and GHG emission factors from EPA to calculate the $CO_2e$ MT per year, resulting in **1,583,822 MT $CO_2e$ per year**.
B. The GHG emissions from the combustion of wood pellets were calculated using a combination of EPA Methodology and wood carbon content. This method uses the wood pellet throughput in US tons per year, the carbon content of pellets, and the ratio of molecular weights $CO_2$ to carbon to calculate the $CO_2$ MT per year. The $CH_4$ and $N_2O$ MT per year were calculated using the same methodology with wood heat content and EPA Methodology in Method A, resulting in **1,669,291 MT $CO_2e$ per year**.
C. The GHG emissions from the combustion of wood pellets were calculated using EPA AP-42 emission factors for wood residue combustion in boilers. This method uses the wood pellet throughput in US tons per year,

wood pellet density, wood pellet heating value, AP-42 emission factor for $CO_2$, and EPA emission factors for $CH_4$ and $N_2O$, resulting in **1,495,920 MT $CO_2$e per year.**

D. The GHG emissions from the combustion of wood pellets were calculated using the *Chatham House Report "Greenhouse gas emissions from burning US-sourced woody biomass in the EU and UK Reporting*. This method uses the wood pellet throughput in MT per year, and the Chatham House report's emission factor for metric tons of $CO_2$ per metric tons of wood pellets, resulting in **1,632,949 MT $CO_2$ per year.**

As shown above, all four methods result in estimated GHG emissions within the same magnitude. For purposes of this alternative lifecycle calculation, the $e_u$ value is taken to be **1,595,496 MT $CO_2$e per year**, which is the average of all four methods.

**$e_{ccr}$ (emission saving from carbon capture and replacement)**

As noted above, this alternative lifecycle analysis deliberately eschews the conventional assumption that biomass combustion emissions are offset by the uptake of $CO_2$ resulting from the growth of new biomass. However, this does not necessarily mean that the regrowth of harvested biomass should be entirely disregarded. The loss of carbon associated with biomass should not be double counted in the lifecycle equation. Because biomass loss of carbon is considered in the end use (combustion) stage, the initial loss of carbon from forest thinning cannot also be included when quantifying the lifecycle impact.

The conventional lifecycle analysis above modeled two scenarios, one that excluded the initial carbon loss, and one that included that initial carbon loss within the $e_{ccr}$ value. For purposes of this alternative analysis, to avoid double-counting carbon impacts, the former $e_{ccr}$ value, excluding initial carbon loss, is more appropriate (**487,921 MT $CO_2$e per year**).

## Complete Alternative Lifecycle Calculation

If combustion emissions were included instead of initial carbon loss, the total lifecycle GHG emissions from project activities would result in a net increase of 1,381,417 MT $CO_2$e per year:

1,381,417 MT $CO_2$e/year (E) = 39,805 ($e_{ec}$) + ND ($e_l$) + 45,915 ($e_p$) + 188,122 ($e_{td}$) + 1,595,496 ($e_u$) – 0 ($e_{sca}$) – 0 ($e_{ccs}$) – 487,921 ($e_{ccr}$) – 0 ($e_{ee}$)

## Conclusion

As set forth in this section, lifecycle analyses of project-related GHG emissions produce results ranging from a net decrease of 214,079 MT $CO_2$e/year, to a net increase of 3,181,586 MT $CO_2$e per year, depending on the methodologies and assumptions used. The differing results highlight the speculative nature of a global lifecycle analysis performed at the CEQA stage of a project, and the extent of disagreement among stakeholders in the field, rather than an issue with methodology or calculations. Nonetheless, the full range of lifecycle calculations have been provided here in good faith to achieve meaningful disclosure.

As explained throughout this EIR, the purpose of the project is to reduce the risks of catastrophic wildfire, and to help restore California forests, watersheds, and ecosystems to a more natural and resilient condition, so GHG emissions associated with the project do not conflict with its core objectives. Further, the foregoing calculations treat all the project's GHG emissions as additive, without taking into account the likelihood that at least some

portion of the pellets produced by this project would be used to replace coal, thus reducing the project's net lifecycle emissions. That baseline matter is discussed in the next section.

### 3.7.5.2 Replacement of Pre-Existing Fossil Fuel Energy Sources with Wood Pellets

#### Wood Pellets vs. Fuel Energy Sources - Lifecycle

As discussed above, biomass-derived wood pellets are often viewed as a renewable energy source with a substantially lower environmental impact when compared to coal, a non-renewable fossil fuel. Compared to fossil fuels, whose carbon contents are only replaced naturally after eons, many stakeholders treat wood pellets as a more sustainable source of fuel. The life cycle of the wood pellets is typically considered to be renewable, and has been described by many policymakers and scholars as a carbon neutral process because the amount of carbon emitted during pellet combustion is almost entirely offset by the carbon sequestered through the trees' growth. However, this has been a topic of contention among environmental groups (Brack 2017).

As a source of fuel, biomass is often criticized for its comparatively low energy density. However, wood pellets, through the process of pulverization, drying, and compression, have a higher calorific value than other forms of biomass and are therefore a more favorable source of energy (Hamzah et. al 2018).

Given the widespread view of biomass as environmentally superior to coal as a fuel source, substantial national and international incentives that exist in many countries to transition energy generation from existing fossil fuel sources (i.e., coal) to biomass, including wood pellets (USITC 2022).

Efforts to compare the lifecycle emissions of wood pellets to coal are inherently speculative, as the respective sources, destinations, and conditions under which each fuel source would be used are unknown. However, some scholars have predicted "a GHG reduction of 63.62 kg $CO_2$-eq for every 1-GJ heat provision" resulting from converting coal heating to wood pellets (Wang et al. 2016). (This includes emissions from combustion of both fuel types.)

Applying GSNR's wood pellet energy content (17 GJ per U.S. ton) and this study's estimate of the coal energy content (21 MJ per kg or 19 GJ per U.S. ton), Table 3.7-22 shows the total estimated GHG emissions from the lifecycle of GSNR's 100% throughput of wood pellets (1 MMT) and the coal equivalent (which includes emissions from production, transportation, and heat generation).

- If 10% of this amount (100,000 MT) replaced coal, this would indicate a total annual GHG reduction of ~74,558 MT $CO_2$e.
- If the replacement percentage was increased to 50%, the total annual GHG reduction would increase to ~372,789 MT $CO_2$e.
- If 100% replacement was assumed, the total annual GHG reduction would increase further to ~745,578 MT $CO_2$e.

## Table 3.7-22. Estimated Greenhouse Gas Emissions – Wood Pellets vs. Coal Lifecycle (1 MMT)

| Lifecycle Phase | $CO_2e$ Metric Tons per Year |
|---|---|
| **Wood Pellet Lifecycle** | |
| Production | 151,602 |
| Transportation | 17,215 |
| Heat Generation | 133,380 |
| *Total* | *302,196* |
| **Coal Lifecycle** | |
| Production | 854,118 |
| Transportation | 60,138 |
| Heat Generation | 139,065 |
| *Total* | *1,053,322* |
| **Net Change (Transitioning Coal to Wood)** | **-751,125** |
| **Percent Change (Transitioning Coal to Wood)** | **-71%** |

**Source:** Wang et al. 2016.
**Notes:** $CO_2e$ = carbon dioxide equivalent.
This analysis assumes a wood pellet energy content of 17 GJ per ton and a coal energy content of 19 GJ per ton.
Totals may not sum due to rounding.

As shown in Table 3.7-22, using the methodology from the study noted above, transitioning from coal to wood pellets would result in a GHG reduction of approximately 71% when considering their entire lifecycles.

As noted, this comparative analysis is speculative, and estimates of the net GHG benefit or detriment from conversion of coal energy to project-generated wood pellets are inherently uncertain. The study noted above, like all such studies, includes many assumptions that may or may not represent actual conditions under which this conversion may occur in the future. (For example, the study noted above included assumptions regarding the relative transportation distances and combustion conditions of coal and pellets that cannot presently be either refuted or validated, since where and how any conversion will occur is unknowable at this time.) As noted above, this supports, rather than detracts from, the ultimate conclusion reached here, i.e., that analysis of the GHG lifecycle of wood pellets produced by the project is too speculative to reach a useful impact conclusion.

### Wood Pellets vs. Fuel Energy Sources – Combustion Only

The preceding section endeavored to compare the relative GHG impacts of wood pellets versus coal over the entire lifecycle of those fuel sources – which, as noted, involves a great many speculative variables. In order to maximize the value of this analysis as a "useful guide" for decision-makers, this section will further compare the respective GHG impacts of wood pellets and coal at one discrete point in the lifecycle – combustion by the end-user (i.e., "fuel in use").

To estimate and solely compare the GHG emissions associated with end use burning of wood pellets vs. coal, two different methodologies were used. The first method used uncontrolled AP-42 emission factors as shown in Table 3.7-23, and the second method used controlled Washington State Department of Natural Resources emission

factors (WSDNR 2010). The purpose of showing both methodologies is to highlight the difficulty and speculative nature of estimating and comparing emissions of wood pellet and coal combustion.

Based on the estimated annual throughput of wood pellets (1 MMT) from GSNR and the estimated annual throughput of coal equivalent, potential GHG emissions were calculated using the uncontrolled emission factors from the EPA's AP-42 Section 1.6 Wood Residue Combustion In Boilers for wood pellets (EPA 2022), and Section 1.2 for Anthracite Coal Combustion for coal (EPA 1996). This method uses the wood pellet throughput in US tons per year, a wood pellet energy content of 17 GJ per U.S. ton, wood pellet density, wood pellet heating value, and AP-42 emission factor for $CO_2$. Table 3.7-23 compares the GHG emissions for wood pellets and coal assuming 10% replacement, 50% replacement, and 100% replacement.

### Table 3.7-23. Estimated GHG Emissions from Combustion of Wood Pellets vs. Coal – EPA AP-42

| Fuel | $CO_2e$ Metric Tons per Year |
|---|---|
| **10% Replacement** | |
| Wood Pellets | 149,592 |
| Coal | 254,105 |
| **Net Change (Transitioning Coal to Wood)** | **-104,513** |
| **50% Replacement** | |
| Wood Pellets | 747,960 |
| Coal | 1,270,526 |
| **Net Change (Transitioning Coal to Wood)** | **-522,566** |
| **100% Replacement** | |
| Wood Pellets | 1,495,920 |
| Coal | 2,541,052 |
| **Net Difference (Transitioning Coal to Wood)** | **-1,045,132** |
| ***Percent Change (Transitioning Coal to Wood)*** | ***-70%*** |

**Source:** EPA 1996; EPA 2022.
**Notes:** $CO_2e$ = carbon dioxide equivalent.
Totals may not sum due to rounding.

This analysis assumes a wood pellet energy content of 17 GJ per ton and a coal energy content of 19 GJ per ton. As shown in Table 3.7-23, using AP-42 methodology, transitioning from coal to wood pellets would result in a GHG reduction of approximately 70% at the combustion stage.

Based on the estimated annual throughput of wood pellets from GSNR (1 MMT) and the estimated coal equivalent, potential GHG emissions were also calculated using the controlled emission factors from the Washington State Department of Natural Resources (WSDNR 2010). Table 3.7-24 compares the criteria air pollutant emissions for wood pellets and coal assuming 10% replacement, 50% replacement, and 100% replacement.

**Table 3.7-24. Estimated Greenhouse Gas Emissions – Burning Wood Pellets vs. Coal – Washington State Department of Natural Resources**

| Fuel | $CO_2e$ Metric Tons per Year |
|---|---|
| **10% Replacement** | |
| Wood Pellets | 159,932 |
| Coal | 215,405 |
| **Net Change (Transitioning Coal to Wood)** | **-55,473** |
| **50% Replacement** | |
| Wood Pellets | 799,661 |
| Coal | 1,077,025 |
| **Net Change (Transitioning Coal to Wood)** | **-277,364** |
| **100% Replacement** | |
| Wood Pellets | 1,599,322 |
| Coal | 2,154,049 |
| **Net Difference (Transitioning Coal to Wood)** | **-544,727** |
| ***Percent Change (Transitioning Coal to Wood)*** | ***-35%*** |

**Source:** WSDNR 2010
**Notes:** $CO_2e$ = carbon dioxide equivalent.
This analysis assumes a wood pellet energy content of 17 GJ per ton and a coal energy content of 19 GJ per ton.
Totals may not sum due to rounding.

As shown in Table 3.7-24, using Washington State Department of Natural Resources methodology, transitioning from coal to wood pellets would result in a GHG reduction of approximately 35% at the combustion stage.

## Conclusion

When potential baseline conditions are considered, which could include anywhere from 0%[18] to 100% replacement of coal by project-generated wood pellets, potential GHG emissions from the combustion of project wood pellets in replacement of coal may result in an annual GHG emissions reduction (benefit) of 544,727 MT $CO_2e$ to 1,045,132 MT $CO_2e$ (EPA AP-42 and WSDNR 2010 methods, Table 3.7-23 and 3.7-24). Similarly, when considering baseline conditions on a lifecycle basis, the project may reduce GHG emissions by 745,578 MT $CO_2e$ assuming 100% replacement (Wang et al. 2016, Table 3.7-22). This wide variance and many uncertainties make GHG lifecycle analyses and predicting the emissions from the replacement of coal for wood pellets too speculative to support an impact conclusion, but this information is nonetheless provided here to outline the major issues and provide a useful guide for decisionmakers and the public when considering the larger GHG lifecycle.

[18] As noted, some amount of coal replacement is highly likely, making 0% replacement a very conservative worst-case scenario.

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# 3.8 Hazards and Hazardous Materials

This section of the Draft EIR evaluates potential impacts related to Hazards and Hazardous Materials associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing conditions and hazards present at the proposed feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California (Port of Stockton), and evaluates the potential for project-related activities to result in significant impacts related to Hazards and Hazardous Materials, considering proposed project design features that could reduce or eliminate associated impacts. A total of 6 comment letters contained scoping comments that pertained at least in part to Hazards and Hazardous Materials in response to the Notice of Preparation (NOP) (see Appendix A). These comments generally related to the potential presence of legacy contaminants in soil and groundwater, the handling of hazardous materials during operation of the project, potential fire risks, and release of potential hazardous building materials during any demolition activities.

## 3.8.1 Environmental Setting

### 3.8.1.1 Introduction

The existing conditions presented in this section are based on Phase I environmental Site Assessments prepared for the Lassen and Tuolumne sites. A Phase II Environmental Site Assessment was also prepared for the Tuolumne site. In addition, a separate search for all three facility sites was prepared of available environmental records and databases consistent with what is known as the Cortese List, as defined by California Government Code Section 65962.5, as well as other non-Cortese List databases that provide information on potential hazardous substance storage or releases that could adversely affect new land uses at these sites.

### 3.8.1.2 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities. In general, timberlands are not associated with substantive quantities of hazardous materials, legacy contaminants, or associated with potential hazards such as close proximity to airports, schools, or emergency/evacuation plans, however site-specific details can vary.

### 3.8.1.3 Northern California (Lassen Facility) Site

#### Site Description

The proposed production facilities would be located on a nearly 65-acre site that is currently partially developed on the northern end with a railroad siding, a gravel deck, internal roadways, a well pump house and water tower. Approximately 51 acres of the 218-acre parcel to the south of the production facilities would be used for log decking (storage). The southerly parcel is undeveloped. The majority of the undeveloped areas of the project site consist of non-native grassland with a mix of annual grasses and forbs. Mowed agricultural fields are present in the northern portion of the project site as well as five earthen ditches. The project site is surrounded by widely

scattered rural development and open space, generally composed of cropland, sagebrush scrub, and wet meadow.

### Database Search

A Phase I Environmental Site Assessment prepared for the site did not identify any recognized environmental conditions, including historical recognized environmental conditions or controlled recognized environmental conditions (Appendix F1, Phase I Environmental Site Assessment – Lassen). The Lassen Facility site was not listed on any Cortese List databases, nor were any identified within a mile of the site. The Lassen Facility site was also not listed in any of the other environmental databases (non-Cortese List) reviewed (Appendix F1). Two listings were identified adjacent to the Lassen site, a petroleum release within the southwestern adjacent railyard, which was remediated in 2005 with a current status of "case closed" on the State Water Resources Control Board's Geotracker database, and a wastewater discharge permit issued for the Nubieber Railroad Depot and dormitory pond, which is located east of the Lassen site (SWRCB 2023a).

### Schools

There are no schools or daycare centers located within a quarter mile of the Lassen Facility site. The nearest school to the site is more than 2.5 miles to the northeast in Bieber, California.

### Airports

The nearest airport to the Lassen Facility site is Southard Field, located approximately 4.2 miles to the northeast. The nearest public airport is the Dunsmuir Municipal-Mott Airport located approximately 58 miles to the northwest.

### Wildfire Hazard

According to mapping compiled by the California Department of Forestry and Fire Protection (CAL FIRE), the portion of the Lassen Facility site north of Babcock Road is located in the Local Responsibility Area (LRA), and is not within a Very High Fire Hazard Severity Zone. The portion of the site south of Babcock Road, which will be dedicated to feedstock processing and storage activities, and the areas immediately adjacent to the west of the site, are within the State Responsibility Area and mapped as being in a High Fire Hazard Severity Zone (CAL FIRE 2008, 2024a).

## 3.8.1.4 Central Sierra Nevada (Tuolumne Facility) Site

### Site Description and History

The Tuolumne site totals 58.56 acres that is currently partially developed with existing humanmade structures and other features generally concentrated within the center of the site. The improvements include buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with the property's historic use as wood processing mill that operated on the site until mid-2020. The mill was used by Sierra Pacific Industries for finished bark and colored mulch processing but no milling or treatment of products occurred at the site under Sierra Pacific. Prior to Sierra Pacific Industries ownership, the facility was an operational sawmill run by Louisiana Pacific. A wood shaving plant owned by American Wood Fibers is located adjacent to the west side of the site, and two residences are located adjacent to the northwest corner of the site. Agricultural land is located to the north, east, and south.

The previous Louisiana Pacific-Keystone sawmill facility was purchased by Fiberboard Corporation (a subsidiary of Louisiana Pacific) in 1969 from Sequoia Mills (DTSC 2023a). The ownership and operations under Sequoia Mills are not well known but Louisiana Pacific operated the 68-acre facility until 1986 when it was shut down (DTSC 2023a). The facility included a log storage area with a log storage pond, a sawmill, wood treating area, drying kiln, and a processed wood storage area. The mill reportedly used fungicidal wood treating products while it was in operation. The treated wood was then taken to the nearby Louisiana Pacific-Standard facility for drying and finishing prior to sale.

## Database Search

According to the database search, the Tuolumne Facility site is listed on the Department of Toxic Substance Control Envirostor database related to the sawmill operations by Louisiana Pacific (DTSC 2023a). A Preliminary Assessment completed by the Department of Health Services (now DTSC) showed that sampling was conducted at the site in the 1980s by the Regional Water Quality Control Board (RWQCB) and by consultants for the facility owner. The samples showed the presence of low levels of chlorinated phenols in soil in the wood treatment areas. A copper quinolate-based compound (wood preservative) was also probably used prior to shutdown of the facility (DTSC 2023a). The RWQCB does have an active storm water permit for the site (WQ Order No. 97-03-DWQ). The site is listed in the Envirostor database as part of the DTSC Site Cleanup Program with the current status shown as "Inactive – Needs Evaluation as of 6/25/2008" (DTSC 2023a). The site was not listed on the Geotracker database (SWRCB 2023b).

In 2020, both a Phase I and Phase II Environmental Site Assessment was conducted to identify conditions at the site that might represent a potential threat to human health or the environment (Appendix F2, Phase I Environmental Site Assessment - Tuolumne; Appendix F3, Phase II Environmental Site Assessment - Tuolumne). The Phase I report indicated that there was a potential presence of pentachlorophenol (PCP), an organochlorine based industrial wood preservative commonly used for treatment of utility poles, at the site as well as lead-based paint on historical structures and the two water tanks (Appendix F2). The Phase II investigation carried out the recommendations of the Phase I report to provide laboratory analysis of suspect areas that may have been adversely affected by historical land uses including PCP and lead-based paint. The findings of the Phase II investigation determined that organochlorine pesticides, dioxins and furans, and heavy metals outside of arsenic, and mercury were present in concentrations below the recommended screening levels for commercial land uses (Appendix F3). Arsenic concentration levels, while above the screening levels, were below the naturally occurring levels for arsenic in the area. In one composite sample from the former "Teepee Burner" area of the site, mercury was detected at a concentration that exceeded the commercial screening level (Appendix F3). Several semi-volatile organic compounds (SVOCs) (dibenz (a,h) anthracene, hexachlorobenzene, and bis(2-chloroethyl)ether) were at concentrations over the commercial land use screening levels, however no use of these compounds at the site were considered likely (Appendix F3).

Following the completion of the Phase II report, additional soil samples were collected in late February 2021 to further delineate the horizontal extent of mercury contamination (Appendix F4, Soil Excavation and Disposal Report). The sampling identified an area of approximately 1,600 square feet near the old Teepee Burner that required excavation and removal (Appendix F4). A total of 19.57 tons of soil was subsequently excavated and hauled offsite for disposal at a class II non-hazardous waste facility (Forward Landfill) with confirmation sampling confirming that remaining soils were at a level suitable for commercial land use consistent with applicable regulatory guidelines (Appendix F4).

### Schools

There are no schools or daycare centers located within a quarter mile of the site.

### Airports

The nearest airport to the Tuolumne Facility site is the Kistler Ranch Airport, located approximately 2.5 miles to the northeast. The nearest public airport is the Oakdale Municipal Airport located approximately 17 miles to the southwest.

### Wildfire Hazard

According to mapping compiled by the CAL FIRE, the Tuolumne Facility site is located within the State Responsibility Area and mapped as being in a High Fire Hazard Severity Zone. There are scattered areas designated as Very High FHSZ located approximately 0.17-mile west and northwest of the Tuolumne Facility site (CAL FIRE 2024b).

## 3.8.1.5 Port of Stockton

### Site Description

The West Complex portion of the Port of Stockton, formerly known as the Rough and Ready Island, is currently occupied by approximately 75 facilities or businesses that operate Port-dependent facilities such as bulk material import/export, commercial, industrial, and warehousing operations. Both Union Pacific and BNSF Railway serve the port for current railroad transportation needs. The site was formerly part of the Navy's Computer and Telecommunications Station. The Port has been in coordination with DTSC and CVRWQCB to identify remedial actions within the western portion of Rough and Ready Island due to contamination of subsurface soils and groundwater conditions that occurred from these historical land uses of the island, including farming and bulk petroleum storage and Navy use prior to Port transfer. As detailed in a CEQA review for the West Complex Development Plan for the Rough and Ready Island, contaminants of concern were identified that include lead, pesticides (e.g., DDD, DDE, and DDT), and metals (i.e., copper, lead, mercury, and zinc). A Supplemental Risk Evaluation was performed which identified areas requiring remediation (Port of Stockton 2021).

Portions of the island are within the Former Naval Computer and Telecommunications Station Land Use Covenant (LUC) area, which encompasses approximately 500 acres of Rough and Ready Island that intersect the project site (Port of Stockton 2021). Within its coverage area, the LUC prohibits land uses including residences, hospitals, schools for persons under 18 years of age, daycare centers for children, uses that cover or prevent access to groundwater monitoring wells, uses that would restrict remedial investigations or actions, and activities that would affect groundwater or soils without appropriate state or federal approvals.

In addition, under existing operating conditions on the West Complex, the Port and Port tenants continue to store and use potentially hazardous materials including but not limited to adhesives, lubricants, paints, solvents, oils, and fuels in underground storage tanks (Port of Stockton 2021). Older buildings located on the island could contain asbestos or lead-based paints.

### Database Search

According to the database search, the Port of Stockton site is listed on the State Water Resources Control Geotracker database related to past activities associated with the Navy's Naval Communication Station (SWRCB 2023b). The site is also listed in the Envirostor database related to the Navy's activities, mentioned above, and for the land use restrictions associated with the existing contamination (DTSC 2023b).

### Schools

The Port of Stockton is located in an industrial area, and there are no schools or daycare centers located within a quarter mile of the site.

### Airports

The nearest airport to the Port of Stockton site is the Stockton Metropolitan Airport, located approximately 6 miles to the southeast.

### Wildfire Hazard

The Port of Stockton site is located adjacent to the San Joaquin River surrounded by agricultural lands and other industrial land uses. According to CAL FIRE, the Port of Stockton site is located in a Local Responsibility Area (LRA) and is designated as "Unzoned" (i.e., not within a FHSZ). CAL FIRE has determined that all of San Joaquin County has no Very High Fire Hazard Severity Zones (CAL FIRE 2007). The closest area of high fire risk is located approximately 16 miles southwest of the site (CAL FIRE 2024).

## 3.8.2 Regulatory Setting

### 3.8.2.1 Federal

#### Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 USC 9601–9675), commonly known as "Superfund," was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. Through CERCLA, the U.S. Environmental Protection Agency (EPA) was given power to seek out those parties responsible for any release and assure their cooperation in the cleanup. EPA cleans up orphan sites when potentially responsible parties cannot be identified or located, or when they fail to act. Through various enforcement tools, EPA obtains private-party cleanup through orders, consent decrees, and other small-party settlements. EPA is authorized to implement CERCLA in all 50 states and U.S. territories. Superfund site identification, monitoring, and response activities in states are coordinated through the state environmental protection or waste management agencies.

## Emergency Planning and Community Right-to-Know Act

Authorized by Title III of the Superfund Amendments and Reauthorization Act, the Emergency Planning and Community Right-to-Know Act was enacted by Congress as the national legislation on community safety. This law is designed to help local communities protect public health, safety, and the environment from chemical hazards. To implement the act, Congress requires each state to appoint a State Emergency Response Commission. The State Emergency Response Commissions are required to divide their states into Emergency Planning Districts and to name a Local Emergency Planning Committee for each district. Broad representation by firefighters, health officials, government and media representatives, community groups, industrial facilities, and emergency managers ensures that all necessary elements of the planning process are represented.

## Hazardous Materials Transportation Act

The U.S. Department of Transportation (USDOT) regulates hazardous materials transportation under Title 49 of the United States Code. State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (CalTrans). These agencies also govern permitting for hazardous materials transportation. Title 49 of the Code of Federal Regulations reflects laws passed by Congress as of January 2, 2006. USDOT also administers the Federal Railroad Administration which regulates rail safety including the rail transport of hazardous materials.

## Occupational and Safety Health Act

Congress passed the Occupational and Safety Health Act to ensure worker and workplace safety. Its goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. In order to establish standards for workplace health and safety, the Occupational and Safety Health Act also created the National Institute for Occupational Safety and Health as the research institution for the Occupational Safety and Health Administration (OSHA). OSHA is a division of the U.S. Department of Labor that oversees the administration of the Occupational and Safety Health Act and enforces standards in all 50 states.

## Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from "cradle to grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground storage tanks (USTs) storing petroleum and other hazardous substances. The Federal Hazardous and Solid Waste Amendments are the 1984 amendments to RCRA that focused on waste minimization and phasing out land disposal of hazardous waste, as well as corrective action for releases. Some of the other mandates of this law include increased enforcement authority for EPA, more stringent hazardous waste management standards, and a comprehensive UST program.

## Federal Disaster Mitigation Act

The Federal Disaster Mitigation Act of 2000 requires that states review local hazard mitigation plans (LHMPs) as part of the state hazard mitigation planning process. In California, the California Office of Emergency Services (OES)

is authorized to initially review LHMPs which are then sent to Federal Emergency Management Agency planning staff for final review and approval.

### 3.8.2.2 State

#### Cortese List

California Government Code Section 65962.5 requires that information regarding environmental impacts of hazardous substances and wastes be maintained and provided at least annually to the Secretary for Environmental Protection. Commonly referred to as the Cortese List, this information must include the following: sites impacted by hazardous wastes, public drinking water wells that contain detectable levels of contamination, USTs with unauthorized releases, solid waste disposal facilities from which there is migration of hazardous wastes, and all cease and desist and cleanup and abatement orders. This information is maintained by various agencies, including DTSC, the State Department of Health Services, State Water Resources Control Board, and the local (typically county) Certified Unified Program Agency (CUPA). However, the list is no longer centrally maintained and each of the agencies has their own databases/records; thus, the Cortese List is not just a single list.

#### California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR 330 et seq.). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

#### California Hazardous Waste Control Act

DTSC is responsible for the enforcement of the Hazardous Waste Control Act (California Health and Safety Code, Section 25100 et seq.), which creates the framework under which hazardous wastes are managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA cradle-to-grave waste management system in California. It also provides for the designation of California-only hazardous waste and development of standards that are equal to or, in some cases, more stringent than federal requirements. The Hazardous Waste Control Act lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

According to Title 22 of the California Code of Regulations, substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous waste. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, or contaminated or is being stored prior to proper disposal.

#### Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program was created in 1993 by Senate Bill 1082 to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities of environmental and emergency management programs. The program is

implemented at the local government level by CUPAs. The program consolidates, coordinates, and makes consistent the following hazardous materials and hazardous waste programs:

- Hazardous Waste Generation (including on-site treatment under Tiered Permitting)
- Aboveground Petroleum Storage Tanks (only the spill prevention control and countermeasure plan)
- USTs
- Hazardous Material Release Response Plans and Inventories
- California Accidental Release Prevention Program (CalARP)
- Uniform Fire Code Hazardous Material Management Plans and Inventories

Lassen County Environmental Health, now a division of the Lassen County Department of Planning and Building Services, is the CUPA for Lassen County. Tuolumne County Environmental Health Division is the CUPA for Tuolumne County. San Joaquin County Health Services Department is the CUPA for San Joaquin County, including the City of Stockton.

## California Accidental Release Prevention Program

Similar to the EPA Risk Management Program, CalARP (19 CCR 2735.1 et seq.) regulates facilities that use or store regulated substances, such as toxic or flammable chemicals, in quantities that exceed established thresholds. The overall purpose of CalARP is to prevent accidental releases of regulated substances and reduce the severity of releases that may occur. CalARP meets the requirements of the EPA Risk Management Program, which was established pursuant to the Clean Air Act Amendments.

The Accidental Release Prevention Law is implemented by the CUPA and requires that any business where the maximum quantity of a regulated substance exceeds the specified threshold quantity register with the county as a manager of regulated substances and prepare a risk management plan. A risk management plan must contain an off-site consequence analysis, a 5-year accident history, an accident prevention program, an emergency response program, and a certification of the truth and accuracy of the submitted information. Businesses submit their plans to the CUPA, which makes the plans available to emergency response personnel.

## California Health and Safety Code

In California, the handling and storage of hazardous materials is regulated by Division 20, Chapter 6.95, of the California Health and Safety Code (Section 25500 et seq.). Under Sections 25500–25543.3, facilities handling hazardous materials are required to prepare a hazardous materials business plan. Hazardous materials business plans contain basic information about the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the state.

Chapter 6.95 of the California Health and Safety Code establishes minimum statewide standards for hazardous materials business plans (California Health and Safety Code Section 25503.5). Each business must prepare a hazardous materials business plan if that business uses, handles, or stores a hazardous material (including hazardous waste) or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance
- 55 gallons of a liquid
- 200 cubic feet of compressed gas

- A hazardous compressed gas in any amount (highly toxic with a threshold limit value of 10 parts per million or less)
- Extremely hazardous substances in threshold planning quantities

In addition, in the event that a facility stores quantities of specific acutely hazardous materials above the thresholds set forth by California code, facilities are also required to prepare an EPA Risk Management Program plan and a CalARP plan. The EPA Risk Management Program plan and CalARP plan provide information about the potential impact zone of a worst-case release and require plans and programs designed to minimize the probability of a release and mitigate potential impacts.

#### California Emergency Services Act

Under the Emergency Services Act (California Government Code Section 8550 et seq.), the State of California developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an integral part of the emergency response plan, which is administered by the Governor's Office of Emergency Services (OES). The OES coordinates the responses of other agencies, including the California Environmental Protection Agency, California Highway Patrol, RWQCB, air quality management districts, and county disaster response offices. In addition, OES is responsible for reviewing LHMPs in accordance with FEMA regulations.

#### Water Protection

The State Water Resources Control Board protects water quality in California by setting statewide policy. The State Water Resources Control Board supports the nine RWQCBs, which, within their areas of jurisdiction, protect surface and groundwater from pollutants discharged or threatened to be discharged to the waters of the state. This protection is carried out by the RWQCB through the issuance and enforcement of National Pollutant Discharge Elimination System permits, regulation of leaking USTs and contaminated properties through the Leaking Underground Storage Tank (LUST) and SLIC programs, respectively. USTs are regulated under Chapter 6.7 of the California Health and Safety Code and Title 23, Chapter 16 of the California Code of Regulations.

### 3.8.2.3 Local

#### Lassen County

##### Lassen County General Plan

Safety Element 2023. The Lassen County General Plan was issued in 2000, however the Safety Element was updated on June 13, 2023.

###### Policy Programs.

1. Implement a study to locate and identify areas of existing and potential fire, geologic, and health hazards.
2. Require all structures and developments to strictly adhere to Public Resource Code 4291 [Forestry land management].
3. Subdivision and minor land division ordinances should require that roads constructed be of sufficient width and that there be multiple ingress and egress options for evacuation routes.

4. Population centers should be encouraged to improve or install water systems with adequate storage capacities.
5. Communities should be protected by fuel breaks together with fire suppression equipment backed up with an adequate water supply.
6. For the purpose of faster response time of fire suppression equipment, all major and minor roads should have signs identifying their names.
7. Adoption of guidelines for waste disposal from land development and that the guidelines set by Lahontan Regional Water Quality Control and Central Valley Regional Water Quality Control Boards are strictly adhered to.

Goal 1: Protect Lives. Implement applicable federal and State regulations and local ordinances designed to protect life safety.

Policy 1.1: Protect Lives. Implement applicable federal and State regulations and local ordinances designed to protect life safety.

- **Action 1.1A: Defensible Development.** The most recently adopted California Fire Code, Fire Hazard Severity Zone Maps, California Building Codes, SRA Fire Safe Regulations, and Fire Hazard Reduction Around Buildings and Structures Regulations shall be applied to all applicable additions, remodels, reconstruction, and new development in very high fire hazard severity zones and State Responsibility Areas (SRAs). Fire protection plans that include risk analysis, fire response capabilities, fire safety requirements, mitigation measures and design considerations for non-conforming fuel modification, and wildfire education and maintenance shall be required for new development and subdivisions in very high fire hazard severity zones and SRAs, as determined by the County Fire Warden.
- **Action 1.1B: Water Supply.** The County will work with CAL FIRE, and water providers during the review of new development to identify areas vulnerable to wildfire due to inadequate water supply for firefighting and require improvements of the applicant when deemed necessary by the County Fire Warden (e.g., expansion of water supply, storage hydrants). Ensure that water supply infrastructure adequately supports future development and provides adequate water flow to combat structural and wildland fires during peakload water use. New water systems shall equal or exceed the California Fire Code or California Code of Regulations, while aligning with the efforts of the Lassen County Groundwater Management Plan.
- **Action 1.1C: Evacuation and Access.** In Chapter 9.16 of the County Code, continue to require new development in Very High Fire Hazard Severity Zones to provide a second access road or improvements to evacuation routes if necessary, to provide for safe access of emergency equipment and civilian evacuation concurrently. The width, surface, grade, radius, turnarounds, turnouts, bridge construction, and lengths of fire apparatus access roads shall meet the requirements of the State Fire Codes. All requirements and any deviations will be at the discretion of the County Fire Warden. Evacuation routes should be incorporated into existing Community Wildfire Protection Plans where available.

Policy 1.4: Economic and Recreational Resource Protection. Minimize economic loss and disruption to agriculture (crops/animals/timber) and recreation resources from natural and human-caused hazards.

- **Action 1.4A: Fuel Management.** Continue to support fuels/vegetation management programs across the County to reduce the wildfire hazard throughout County and promote forest health, timber management, livestock production and wildlife habitats. For community fuel breaks or other management programs run by local Fire Agencies or State or Federal Agencies, maintain regular lines of communication and offer technical assistance as needed and possible. For County roadway vegetation management, prioritize management of roadside vegetation currently not in conformance with regulations.

### Lassen County Environmental Health Division

The Environmental Health Division of the Lassen County Department of Planning and Building Services, is the Certified Unified Program Agency (CUPA) that was developed to consolidate the administration of six specific state hazardous materials programs under one agency. Under the CUPA, site inspections of these hazardous materials programs (Aboveground Petroleum Storage Act [APSA], Underground Storage Tanks [UST], Hazardous Waste Tiered Treatment, Hazardous Waste Generators, Hazardous Materials Management and Response Plans, and the California Fire Code) are consolidated and accomplished by a single inspection. These departments also provide emergency response to hazardous materials events, performing health and environmental risk assessment and substance identification.

### Lassen County, City of Susanville, & Susanville Indian Rancheria Hazard Mitigation Plan

Lassen County, the City of Susanville, and the Susanville Indian Rancheria collaborated to prepare the 2019 update of the Local Hazard Mitigation Plan (LHMP) which was previously adopted by the jurisdictions in 2011. The LHMP represents the current understanding of the natural and technological hazards having the potential to cause death, injuries, property damage, community disruption, and economic consequences within Lassen County, captures current mitigation capabilities and efforts, and presents mitigation actions that may be taken to reduce those impacts prior to such hazard events. The LHMP demonstrates the community's commitment to mitigation, fulfills regulatory requirements as established by the Federal Emergency Management Agency (FEMA), establishes eligibility for seeking hazard mitigation assistance grants, and serves as a guide to local decisions makers to implement mitigation programs (Lassen County 2019).

## Tuolumne County

### Tuolumne County General Plan

Goal 9E. Provide structural fire protection to persons and property within Tuolumne County consistent with the needs dictated by the level of development and in accordance with current Federal, State, and local fire protection agency regulations and policies.

Policy 9.E.3. Require new development to be consistent with State and County regulations and policies regarding fire protection.

Goal 9G. Establish and maintain a codified fire protection risk management strategy which requires new development within Tuolumne County to incorporate or supply fire protection infrastructure and

improvements necessary so that such development does not exceed the capabilities of the County's fire protection resources.

Policy 9.G.1. Maintain County fire protection regulations that are consistent with Section 4290 or the equivalent of the California Public Resources Code and other applicable fire protection regulations.

Goal 9I. Minimize the risk of loss of life, injury, illness, property damage and alteration of established land use patterns resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.

Policy 9.I.1. Ensure that the use, storage, transport, treatment and disposal of hazardous materials and hazardous wastes within Tuolumne County complies with Federal, State, and local regulations and safety standards.

### Tuolumne County Environmental Health Division

Tuolumne County Environmental Health Division is certified by Cal-EPA as the CUPA agency for Tuolumne County that administers specific hazardous materials/hazardous waste programs. As the CUPA, the Environmental Health Division is responsible for administering the underground and aboveground storage tank programs as well as the Accidental Release Program, hazardous waste generator regulations, and hazardous materials business plan program. A Hazardous Materials Business Plan (HMBP) is required for any facility that stores materials in quantities greater than 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for gases.

### Tuolumne County Multi-Jurisdictional Hazard Mitigation Plan

The Tuolumne County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP), adopted in December 2017 and updated in 2018, is a guide to hazard mitigation throughout Tuolumne County and acts as a tool to help decision makers direct hazard mitigation activities and resources. In the context of the MJHMP, mitigation is an action that reduces or eliminates long-term risk to people and property from hazards, including wildfire. The goal of this multi-jurisdictional plan is to arrive at practical, meaningful, attainable, and cost-effective mitigation solutions to minimize each jurisdiction’s vulnerability to the identified hazards and ultimately reduce both human and financial losses subsequent to a disaster (Tuolumne County 2018).

## San Joaquin County

### San Joaquin County Environmental Health Department

The Environmental Health Department (EHD) is, among other areas of public health protection, responsible for inspection of underground and above ground storage tanks, and enforces environmental health regulations associated with business and construction activities. The EHD works with Emergency Response teams in the event of a hazardous waste incident. As the CUPA, the EHD works with other agencies to coordinate hazardous materials program inspection and permitting activities.

### San Joaquin County Local Hazard Mitigation Plan

The San Joaquin County Local Hazard Mitigation Plan (LHMP) was adopted on April 11, 2023, and updates the prior 2018 LHMP. The LHMP intends to provide strategies for the County and other local jurisdictions to identify and implement mitigation actions for reducing damages from various natural and technological disasters. The LHMP

also outlines a process for assessing and analyzing those hazards to which San Joaquin County is most vulnerable, analyzes the risk posed to people and property by natural hazards, and considers mitigation actions that the County could implement before such events occur. The 2023 LHMP further establishes prioritized mitigation goals and adopts a five-year implementation timeline, which San Joaquin County seeks to implement, subject to funding and resource limitations (San Joaquin County 2023).

### City of Stockton

#### Stockton General Plan

Goal SAF-1. Safe Community – Create a safe and welcoming environment in all areas of the city at all times of day.

Policy SAF-2.2. Prepare sufficiently for major events to enable quick and effective response.

Policy SAF-2.6. Minimize the risk to city residents and property associated with the transport, distribution, use, and storage of hazardous materials.

## 3.8.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to Hazards and Hazardous Materials are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to Hazards and Hazardous Materials would occur if the project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving fires? (General fire hazards from project operations are addressed in this section. See Chapter 3.17 for specific evaluation of wildfire hazards.)

# 3.8.4 Impact Analysis

## 3.8.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to Hazards and Hazardous Materials. The analysis is based on the hazards technical memorandums that were prepared for the Lassen and Tuolumne facilities and a current search of environmental databases that was performed for both of those facilities and the Port of Stockton site, as well as project site characteristics and proposed land uses. Potential public safety hazards (related to schools, emergency response plans, and wildland fires) are based on the information presented in the subsections below. In determining the level of significance, the analysis acknowledges that the proposed project would be designed and required to comply with all applicable state and local ordinances and regulations (summarized in Section 3.8.2, Regulatory Framework). Potential airport-related safety hazards or excessive noise impacts are not analyzed below because none of the facilities are located within two miles of an airport, nor within an adopted airport land use plan, and thus there would be no impact. (General noise impacts are addressed within Section 3.11 (“Noise”) of this document.)

## 3.8.4.2 Project Impacts

Impact HAZ-1 The project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

### Construction - Common to all Project Elements

Construction of the proposed project would involve demolition, grading, and construction of new buildings and associated improvements including roadways and rail spurs. A variety of hazardous materials that are commonplace for construction activities (e.g., fuels for equipment and vehicles, new and used motor oils, cleaning solvents, paints, and storage containers and applicators containing such materials) would be transported to, stored, and used during construction activities. If not transported, used, or disposed of in a safe manner, hazardous materials used during construction could represent a potential threat to the public and the environment. However, these materials would be transported, used, and disposed of in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. For example, hazardous materials would not be disposed of or released onto the ground or into the underlying groundwater or any surface water during construction of the proposed project, and completely enclosed containment would be provided for all refuse generated in the planning area. Additionally, all construction waste, including trash, litter, garbage, solid waste, petroleum products, and any other potentially hazardous materials, would be removed and transported to a permitted waste facility for treatment, storage, or disposal. Use of these materials during construction for their intended purpose would not pose a significant risk to the public or the environment. Consistent with federal, state, and local requirements, transport, removal, and disposal of hazardous materials would be conducted by a permitted and licensed service provider. Any handling, transport, use, or disposal would comply with all applicable federal, state, and local agencies and regulations, including EPA, DTSC, Cal/OSHA, the California Department of Transportation, the RCRA, and the respective CUPA agency for each location (Lassen County Environmental Health Division) or Tuolumne County Environmental Health Division or San Joaquin County Health Services Department).

In addition, as with all businesses that use hazardous materials, construction companies are required to prepare and implement a Hazardous Materials Business Plan describing procedures for the handling, transportation, generation, and

disposal of hazardous materials. CUPA agencies would be responsible for ensuring compliance with these regulations including, but not limited to, the Hazardous Waste Control Act, the Hazardous Waste Generator Program, the Hazardous Materials Release Response Plans and Inventory Program, the California Accidental Release Prevention Program, and the Aboveground Storage Tank Program

Construction activities would also include some demolition of existing structures which could potentially include hazardous building materials such as asbestos or lead-based paint (LBP). However, prior to any issuance of a demolition permit, a hazardous building materials survey would be required by a licensed contractor. The identification, removal, and disposal of asbestos containing materials (ACMs) is regulated under Title 8 of the California Code of Regulations Section 1529 and 5208. The identification, removal and disposal of LBP is regulated under 8 CCR 1532.1. For both ACM and LBP, all work must be conducted by a State-certified professional. If ACM and/or LBP is determined to exist onsite, a site-specific hazard control plan must be prepared and submitted to the appropriate agency detailing removal methods and specific instructions for providing protective clothing and equipment for abatement personnel. If necessary, a State-certified LBP and an asbestos removal contractor would be retained to conduct the appropriate abatement measures as required by the plan. Wastes from abatement and demolition activities would be disposed of at a landfill(s) licensed to accept such waste. Once all abatement measures have been implemented, the contractor would conduct a clearance examination and provide written documentation to the demolition and building permitting agency that testing and abatement have been completed in accordance with all federal, state, and local laws and regulations.

Given the existing regulatory requirements regarding the identification and abatement of hazardous building materials and transportation, handling, and disposal of hazardous waste, the potential for adverse effects related to demolition and construction activities is minimized. As such, construction-related activities are not anticipated to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and impacts would be **less than significant**. No mitigation is required.

### Operations – Common to all Project Elements

During operations, all hazardous chemicals and products such as fuels, oils, cleaning supplies, landscaping chemicals and fertilizers, and various other commercially available substances, would be used in compliance with existing regulations and guidelines of OSHA, Cal/OSHA, the National Institute for Occupational Safety and Health, U.S. Department of Transportation, EPA, California Department of Public Health, and the local CUPA agency. The use, storage, and transport of hazardous materials and hazardous wastes is subject to all applicable federal, state, and local health and safety laws and regulations that are intended to minimize health risk to the public and the environment associated with hazardous materials. As such, the proposed project would not result in a foreseeable significant hazard to public health or the environment by routine use, transport, and disposal of hazardous chemicals. Therefore, impacts would be **less than significant**, and no mitigation is required.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

The feedstock acquisition would be sourced from Sustainable Forest Management Projects on California's private, state, tribal, and federal timberlands. The various activities and techniques used to acquire the wood are described in Section 2.4; all of which have specific criteria and protocols on what and how the wood byproducts would be acquired. Feedstock would generally be sourced from hazardous fuels reduction projects, construction of shaded fuel breaks, removal of forest residuals slated for open-burning, site preparation, fire, insect or disease salvage

harvests, commercial timber harvest residuals, pre-commercial thinning harvests, and mill residuals. The acquisition phase of feedstock would not involve substantive quantities of hazardous materials or wastes outside of what is generally described above and largely limited to fuels and oils that are associated with trucks, loading equipment, and other motorized equipment. Use of this equipment, the vehicles and any associated maintenance would be done in accordance with applicable federal, state, and local health and safety laws and regulations. In addition, feedstock acquisitions would occur in dispersed locations throughout a broad region and predominantly in very low populous areas such that the potential for routine transport, use, or disposal of hazardous materials to cause significant adverse effects would be remote. Therefore, the potential impact would be **less than significant,** and no mitigation is required.

## Wood Pellet Production

### Lassen Facility

Wood pellet production at the Lassen Facility would include interim storage of feedstock prior to processing the feedstock into new wood pellets. Processing would include use of a debarking drum, chipper, stacker reclaimer, , a green hammer mill, furnace dryer, dry hammer mill, and the pellet mill. The drum dryer and furnace would include air systems and emissions control measures to meet air quality requirements (see Section 3.2 Air Quality for more detailed discussion of air quality impacts related to emissions). Additional facilities onsite would include an office, maintenance shop, locker rooms, and a guard house, all of which would have associated needs for various hazardous materials and chemicals that are managed in accordance with applicable federal, state, and local (Lassen County) health and safety laws and regulations. Compliance with these existing regulatory requirements would ensure that the potential for routine transport, use, or disposal of hazardous materials to cause significant adverse effects would be remote. Therefore, the potential impact would be **less than significant,** and no mitigation is required.

### Tuolumne Facility

The Tuolumne Facility as it relates to hazardous materials transport, use, and disposal of hazardous materials would operate similar to the Lassen Facility and would be subject to the same federal and state regulations. Local health and safety requirements would be enforced by the Tuolumne County Environmental Health Division. As with the Lassen Facility, compliance with these existing regulatory requirements would ensure that the potential for routine transport, use, or disposal of hazardous materials to cause significant adverse effects and impacts would be reduced to **less than significant** with no mitigation is required.

## Transport to Market

### Port of Stockton

The transport to market activities at Port of Stockton would include a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, a ship loadout system, an office, maintenance shop, and quality control lab. To control air quality there would be a series of dust control systems as well as fire and explosion protection equipment incorporated into the proposed improvements for safety. As above, all hazardous materials and chemicals including fuels, oils, paints, cleaning products, and others would be managed in accordance with existing federal, state, and local (San Joaquin County) requirements. As above, compliance with these existing regulatory requirements would ensure that the potential for routine transport, use, or disposal of hazardous

materials to cause significant adverse effects and impacts would be reduced to **less than significant** with no mitigation required.

Impact HAZ-2 The project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

## Construction - Common to all Project Elements

Construction of the proposed project would involve hazardous materials such as fuels and lubricants which would be transported to and used on-site in construction vehicles and equipment. However, the potential for use of these materials to result in significant hazards to the public or the environment would be low, for the reasons described below.

The project contractor and construction crews would be required to comply with all applicable regulations governing the storage, handling, and disposal of hazardous materials and waste. As discussed in Section 3.9, Hydrology and Water Quality, project construction would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP), which would identify potential pollutant sources that may be associated with construction activity, identify non-stormwater discharges, and recommend means and methods to effectively prohibit the discharge of any pollutants during construction. In addition, the SWPPP would include Best Management Practices (BMPs), including proper handling of petroleum products, such as proper petroleum product storage and spill response practices, to prevent any releases. The BMPs must be implemented during demolition or at the start of new construction. In general, unauthorized releases at construction sites tend to be localized and with implementation of spill response BMPs any spills that may occur tend to relatively small and quickly contained such that adverse effects are minimized.

These BMPs would help control the use of hazardous substances during construction and would minimize the potential for such substances to leave the site, thus reducing the potential for the public to be exposed to construction-related chemicals and materials and reducing the potential for such substances to be released into the environment. With implementation of applicable construction BMPs and adherence to applicable hazardous materials and waste regulations, impacts involving the release of hazardous materials into the environment due to upset and accident conditions during project demolition and construction would be less than significant.

Therefore, there is a low risk of upset of hazardous materials during construction; impacts would be **less than significant**, and no mitigation is required.

## Operation – Common to all Project Elements

While the types and quantities of hazardous materials use at the various project locations (feedstock locations, Lassen Facility, Tuolumne Facility, and Port of Stockton) may vary, all project operations would be subject to existing federal, state, and local health and safety regulations regarding the transportation, use, and disposal of hazardous materials. Use of fuels, oils, paints, commercial cleaners, lubricants, or associated maintenance products, and repair activities during operations would be required to be managed in accordance with a Hazardous Materials Management Plan and Hazardous Materials Business Plan. Operations would be required to submit business information and hazardous materials inventory forms within these plans to the local CUPA agency. In addition, all hazardous materials handlers are subject to inspection every three years and required to adhere to applicable Fire Code requirements related to hazardous materials storage. Each CUPA, requires all new commercial and other

users to follow applicable regulations and guidelines regarding storage and handling of hazardous waste. All hazardous materials are required to be stored and handled according to manufacturer's directions and local, state and federal regulations including the Hazardous Waste Control Act (California Health and Safety Code Section 25100 et seq.), which is implemented by regulations described in CCR Title 22. All U.S. DOT, CalTrans, and rail safety regulations administered by the Federal Railroad Administration would also apply to all operations involving transportation of hazardous materials, although transport of feedstock does not meet the definition of a hazardous material. As such, during operations, by adhering to existing requirements and regulations, impacts associated with reasonably foreseeable upset and accidental conditions involving the release of hazardous materials into the environment would be **less than significant**, and no mitigation is required.

Impact HAZ-3 The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would occur in scattered locations over a broad area and would not include substantive hazardous emissions or handle substantive quantities of hazardous materials. While it may be possible for collection or acquisition of feedstock could occur within a quarter mile of a school, it is not considered highly likely, given the locations of feedstock, and combined with the relatively low amount of hazardous materials (such as petroleum fuel for mobile equipment), the potential impact would be considered **less than significant** with no mitigation required.

## Wood Pellet Production

### Lassen Facility

As mentioned above in the Environmental Setting section, there are no schools or daycare centers located within a quarter mile of the Lassen Facility site. As a result, there would be **no impact** related to emitting hazardous emissions within a one-quarter mile of a school.

### Tuolumne Facility

There are also no schools or daycare centers located within a quarter mile of the Tuolumne Facility site. As a result, there would be **no impact** related to emitting hazardous emissions within a one-quarter mile of a school.

## Transport to Market

### Port of Stockton

As mentioned above in the Environmental Setting section, there are no schools or daycare centers located within a quarter mile of the Port of Stockton site. As a result, there would be **no impact** related to emitting hazardous emissions within a one-quarter mile of a school.

Impact HAZ-4 The project could create a significant hazard to the public or the environment due to being located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would occur in scattered timberland locations over a broad area. These locations are generally undeveloped with no humanmade structure or history of commercial or industrial use, and the potential for the area to be included on a list of hazardous materials sites is therefore unlikely. As a result, the potential impact would be considered **less than significant,** and no mitigation required.

## Wood Pellet Production

### Lassen Facility

As noted above in the setting section, the Lassen Facility site was not included on any Cortese List databases, nor non-Cortese List databases reviewed (Appendix F1). While two listings were identified adjacent to the Lassen site, one has a current status of "case closed," indicating that no threat to human health or the environment remains, and the other relates to an existing permitted facility, which is not an indication of a release that could adversely affect the project site (SWRCB 2023a). As a result, the potential impact related to being included on a list of hazardous materials sites is considered **less than significant,** and no mitigation required.

### Tuolumne Facility

According to the environmental database search, the Tuolumne Facility site was listed on the Department of Toxic Substance Control Envirostor database related to the former sawmill operations by Louisiana Pacific (DTSC 2023a). A Preliminary Assessment completed by the Department of Health Services (now DTSC) showed that sampling conducted at the site in the 1980s indicated the presence of low levels of chlorinated phenols and copper in soil in areas used for wood treatment (DTSC 2023a). The RWQCB does have an active storm water permit for the site (WQ Order No. 97-03-DWQ). The current status for the site in the Envirostor database as part of the DTSC Site Cleanup Program was shown as "Inactive – Needs Evaluation as of 6/25/2008" (DTSC 2023a). As noted above in the Environmental Setting, both a Phase I and Phase II Environmental Site Assessment were conducted at the site in 2020 (Appendix F2, Appendix F3). The Phase I report indicated that there was a potential presence of pentachlorophenol (PCP), an organochlorine based industrial wood preservative commonly used for treatment of utility poles, at the site as well as lead-based paint on historical structures and the two water tanks (Appendix F2). The Phase II investigation carried out a soil sampling program based on the Phase I recommendations. The findings of the Phase II investigation determined that mercury, several SVOCs, and organochlorine pesticides, dioxins and furans, and heavy metals outside of arsenic, and mercury were present but in concentrations below the recommended screening levels for commercial land uses (Appendix F3). Arsenic concentration levels, while above the screening levels, were below the naturally occurring levels for arsenic in the area. In one composite sample from the former "Teepee Burner" area of the site, mercury was detected at a concentration that exceeded the commercial screening level (Appendix F3). Several semi-volatile organic compounds (SVOCs) (dibenz (a,h) anthracene, hexachlorobenzene, and bis(2-chloroethyl)ether) were at concentrations over the commercial land use screening levels, however no use of these compounds at the site were considered likely (Appendix F3).

As discussed above in the Environmental Setting, 19.57 tons of soils impacted by mercury were excavated and disposed offsite at a Class II disposal site (Forward Landfill) (Appendix F4). Following excavation, confirmation sampling was conducted and verified that all the impacted soils with potential health or environmental risks were removed and remaining soils were below applicable regulatory guidelines (Appendix F4).

As a result of the previous remediation efforts at the site, the potential for legacy contaminants to adversely affect future commercial land use is reduced to a **less than significant** level with no mitigation required.

## Transport to Market

### Port of Stockton

The Port of Stockton site was included on both the DTSC Envirostor and SWRCB Geotracker databases related to the past operations of the Naval Computer and Telecommunications Station (DTSC 2023b; SWRCB 2023b). Land use restrictions have been placed on portions of the Rough and Ready Island and include the Project site. The institutional controls limit the exposure to workers and visitors to the site, however and construction activities that would include earthwork activities have the potential to disturb legacy contaminants at the site that adversely affect construction workers and the public. As a result, this impact is considered **potentially significant** and requires mitigation (**MM-HAZ-1**).

Impact HAZ-5 The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would occur in dispersed locations throughout the region timberlands. These activities would be temporary and would not require road closures or any other physical interference with an emergency response plan or evacuation plan. As a result, the potential impact would be **less than significant**, with no mitigation required.

## Wood Pellet Production

### Lassen Facility

During project construction, temporary lane closures on Babcock Road may be necessary. Potential lane closures and slower traffic during construction could affect emergency response activities, including evacuations, however the project site is located in a low population area where the roadway grid offers multiple access points, and issues of traffic congestion are uncommon. Additionally, the project would be required to comply with the Lassen County Public Works and Roads Department traffic control requirements, and Sheriff's Department guidance relating to emergency response, further reducing the prospect of substantive interruptions.

Operations at the Lassen Facility would not interfere or impair with emergency response or evacuation. Proposed access improvements would adhere to all emergency ingress and egress requirements in accordance with building code and fire code requirements. Emergency access is discussed further in Section 3.14, Transportation. Therefore, the potential impact to emergency access or evacuation during construction and operation would be **less than significant**. No mitigation is required.

### Tuolumne Facility

During construction, temporary closure of the driveways along La Grange Road may be necessary. Potential lane closures and slower traffic during construction could affect emergency response activities, including evacuations. The project site has multiple access points to LaGrange, and access to adjoining properties would be maintained.

Additionally, the project would be required to comply with the Tuolumne County Sheriff's Department guidance relating to emergency response, further reducing the prospect of substantive interruptions.

Once constructed, operations at the Tuolumne Facility would not interfere or impair with emergency response or evacuation. Proposed improvements would adhere to all emergency ingress and egress requirements in accordance with building code and fire code requirements. Emergency access is discussed further in Section 3.14, Transportation. Therefore, the potential impact to emergency access or evacuation during construction and operation would be **less than significant**. No mitigation is required.

## Transport to Market

### Port of Stockton

During construction, temporary lane closures may be necessary which could interfere with emergency response activities, including evacuations. However, the project site is bounded by the river and therefore is not in the pathway of any emergency or evacuation routes. Additionally, the City of Stockton's guidance for the response to extraordinary emergency situations would continue without any substantive interruptions.

Once constructed, operations at the Port of Stockton would not interfere or impair with emergency response or evacuation. Proposed improvements would adhere to all emergency ingress and egress requirements in accordance with building code and fire code requirements. . Emergency access is discussed further in Section 3.14, Transportation. Therefore, the potential impact to emergency access or evacuation during construction would be **less than significant**. No mitigation is required.

Impact HAZ-6 The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving fires.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would be sourced from Sustainable Forest Management Projects on California's private, state, tribal, and federal timberlands. The acquisition of the wood pellets will follow all land management agreements, follow best management practices, and follow the stewardship agreements between GSFA and USFS, and state and federal laws and regulations. The various activities and techniques used to acquire the wood are described in Section 2.4; all of which have specific criteria and protocols on what and how the wood byproducts would be acquired. Feedstock would generally be sourced from hazardous fuels reduction projects, construction of shaded fuel breaks, removal of forest residuals slated for open-burning, site preparation, fire, insect or disease salvage harvests, commercial timber harvest residuals, pre-commercial thinning harvests, and mill residuals. The intent of feedstock acquisition activities would be to reduce excess fuels within forested areas, reducing overall wildfire risk. Feedstock acquisition would occur in timberlands where there is high risk of wildland fires. However, no structures or other improvements are proposed and the number of workers involved would be relatively minor. As a result, the potential impacts related to exposure to fire as a result of these activities would be considered **less than significant.** Wildfire is specifically discussed further in Section 3.16, Wildfire.

## Wood Pellet Production

### Lassen Facility

The portion of the project site north of Babcock Road is located in the Local Responsibility Area (LRA), and is not within a Very High Fire Hazard Severity Zone. The portion of the site south of Babcock Road, which will be dedicated to feedstock storage activities, and the areas immediately adjacent to the west of the site, are within the State Responsibility Area and mapped as being in a High Fire Hazard Severity Zone (CAL FIRE 2008, 2024a). As discussed in Section 3, Project Description, comprehensive fire and explosion protection features have been incorporated into project design plans, including fire suppression system and ancillary infrastructure to support the facilities' fire water demands. In addition, all proposed improvements would be designed and constructed in accordance with building code and fire code requirements which would minimize the fire risk at the site.

Wood pellets do not contain hazardous materials. However, improper handling and storage of wood pellets may result in the potential for fire risk. Wood dust during production can be a potential fire source. In addition, oxidation of stored pellets can lead to self-heating and combustion. Absent proper controls, the impact of a pellet fire would be **potentially significant**. In order to reduce fire risks from facility operations, preventive measures including regular maintenance along with belt speed sensors, motor current sensors, multiple levels of automated fire sprinkler systems, and housekeeping would be used to mitigate fire risk. Once the product stream is dry, fire risk increases, however, spark detectors with chemical suppression are placed at all critical points throughout the process. Also, all dry process equipment is outfitted with bearing temperature sensors to monitor and allow any high-temperature issues to be preemptively corrected. The pellet storage silos would utilize temperature sensors throughout the storage volume that trigger aeration fans to cool any hotspot that may occur, while operational controls would be designed to keep residence time in the silos as short as possible to reduce any occurrence of hotspots. Dust collection systems with explosion panels would be installed throughout the dry fiber handling process to reduce airborne dust and minimize the fire and explosion hazard the dust presents. Finally, 2 fire water pumps (one acting as a back-up) with ancillary piping and controls , rated at 150 horsepower (hp) and a fire water tank that can provide flow for at least 2 hours at the facility. The back-up pump that would be diesel-engine powered in case the site loses power in order to provide a timely response to a fire incident. All fire prevention and suppression systems would comply with all applicable current standards and codes set by the National Fire Protection Agency and the California Building Code as well as any additional requirements deemed necessary by the applicable local fire authority. To ensure implementation of these measures, a Fire Prevention Plan shall be required as mitigation measure (**MM-HAZ-2**). (Further discussion related to the project's potential to expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires is further detailed in Section 3.16 of this Draft EIR.)

### Tuolumne Facility

The project site is located within the State Responsibility Area and mapped as being in a High Fire Hazard Severity Zone (CAL FIRE 2024b). Regardless, as discussed in Section 3, Project Description, comprehensive fire and explosion protection features have been incorporated into project design plans, including fire suppression system and ancillary infrastructure to support the facilities' fire water demands. In addition, all proposed improvements would be designed and constructed in accordance with building code and fire code requirements which would minimize the fire risk at the site.

As with the Lassen Facility, production and storage of wood pellets represents a **potentially significant** fire risk. Preventive fire protection measures would be required mitigation, including regular maintenance along with belt

speed sensors, motor current sensors, multiple levels of automated fire sprinkler systems, and housekeeping designed to mitigate fire risk. Once the product stream is dry, fire risk increases, however, spark detectors with chemical suppression are placed at all critical points throughout the process. Also, all dry process equipment is outfitted with bearing temperature sensors to monitor and allow any high-temperature issues to be preemptively corrected. The pellet storage silos would utilize temperature sensors throughout the storage volume that trigger aeration fans to cool any hotspot that may occur, while operational controls would be designed to keep residence time in the silos as short as possible to reduce any occurrence of hotspots. Dust collection systems with explosion panels would be installed throughout the dry fiber handling process to reduce airborne dust and minimize the fire and explosion hazard the dust presents. Finally, 2 fire water pumps (one acting as a back-up) with ancillary piping and controls, rated at 150 horsepower (hp) and a fire water tank that can provide flow for at least 2 hours would be installed at the facility. The back-up pump would be diesel-engine powered in case the site loses power in order to provide a timely response to a fire incident. All fire prevention and suppression systems would comply with all applicable current standards and codes set by the National Fire Protection Agency and the California Building Code as well as any additional requirements deemed necessary by the applicable local fire authority. To ensure implementation of these measures, a Fire Prevention Plan shall be required as mitigation measure (**MM-HAZ-2**). (Further discussion related to the project's potential to expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires is further detailed in Section 3.16 of this Draft EIR.)

## Transport to Market

### Port of Stockton

The Port of Stockton site is located in a developed urbanized industrial area that is surrounded by agricultural lands and other industrial land uses with no wildlands in the vicinity. All proposed improvements would be constructed in accordance with applicable building code requirements.

As noted above, long-term storage of wood pellets may result in self-heating and potential combustion. This would be a **potentially significant** impact. Therefore, the two storage domes would employ temperature sensors, moisture sensors, and multi-gas detectors to monitor the pellet storage pile conditions and include multiple levels of fire suppression systems as well as dust suppression systems to minimize the potential for any fire or combustion conditions to develop. Operations would also include preventative measures including minimizing storage time to lower the risk of fire. In the event any of the dome instrumentation triggers there would be a nitrogen deluge system designed to flood the domes with nitrogen, displacing the oxygen supply. Additionally, the following fire monitoring and suppression system would be used:

- All conveyors would have a linear temperature sensing cable to monitor product temperature along the length of the belt.
- Transfer points would have IR sensors (several per chute) to detect any high temperature particles.
- Each of the above detection methods can trigger fire water nozzles to spray the product stream.

All fire prevention and suppression systems would comply with all applicable current standards and codes set by the National Fire Protection Agency and the California Building Code as well as any additional requirements deemed necessary by the applicable local fire authority. These measures are part of the project as designed, and are further incorporated into required project mitigation (**MM-HAZ-2**).

### 3.8.4.3 Cumulative Impacts

The project combined with other past, present, and reasonably foreseeable cumulative projects would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

Impacts related to the routine transport, storage, use or disposal of hazardous materials or wastes tend to be site-specific and do not combine with one another to become cumulatively considerable. The types and quantities of hazardous materials/wastes and their exposure hazards can vary greatly from site to site. The feedstock acquisition sites would be dispersedly located in timberland sites where there is typically negligible hazardous materials use. Any cumulative projects that would require hazardous materials use would be required to comply with all applicable federal, state, and local standards regarding the handling, use, transportation, storage, and disposal of hazardous materials, which are intended to minimize the risk to public health and the environment. With adherence to existing regulatory requirements during construction and operation of the cumulative projects, including transportation regulations, releases from routine transport, use or disposal of hazardous materials would be minimized, and would apply to all cumulative projects. Therefore, the cumulative impact related to routine transport, storage, use, or disposal of hazardous materials during construction and operation would be **less than significant**.

#### Wood Pellet Production

##### Lassen Facility

As above, all cumulative projects that would require hazardous materials use would be required to comply with all applicable federal, state, and local standards regarding the handling, use, transportation, storage, and disposal of hazardous materials, which are intended to minimize the risk to public health and the environment. With adherence to existing regulatory requirements during construction and operation of the cumulative projects, including transportation regulations, releases from routine transport, use or disposal of hazardous materials would be minimized, and would apply to all cumulative projects. Therefore, the cumulative impact related to routine transport, storage, use, or disposal of hazardous materials during construction and operation would be **less than significant**.

##### Tuolumne Facility

Comparable to the Lassen Facility, cumulative projects in the vicinity of the Tuolumne Facility that would require hazardous materials use would be required to comply with all applicable federal, state, and local standards regarding the handling, use, transportation, storage, and disposal of hazardous materials, which are intended to minimize the risk to public health and the environment. With adherence to these existing regulatory requirements during construction and operation of the cumulative projects, including transportation regulations, releases from routine transport, use or disposal of hazardous materials would be minimized, and would apply to all cumulative projects. Therefore, the cumulative impact related to routine transport, storage, use, or disposal of hazardous materials during construction and operation would be **less than significant**.

## Transport to Market

### Port of Stockton

The Port of Stockton is located in an industrial area with a much denser presence of hazardous materials use. However, just as with the other project locations, any cumulative projects that would require hazardous materials use would be required to comply with all applicable federal, state, and local standards regarding the handling, use, transportation, storage, and disposal of hazardous materials, which are intended to minimize the risk to public health and the environment. With adherence to existing regulatory requirements during construction and operation of the cumulative projects, including transportation regulations, releases from routine transport, use or disposal of hazardous materials would be minimized, and would apply to all cumulative projects. Therefore, the cumulative impact related to routine transport, storage, use, or disposal of hazardous materials during construction and operation would be **less than significant**.

The project combined with other past, present, and reasonably foreseeable cumulative projects would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

## Feedstock Acquisition, Wood Pellet Production, and Transport to Market

Common to all elements of the proposed project, construction and operation of the Project, just like the other cumulative projects would include the use, storage, handling, and disposal of varying quantities of hazardous materials, that could include petroleum products, oils, cleaning fluids, lubricants, paints, solvents, and fuels. Similarly, these types of projects generate varying quantities of hazardous wastes, all of which would be required to adhere to the comprehensive set of existing federal, State, and local regulatory requirements, including the HMBP programs, and applicable local CUPA (e.g., Lassen County, Tuolumne County, and San Joaquin County) regulations. These programs require all users of hazardous materials to implement employee training, safe storage, and appropriate handling requirements to ensure that upset and accident conditions are minimized. In the unlikely event that an accidental release was to occur, these programs require spill response measures to ensure that incidents are quickly contained and, therefore, would not travel off-site in a way that could cumulatively combine to affect large numbers of people or affect substantial parts of the environment. It would also be unlikely and speculative to assume that accidental releases would occur contemporaneously in a manner such that it could become cumulatively considerable.

For the reasons described above, the Project, in conjunction with other cumulative projects, would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during construction and operation, and cumulative impacts would be **less than significant**.

The project combined with other past, present, and reasonably foreseeable cumulative projects would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition activities would occur in dispersed locations that are predominantly in remote timberland areas that are unlikely to be located within a quarter mile of a school. These activities also would be temporary and involve limited quantities of hazardous materials. As a result, the proposed project could not combine with other cumulative projects to become cumulatively considerable and the cumulative impacts associated with hazardous emissions or acutely hazardous materials, substances, or waste within one-quarter mile of a sensitive land use would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

The Lassen Facility is not located within a quarter mile of a school or daycare center. As a result, the proposed activities at the Lassen Facility could not combine with cumulative projects to become cumulatively considerable. There would be **no impact**.

### Tuolumne Facility

The Tuolumne Facility is also not located within a quarter mile of a school or daycare center. Therefore, the proposed activities at the Lassen Facility could not combine with cumulative projects to become cumulatively considerable. There would be **no impact**.

## Transport to Market

### Port of Stockton

The Port of Stockton is not located within a quarter mile of a school or daycare center. As a result, the proposed activities at the Port of Stockton could not combine with cumulative projects to become cumulatively considerable. There would be **no impact**.

The project combined with other past, present, and reasonably foreseeable cumulative projects could create a significant hazard to the public or the environment due to being located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5.

## Feedstock Acquisition

### Sustainable Forest Management Projects

The feedstock acquisition areas would primarily be located in dispersed timberland locations that are unlikely to be included on any list of hazardous materials sites. As a result, the feedstock acquisition activities could not combine with cumulative projects to become cumulatively considerable and there would be **no impact**.

## Wood Pellet Production

### Lassen Facility

As discussed above for the project analysis, hazardous materials sites are typically handled on a project-by-project basis and generally do not contribute to a cumulative significant impact related to hazardous materials sites. As discussed above, the Lassen Facility site was not included on any Cortese List databases, nor non-Cortese List databases reviewed (Appendix F1). Two listings identified adjacent to the Lassen site included a closed site and a permitted facility which are both not an indication of a release that could adversely the public or environment. Other cumulative projects may be located on a hazardous materials list compiled pursuant to Government Code Section 65962.5. However, there are multiple government agencies who oversee development on hazardous materials sites, including the RWQCB, which provides guidelines for soil and water contaminations, and the Lassen County Environmental Health Division, which provides the Compliance Guideline for Hazardous Wastes and Materials. Therefore, the Project would not result in a cumulatively considerable impact related to hazardous materials sites for the Lassen facility and impacts would be **less than significant**.

### Tuolumne Facility

As discussed above, the Tuolumne Facility site was listed on the Envirostor database related to the former sawmill operations by Louisiana Pacific (DTSC 2023a). However, as noted above, hazardous materials sites are typically handled on a project-by-project basis and generally do not contribute to a cumulative significant impact related to hazardous materials. In addition, the remediation of the identified mercury contamination was completed at the site (Appendix F4). Therefore, considering the completion of remediation at the site, the potential impact is considered **less than significant**.

## Transport to Market

### Port of Stockton

As with the Tuolumne Facility, the Port of Stockton site includes known subsurface contaminants and has been subject to previous investigations and site remediation. There are currently land use restrictions and institutional controls to prevent exposure to legacy contaminants. As part of those restrictions, any subsurface work would be required to coordinate with either DTSC or RWQCB to ensure that earthwork activities are conducted in accordance with a work plan or soil management plan that is protective of site workers and the public. Therefore, since sites that listed as hazardous materials sites generally do not combine to become cumulatively considerable, and the existing land use restrictions at the site would require any construction activities to be done in accordance with appropriate safety measures, the potential impact would be **less than significant**.

The project combined with other past, present, and reasonably foreseeable cumulative projects would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

## Feedstock Acquisition

### Sustainable Forest Management Projects

The feedstock acquisition areas would primarily be located in dispersed timberland locations that are generally not very populated areas and the acquisition efforts would be relatively short term efforts at any one location. As a result, feedstock acquisition is unlikely to impair or physically interfere with emergency response or evacuation. As

a result, the feedstock acquisition activities would not combine with cumulative projects to become cumulatively considerable and the impact would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

Lassen County updates and implements a Local Hazard Mitigation Plan (LHMP) in accordance with the Disaster Relief Act and provides the coordination, conjunction and collaboration with all County departments including the OES to maximize the County's potential to prevent, prepare for, respond to and recover from emergency response and evacuation situations. The LHMP provides specific courses of action that jurisdictions intend to follow to reduce vulnerability and exposure to future hazard events. Hazard mitigation strategies help to eliminate losses by limiting new exposures in identified hazard areas, diverting a hazard by reducing its impact, and developing an awareness of hazard area locations to plan responsibly for future development. In addition, Lassen County, the City of Susanville, and the Susanville Indian Rancheria have many plans, programs and regulations that address disaster management that include the 2023 Lassen County Community Wildfire Protection Work Plan and the Emergency Operations Plan which have specific response procedures for earthquake, flooding, reservoir failure, fire, and other hazards.

The Project, in conjunction with other cumulative projects would be constructed to current design standards and building codes which include egress and ingress requirements and would not impair or interfere with the LHMP or the County's ability to prevent, prepare or respond to and recover from the identified hazards because existing codes are designed to minimize hazards and protect public health and safety. Therefore, the Project would combine with cumulative projects and the impact would be **less than significant**.

### Tuolumne Facility

As above, Tuolumne County also implements a LHMP as well as a County Fire Management Plan, Community Wildfire Protection Plan, and County Emergency Services Plan. As with the Lassen Facility, the Tuolumne facility as well as other cumulative projects would adhere to current building code requirements related to emergency ingress and egress and would not impair or interfere with the County's Hazard Mitigation Plan. Therefore, the Project would combine with cumulative projects and the impact would be **less than significant**.

## Transport to Market

### Port of Stockton

The Port of Stockton site is already partially developed and located on an island adjacent to the San Joaquin River such that it is not part of any regional evacuation routes. There are two roads that all egress off the island and the proposed Project would not alter the existing road network. Therefore, the proposed Project would not combine with other cumulative projects to become cumulatively considerable. The impact would **less than significant.**

The project combined with other past, present, and reasonably foreseeable cumulative projects would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving fires.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Feedstock acquisition would occur in timberlands where there is high risk of wildland fires. However, no structures or other improvements are proposed as part of feedstock acquisition and the locations would vary. Wildfire risks are dependent on a number of different factors but considering that feedstock acquisition would occur in varied locations and the relatively short time frame spent in any one location, the opportunities for the project to combine with cumulative projects to become cumulatively considerable is remote. In addition, fire safety measures would be incorporated into all feedstock acquisition activities as discussed in more detail in Section 3.16, Wildfire. Therefore, the proposed project would not combine with other cumulative projects to expose people or structures to risk of loss, injury, or death and the impact would be considered **less than significant** with no mitigation is required.

### Wood Pellet Production

#### Lassen Facility

The Lassen Facility is located partially within and adjacent to a High Fire Hazard Severity Zone where there is risk of wildfires that could adversely affect operations. Just as with the proposed improvements for the Project, cumulative projects would also be subject to applicable fire code requirements for all improvements including fire prevention and fire protection such that fire risks are minimized. Therefore, considering the adherence to all fire protection and prevention requirements, the potential for the project to combine with cumulative projects to become cumulatively considerable would **be less than significant**.

#### Tuolumne Facility

The Tuolumne Facility is located in a High Fire Hazard Severity Zone in the SRA. As with the Lassen facility, all proposed improvements, just as would be for cumulative projects, would be constructed in accordance with applicable fire protection and prevention measures such that the risk of damage, injury or death is minimized. As a result, the potential impact would be **less than significant.**

### Transport to Market

#### Port of Stockton

San Joaquin County has no Very High Fire Hazard Risk Zones and considering that the Port Facility is in a developed industrial area it would not combine with other cumulative projects to expose people or structures to significant risk of loss, injury, or death due to wildfires. The impact would be **less than significant**.

## 3.8.4.4 Mitigation Measures

MM-HAZ-1 Port of Stockton. Soil Management Plan and Phase II Investigation. Prior to issuance of a grading or building permit, GSNR shall retain a qualified environmental consultant to prepare and implement a Soil Management Plan for all earthwork activities proposed at the site. The Soil Management Plan shall be based on a review of previous environmental subsurface characterizations and in accordance with Department of Toxic Substances Control (DTSC) and/or

Regional Water Quality Control Board (RWQCB) coordination. The consultant shall also prepare a Phase II Work Plan for all structures that would be occupied as part of project operations. The Phase II Work Plan shall include sampling locations, depths, and analytical laboratory testing that will be done to evaluate the potential health risks associated with any existing legacy contaminants of concern that may be present in the subsurface and the potential for adverse health effects related to vapor intrusion. The work plan shall be submitted to San Joaquin County Environmental Health for review and approval prior to commencement of sampling activities at the site. The findings of the Phase II Work Plan shall be compiled in a report documenting the results of the sampling and include recommendations for any further testing or remediation, if applicable. Sampling results shall be compared to RWQCB Regulatory Screening Levels for commercial/industrial land uses and additional sampling conducted as directed by the overseeing agency whether that is San Joaquin County Environmental Health Services, DTSC, or RWQCB. Issuance of a grading or building permit shall only occur upon authority from the overseeing agency once they have determined that no further threat to human health or the environment remains in the areas of the proposed improvements intended for human occupancy.

MM-HAZ-2 Fire Prevention Plan. GSNR shall prepare a Site Specific Fire Prevention Plan for each production and storage facility Plan (Lassen Facility, Tuolumne Facility, and Port of Stockton). Development of each Site Specific Fire Prevention Plan shall be consistent with Brown, et al., 2022, *Application of Process Hazard Analysis and Inherently Safer Design in Wood Pellet Production*, American Chemical Society ACS Omega 2022, 7, 47720−47733, and each Plan shall incorporate the following Inherently Safer Design features where applicable, at a minimum:

- Maintenance and housekeeping measures to reduce the risk of “hot spots” and potential fire risk during the production and movement of pellets.
- Identification of early detection measures, including belt speed and motor sensors, spark detectors, temperature sensors.
- Protocols to minimize the residence time of finished pellets in storage silos.
- On-site fire suppression facilities, including water storage and pumping.
- Require that pellet storage silos will be equipped with temperature monitoring systems to detect hot spots.
- Require that each pellet storage silo will also be equipped with an aeration system that will activate when elevated temperatures are detected and blow ambient air through the silo for cooling.
- Require use of an enclosed motors instead of a non-enclosed motors to ensure dust is kept out to prevent fire spots.
- Require multiple dust collectors with explosion panels will be installed throughout the process in order to reduce fire and explosion hazard associated with dry fiber handling generating dust.
- Ensure that all ductwork is designed to have a minimal number of bends to the extent feasible.

The pellet production facilities shall include the following additional measures:

- Require that magnets be located throughout the process to remove ferrous objects from the feedstock and product streams to the extent feasible.

- Ensure quick material turnaround to minimize the risk of a deep-seated fire caused by organic material decomposition.
- Ensure separation of finished product silo storage and railcar from rest of the plant.
- Require all of the following equipment protection systems/sprinkler systems:
  - The Fire Pump Building will be protected with a wet sprinkler system.
  - The Bark Hog Tower will be protected with a dry pipe sprinkler system.
  - The Green Hammer Mill Tower will be protected with a dry pipe sprinkler system.
  - The Dry Hammer Mill Structure will be protected with a dry pipe sprinkler system.
  - The Pelletizer Building will be protected with a wet sprinkler system.
- Require that each baghouse at rail loadout will be provided with fire water connections and spray nozzles.
- Require the inclusion of a Rail Loadout Dust Control System
- Require a Central Dust Control system in the balance of the production facilities.
- Require that well water be treated as necessary to minimize dissolved material in water to reduce scaling and clogging of water deluge systems/plugged nozzle or lines with water scale/hardness.

Each plan shall be reviewed and approved by the Fire Marshall with authority over each site (Lassen County, Tuolumne County, and the Port of Stockton) prior to construction and comply with all applicable current standards and codes set by the National Fire Protection Agency and the California Building Code as well as any additional requirements deemed necessary by the applicable local fire authority.

### 3.8.4.5 Significance After Mitigation

With implementation of Mitigation Measure HAZ-1, GSNR would retain a qualified environmental consultant to prepare and implement a Soil Management Plan as well as perform a Phase II Environmental Site Assessment to evaluate the subsurface materials for the potential presence of legacy contaminants related to current and past land uses at the Port of Stockton. The mitigation measure would require a site-specific evaluation that includes collection of soil and/or groundwater samples that would be tested by an analytical laboratory with the results compared to regulatory screening levels. Any additional testing or remediation would be required prior to commencement of construction activities to ensure the protection of the health of construction workers and the public. Following implementation of mitigation, Impact HAZ-4 would be reduced to **less than significant**.

With implementation of Mitigation Measure HAZ-2, proper risk management procedures, including maintenance and early detection and fire suppression would be incorporated into facility operations and monitored. Review and coordination with local fire departments would be conducted. The risk of fire during the production and storage of the pellets would be reduced to less than significant. Impact HAZ-6 would be reduced to **less than significant**.

## 3.8.5 References

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SWRCB. 2023b. "Tuolumne Facility." GeoTracker database search. Accessed February 24, 2023. https://geotracker.waterboards.ca.gov.

# 3.9 Hydrology and Water Quality

This section of the Draft EIR evaluates potential impacts to hydrology and water quality associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing hydrology and water quality conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California (Port of Stockton). This section evaluates the potential for project-related hydrology and water quality impacts, considering proposed project design features that could reduce or eliminate associated impacts. Five comment letters contained scoping comments that pertained at least in part to hydrology and water quality in response to the Notice of Preparation (NOP) (see Appendix A). These comments generally related to potential impacts to groundwater levels and water supplies; impacts to aquifer recharge rates; and impacts to surface and groundwater quality.

The following environmental setting and impact evaluation is based in part on the following project-specific technical reports, included as appendices to this EIR:

1. **Appendix G1 –** Lassen Hydrology and Hydraulics Technical Study, prepared by Dudek, November 2023
2. **Appendix G2 –** Lassen Water Supply Assessment, prepared by Dudek, April 2024
3. **Appendix G3 –** Lassen Groundwater Well Evaluation, prepared by Dudek, April 2024
4. **Appendix G4 –** Tuolumne Water Supply Assessment, prepared by Dudek, April 2024
5. **Appendix G5 –** Tuolumne Groundwater Well Assessment, prepared by Dudek, March 26, 2024
6. **Appendix E2 –** Lassen Supplemental Geotechnical Investigation, prepared by Universal Engineering Sciences, November 2023
7. **Appendix E3 –** Tuolumne Geotechnical Report, prepared by Wallace Kuhl & Associates, June 2021

## 3.9.1 Environmental Setting

### 3.9.1.1 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities, as described in Chapter 2 (see Figures 2-1 and 2-2).

#### Lassen Facility Feedstock Area

According to the U.S. Geological Survey (USGS) National Hydrography Dataset, the Lassen Facility feedstock area intersects 157 watersheds and 42,476 linear miles of streams, rivers, canals, and ditches (USGS 2023). (See Section 3.3, Biological Resources for additional information.) More regionally, the feedstock area includes the Sacramento River, Klamath-Northern California Coastal, and North Lahontan Hydrologic Regions (Figure 3.9-1, Feedstock Area Hydrologic Regions).

## Sacramento River Hydrologic Region

The Sacramento River Hydrologic Region, which is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB), covers 27,210 square miles (roughly 17% of California) and includes the entire area drained by the Sacramento River. This hydrologic basin includes all watersheds tributary to the Sacramento River that are north of the Cosumnes River Watershed. It also includes the closed basin of Goose Lake and drainage sub-basins of Cache and Putah Creeks. The principal streams to this 400-mile long river are the Sacramento River and its larger tributaries: the Pit, Feather, Yuba, Bear, and American Rivers to the east; and Cottonwood, Stony, Cache, and Putah Creeks to the west. Major reservoirs and lakes include Shasta, Oroville, Folsom, Clear Lake, and Lake Berryessa. Modern influences on the Sacramento Watershed include large-scale farming and mining operations, major water supply and flood control systems, a deep-water shipping channel, and several large urban centers. Californians depend on this critical watershed for agriculture, timber harvesting, hydroelectric power generation, fishing and recreation, potable water, and many other diverse and competing needs (Central Valley RWQCB 2019; RegionalSan 2023).

California Department of Water Resources (DWR) Bulletin 118-80 identifies 63 groundwater basins in the Sacramento Watershed area. The Sacramento Valley floor is divided into two groundwater basins. Other basins are in the foothills or mountain valleys and there are areas other than those identified in the DWR Bulletin with groundwaters that have beneficial uses (Central Valley RWQCB 2019).

## Klamath-Northern California Coastal Hydrologic Region

The Klamath-Northern California Coastal Region, which is within the jurisdiction of the North Coast RWQCB, extends from the California-Oregon state line southerly, to the southern boundary of the watershed of the Estero de San Antonio and Stemple Creek in Marin and Sonoma Counties, and encompasses all basins draining into the Pacific Ocean, including Lower Klamath Lake and Lost River basins. The North Coast Region is divided into two natural drainage basins, the Klamath River Basin and the North Coastal Basin. The North Coast Region covers all of Del Norte, Humboldt, Trinity, and Mendocino Counties, major portions of Siskiyou, and Sonoma Counties, and small portions of Glenn, Lake, Modoc, and Marin Counties (North Coast RWQCB 2018).

The North Coast Region is abundant in surface water and groundwater resources. Although the North Coast Region constitutes only about 12% of the area in California, it produces about 41% of the annual runoff. This runoff contributes to flow in surface water streams, storage in lakes and reservoirs, and replenishment of groundwater. DWR has identified 62 groundwater basins in the North Coast Region. Groundwater may also exist where groundwater basins have not been identified (North Coast RWQCB 2018).

## North Lahontan Hydrologic Region

The jurisdiction of the Lahontan RWQCB extends from the Oregon border to the northern Mojave Desert and includes all of California east of the Sierra Nevada crest. The name of the region is derived from prehistoric Lake Lahontan, which once covered much of the State of Nevada. The Lahontan Region has historically been divided into North and South Lahontan Basins at the boundary between the Mono Lake and East Walker River watersheds. This region is about 570 miles long and has a total area of 39,210 square miles. Most of the waters of the North Lahontan Basin drain into closed basins which were previously part of Lake Lahontan. Waters of the South Lahontan Basin also drain into closed basin remnants of prehistoric lakes (Lahontan RWQCB 2021).

The Lahontan Region includes over 700 lakes, 3,170 miles of streams, and 19,710 square miles of groundwater basins. There are twelve major watersheds (called "hydrologic units" under the DWR mapping system) in the North Lahontan Basin. Among these are the Eagle Lake, Susan River/Honey Lake, Truckee, Carson, and Walker River Watersheds. Very little quantitative information is available on most of the water bodies in the region. Consumptive municipal and agricultural use of water is relatively low in most parts of the Lahontan Region compared to other parts of California, due to the low resident population and the agricultural emphasis on range livestock grazing rather than crops. Irrigation is mostly for pasture, rather than for row crops and orchards. Large volumes of water are exported for consumptive use outside the Lahontan Region (Lahontan RWQCB 2021).

## Tuolumne Facility Feedstock Area

The Tuolumne facility feedstock area includes the Sacramento River, San Joaquin River, Tulare-Buena Vista Lakes, and Central Lahontan regions (Figure 3.9-1, Feedstock Area Hydrologic Regions). The Sacramento River and Lahontan Hydrologic Regions are described above.

### San Joaquin River Hydrologic Region

The San Joaquin River Basin, which is within the jurisdiction of the Central Valley RWQCB, covers 15,880 square miles and includes the entire area drained by the San Joaquin River. It includes all watersheds tributary to the San Joaquin River and the Delta south of the Sacramento River and south of the American River Watershed. The principal streams in the basin are the San Joaquin River and its larger tributaries: the Cosumnes, Mokelumne, Calaveras, Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers. Major reservoirs and lakes include Pardee, New Hogan, Millerton, McClure, Don Pedro, and New Melones. DWR Bulletin 118-80 identifies 39 groundwater basins in the San Joaquin Watershed area. The San Joaquin Valley floor is divided into 15 separate groundwater basins, largely based on political considerations. Other basins are in the foothills or mountain valleys. There are areas other than those identified in the DWR Bulletin with groundwaters that have beneficial uses (Central Valley RWQCB 2019).

### Tulare-Buena Vista Lakes Hydrologic Region

The Tulare-Buena Vista Lakes Hydrologic Region, which is within the jurisdiction of the Central Valley RWQCB, encompasses about 16,400 square miles, about 10% of California, within the southern San Joaquin Valley. The lowland area encompasses about 8,400 square miles. The Kings River Watershed is included in the Tulare Lake Basin hydrologic unit because the majority of its runoff flows south toward Tulare Lake, though some Kings River water periodically flows into the San Joaquin River. Elevations in the basin range from a low of about 175 feet above mean sea level (amsl) in the Tulare Lake bottom to the 14,496-foot summit of Mt. Whitney, the highest point in California. Lake and stream deposits cover much of the lowlands, and create a flat, smooth land surface with very low gradients. In the Tulare Lakebed, minimal gradients allow bidirectional movement of canal water. Peripheral lowland areas are highly dissected by small drainages, although these drainages seldom carry water. Along the east side of the basin, the Sierra Nevada mountains rise steeply, with the highest peaks over 14,000 feet amsl and in the south, the Tehachapi Mountains rise to over 8,000 feet amsl. Historically, river runoff in the Tulare Lake Basin collected in terminal lakes on the basin floor. The terminal lakes complex fluctuated in size from a few square miles during extended dry periods, to over 800 square miles in wet years, and supported an extensive, fringing tule marsh Tulare Lake, by far the largest of the basin's terminal lakes, received runoff from several rivers, including the South Fork Kings, Kaweah, Tule and Kern Rivers (USEPA 2007).

### 3.9.1.2 Northern California (Lassen Facility) Site

#### Precipitation

According to the PRISM Climate Group annual precipitation dataset, which uses average monthly and annual conditions from 1991 to 2020, the project site receives an average of 20 inches of precipitation annually (PRISM 2023; Appendix G1 - Lassen Hydrology and Hydraulics Technical Study). Rainfall depths for various storm durations and recurrence intervals at the project site were obtained using National Oceanic and Atmospheric Administration (NOAA) Atlas 14 precipitation estimates (NOAA 2023: Appendix G1), as summarized in Table 3.9-1, Rainfall Depths, Lassen Site.

**Table 3.9-1. Rainfall Depths, Lassen Site**

| | Precipitation (inches) | |
|---|---|---|
| | Average Recurrence Interval (years) | |
| Duration | 10 | 100 |
| 1-hour | 0.64 | 1.19 |
| 3-hour | 0.98 | 1.75 |
| 6-hour | 1.32 | 2.33 |
| 24-hour | 2.49 | 4.20 |

**Source:** NOAA 2023

#### Site Hydrology

The project site is located in the southern portion of the Upper Pit Watershed (Figure 3.9-2, Upper Pit River Watershed), which begins in the Warner Mountains of northeast California and flows in a southwesterly direction toward Shasta Lake. Flow gaging on the Pit River at Canby (mid-watershed location, approximately 28 miles northeast of the project site; Figure 3.9-2) has been maintained since 1904, and average daily flow at this location is approximately 250 cubic feet per second (cfs). Summer season flows typically range from 0 to 20 cfs with a peak flow of 9,100 cfs in 1986 (SRWP 2023; Appendix G1). The production facilities would be located on a parcel approximately 65 acres in size, Assessor's Parcel Number (APN) 001-270-086. Log decking (storage) would occur on approximately 51 acres of the ~225-acre property immediately south of the production site (APNs 001-270-26, 001-270-29, and 013-040-13) (the "woodyard").

Runoff across the site primarily occurs as sheetflow to the south and southeast toward drainage ditches, including one ditch that coincides with the western property boundary, and two other ditches that merge in the southern portion of the site and connect with a culvert beneath the railroad in the southeast portion of the site. Numerous small streams, sloughs, and marshy areas are present east of the project site. The Pit River is approximately 2.9 miles east of the site; Bull Run Slough is approximately 0.7 mile to the east; and an unnamed tributary creek to Bull Run Slough is approximately 500 feet to the east, at the closest point (Figure 3.9-3, Lassen Surface Water Features). Stormwater runoff emanating from the hilly areas to the west and southwest flows in the direction of the southern proposed project area.

The production facility parcel contains one seasonal wetland and one seasonal wetland swale, located in the southeastern portion of the project site. These features collect water seasonally and are discernible from the adjacent upland areas by a distinct change in vegetation. Five upland ditches located throughout the project site

are unlined, earthen water conveyance systems that were constructed in upland habitat and exhibit a mild break in slope and change in vegetation. Ditches within the project site are generally 5 to 6 feet wide at the top of bank and have an ordinary high water mark width of 1 to 2 feet (Appendix G1).

## Water Quality

As previously discussed for site hydrology, stormwater runoff from the project site flows to the east toward an unnamed, intermittent stream (Figure 3.9-3), which is a tributary to the Pit River, a perennial river. Based on the Central Valley RWQCB Basin Plan (Central Valley RWQCB 2019), beneficial uses of water bodies form the cornerstone of water quality protection. Once beneficial uses are designated, appropriate water quality objectives can be established and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses. Beneficial uses are defined as the uses of water necessary for the survival or well-being of humans, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals of mankind.

Beneficial uses of the Pit River include agricultural supply, cold freshwater habitat, commercial and sport fishing, municipal and domestic supply, non-contact water recreation, spawning/reproduction/early development, warm freshwater habitat, water contact recreation, and wildlife habitat. The Upper Pit River Watershed is generally in good condition with respect to water quality; however, the Pit River, from the confluence of the north and south forks to Shasta Lake, is impaired with respect to low dissolved oxygen, metals (aluminum, iron), and nutrients (nitrogen and/or phosphorus), per Section 303(d) of the Clean Water Act (USEPA 2022). As discussed below in Section 3.9.2, Regulatory Framework, the State Water Resources Control Board (SWRCB) maintains and updates a list of impaired water bodies (i.e., water bodies that do not meet state and federal water quality standards). The state is required to prioritize waters/watersheds for development of total maximum daily loads (TMDLs), which are established at the level necessary to implement applicable water quality standards.

## Flood Zones

Floods within Lassen County are classified into three types. The first consists of those that occur during late fall and winter, primarily as a result of prolonged rainstorms. The second type occurs during spring and early summer, mainly as a result of snowmelt from the Sierra Nevada Mountains or Cascade Mountains. The third type occurs during summer as a result of intense convective rainstorms. The most significant flood-producing rainstorms are those that occur during fall and winter. Lassen County does not have a well-developed flood protection system. As a result, flooding often occurs along many streams, damaging agricultural and urban properties and causing channel and bank erosion (Lassen County 2018).

Federal Emergency Management Agency (FEMA) Flood insurance Rate Maps (FIRM) identify flood zones and areas that are susceptible to 100-year and 500-year floods. Figure 3.9-4, Lassen FEMA Flood Zone, shows that the project site is within the 100-year Zone A floodplain. Zone A is defined as a Special Flood Hazard Area with a 1% annual chance of flooding, but because no detailed analysis has been performed in this area, no depths or base flood elevation (BFE) has been determined for this zone (FEMA 2023a).

## Groundwater

The project site overlies the Big Valley Groundwater Basin (Department of Water Resources Basin 5-004) (Figure 3.9-5, Groundwater Basins – Lassen Processing Facility). The basin covers approximately 144 square miles and is located in both Lassen and Modoc Counties. The basin is bounded to the north and south by Pleistocene and

Pliocene basalt and Tertiary pyroclastic rocks of the Turner Creek Formation, to the west by Tertiary rocks of the Big Valley Mountain volcanic series, and to the east by Turner Creek.[1] The underlying geology at the project site is mapped as marine and nonmarine (continental) sedimentary rocks, and numerous northwest-southeast trending fault traces are documented near the project site (Appendix G2, Water Supply Assessment).

Primary sources of recharge in the Big Valley Groundwater Basin include Butte Creek, Willow Creek, and Ash Creek, as well as water diverted into unlined drainage ditches, canals, and agricultural farmland. In water year 2022, the estimated volume of groundwater extracted from the basin was 50,400 acre-feet (AF), accounting for approximately 38% of the total water used in the basin. Based on a review of well completion reports for wells drilled near the project site, well yields are reported to range from 5 gallons per minute (GPM) to 1,500 GPM (Appendix G2).

A desktop study and site reconnaissance of the project site by Dudek in October 2023 identified one existing groundwater well at the project site, referred to as Well 1, and one existing off-site well located near the project site, referred to as Well 2 (Figure 3.9-6, On-Site Wells – Lassen Processing Facility). Well 1 is an active well that was onsite 20 years ago when the property was purchased. Well 2 is also an active well that is currently used for domestic drinking water supply use for a neighboring property. Information about the wells gathered during the site reconnaissance and well condition assessment is presented in Table 3.9-2, Groundwater Well Information (Appendix G2; Appendix G3, Lassen Groundwater Well Assessment).

## Table 3.9-2. Groundwater Well Information

| Well Name | Use Type | Casing Diameter (inches) | Casing Material Type | Depth (feet bgs) | Yield (GPM) | Depth to Water (feet bgs) | Status |
|---|---|---|---|---|---|---|---|
| Well 1 | Industrial | 12,10[a] | Steel | 337 | 180 | 63.93, 47.00[b] | Active |
| Well 2 | Domestic | 6 | Steel | N/A | N/A | N/A | Active |

**Source:** Appendix G2; Appendix G3
**Note:** bgs = below ground surface, GPM = gallons per minute; N/A = not available.
[a] Well 1 was observed with 72.5 feet of 12-inch internal diameter steel casing from ground surface to 72.5 feet bgs, and 264.3 feet of approximately 10-inch steel casing from 72.5 feet to 336.8 feet bgs.
[b] Depths to water as measured in September 2023 (63.93 feet bgs) and March 2024 (47.00 feet bgs).

The static depth to groundwater measured in Well 1 in September 2023 was 63.93 feet below ground surface (bgs) and in March 2024 was 47.00 feet bgs. This rise in the groundwater level in Well 1 between September 2023 and March 2024 indicates seasonal variability in the water table. An additional well (Well 38N07E32A002M) located to the west of the Project (Figure 3.9-6, On-Site Wells – Lassen Processing Facility) has a long-term well history. Based on data recorded between 1959 and 2023, groundwater levels in this well have generally ranged from near ground surface to approximately 12 feet bgs, with the lower groundwater levels recorded in the fall and higher groundwater levels recorded in the spring following winter precipitation. The hydrograph for Well 38N07E32A002M indicates a stable, long-term trend in groundwater levels. Groundwater levels within the Big Valley Groundwater Basin have generally risen overall in recent years in response to significant recharge in water years 2022 and 2023 (Appendix G2; Appendix G3).

Groundwater within the Big Valley Groundwater Basin is considered to be good to excellent quality. Naturally occurring constituents such as sodium bicarbonate and sodium magnesium bicarbonate do exist at slightly elevated

[1] The Pleistocene epoch lasted from about 2.6 million years ago to 11,700 years ago, the Pliocene epoch lasted from about 5.3 million to 2.6 million years ago, and the Tertiary Period lasted from about 66 million to 2.6 million years ago.

levels. These constitutes are associated with volcanic formations and thermal waters found throughout the basin. Groundwater quality data for the project site is not available at this time (Appendix G2).

The Big Valley Groundwater Basin has been classified by the DWR as a medium priority basin, with respect to the Sustainable Groundwater Management Act (SGMA). Four public supply wells and 413 total wells are within the Big Valley Basin. Groundwater provides 65% of water supply in the basin (California DWR 2024a. SGMA requires the preparation and implementation of a Groundwater Sustainability Plan (GSP) for high and medium priority groundwater basins. As a result, the Big Valley Groundwater Basin was required to be managed under a GSP by January 31, 2022. Lassen and Modoc Counties have created Groundwater Sustainability Agencies (GSAs) for their respective portions of the basin, as the basin overlaps both counties, and agreed to work cooperatively to develop a single GSP for the groundwater basin (GEI Consultants 2021).

The GSP was adopted by both GSAs and submitted to DWR in December 2021; however, the GSP was marked as incomplete in October 2023 due to three main factors:

- The GSP does not include a reasonable assessment of overdraft conditions and reasonable means to mitigate overdraft.
- The GSP does not establish sustainable management criteria for chronic lowering of groundwater levels in a manner sustainably complaint with GSP regulations. The GSP lacks a thorough explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly undesirable results and minimum thresholds. The GSP also lacks quantitative descriptions of the effects of those criteria on the interest of beneficial uses and users of groundwater.
- The GSP does not develop sustainable management criteria for degraded water quality.

The basin GSAs were instructed to resubmit the revised GSP for evaluation no later than April 23, 2024 (Appendix G2). As of October 1, 2024, a revised GSP has been submitted to DWR, but not yet approved (California DWR 2024b).

Based on the SWRCB Notice of Preparation letter, the SWRCB, Division of Drinking Water (DDW) is responsible for issuing water supply permits pursuant to the Safe Drinking Water Act. The project is within the jurisdiction of DDW Lassen District and DDW Merced District. DDW Lassen District and DDW Merced District issue domestic water supply permits to new public water systems pursuant to Waterworks Standards (Title 22 CCR chapter 16 et. seq.).

### 3.9.1.3 Central Sierra Nevada (Tuolumne Facility) Site

#### Precipitation

According to the PRISM Climate Group annual precipitation dataset, which uses average monthly and annual conditions over the most recent three full decades (1991-2020), the project site receives an average of 20 to 24 inches of precipitation annually (PRISM 2023).

Rainfall depths for various storm durations and recurrence intervals at the project site were obtained using NOAA Atlas 14 precipitation estimates (NOAA 2023), as summarized in Table 3.9-3, Rainfall Depths.

**Table 3.9-3. Rainfall Depths, Tuolumne Site**

| Duration | Precipitation (inches) | |
|---|---|---|
| | Average Recurrence Interval (years) | |
| | 10 | 100 |
| 1-hour | 0.78 | 1.26 |
| 3-hour | 1.26 | 2.00 |
| 6-hour | 1.74 | 2.73 |
| 24-hour | 3.53 | 5.49 |

**Source:** NOAA 2023

## Site Hydrology

The USGS Watershed Boundary Dataset indicates the project site is located in the southern portion of the Green Spring subwatershed of the Upper Stanislaus River watershed (Figure 3.9-7, Tuolumne Surface Water Features). This subwatershed extends to the south to Hetch Hetchy Junction, extends to the northeast in the vicinity of Yosemite Junction, and terminates downstream at Tulloch Reservoir. This reservoir flows into the Stanislaus River, which flows southwest toward the San Joaquin River, which in turn flows north to the Sacramento-San Joaquin River Delta.

The Tuolumne facility project site is located on relatively flat to gently sloping topography. An east-west trending drainage divide is present in the northern portion of the project site, resulting in surface runoff in the southern portion to the west and southwest toward off-site Green Spring Run and runoff in the northern portion to the west and northwest toward an on-site, unnamed tributary creek to Green Spring Run, located approximately 1,200 feet southwest of the site. A wetlands area is located in the northern portion of the site (Figure 3.9-7, Tuolumne Surface Water Features). A perennial pond is present in this area, within the east-west-trending, unnamed blue-line creek, which is a tributary to Green Spring Run. In addition, a stormwater detention area is present immediately south of this wetland area and north of the existing paved area, which was previously used by Sierra Pacific Industries for a former wood mill facility.

## Water Quality

Surface water quality at the project site is regulated under the Tuolumne County Water Quality Plan, which includes a comprehensive program, including regulatory and non-regulatory components, that addresses a wide range of water quality concerns in the County. The Water Quality Plan addresses elements of the U.S. Environmental Protection Agency (USEPA) Phase II National Pollutant Discharge Elimination System (NPDES) Program, including illicit discharge detection and elimination; construction and post-construction activities; and new development and planning. The Water Quality Plan includes recommended Best Management Practices (BMPs), with the intent of reducing the concentration of pollutants in urban runoff to the maximum extent practicable, through pollution prevention, source control BMPs, and treatment control BMPs. The latter includes BMPs for temporary construction and long-term operation.

Water quality at the project site is also regulated under the Central Valley RWQCB Basin Plan, which has established beneficial uses and water quality objectives for the Stanislaus River and downstream San Joaquin River (Central Valley RWQCB 2019 In addition, beneficial uses have been established for the large on-site pond and associated tributary creeks, in the northern portion of the site, and Green Spring Run, located approximately 1,200 feet

southwest of the site. Green Spring Run and the Upper Stanislaus River are not considered impaired water bodies under Clean Water Act Section 303(d) (SWRCB 2023. However, the Green Spring Run watershed flows into the Tulloch Reservoir, which is considered an impaired water body for mercury. This reservoir is approximately 3 miles northwest of the project site. Beneficial uses of this reservoir include commercial and sport fishing, warm freshwater habitat, and wildlife habitat. No plans are currently in place for waterbody restoration (USEPA 2022, SWRCB 2023).

## Flood Zones

The project site is not located within a 100-year Special Flood Hazard Area, as designated by FEMA. The project site is within Flood Zone X, which is an area outside the 0.2% annual floodplain (i.e. 500-year floodplain). In addition, the project site is not within an area subject to seiches or dam failure inundation (Tuolumne County Community Resources Agency 2018a; FEMA 2023b).

## Groundwater

The Tuolumne project site does not overlie a groundwater basin, as designated by DWR. The closest basin is the San Joaquin Valley-Modesto Groundwater Basin (DWR Basin No. 5-022.02), located approximately 6 miles west of the project site (Figure 3.9-8, Public Water Systems – Tuolumne Processing Facility). The surficial geology at the Tuolumne project site is mapped as the Copper Hill Formation, which consists of andesitic to basaltic metavolcanic rocks. The area around the project site includes similar hard rock geology consisting of metasedimentary rocks, the Gopher Ridge Formation, the Penon Blanco Formation, metavolcanic rocks, granitic rocks, ultramafic rocks, and mélange. Alluvium is not mapped on or near the project site (Appendix G4, Tuolumne Water Supply Assessment).

The lithology documented in well completion reports from wells drilled near the Tuolumne project site consists of fractured “greenstone”, slate, and schist. Groundwater is contained within the fractures of these hard rocks. The presence and connectivity of water-bearing fractures are unpredictable and the yields from these fractures can vary dramatically. Based on a review of well completion reports for wells drilled near the project site, well yields are reported to range from 1 GPM to 60 GPM, with the exception of one well located at the project site, Well 1, which had an estimated yield of 400 GPM. Groundwater is the primary water supply for small communities and private property owners not located within the service area of a public water system in the Project vicinity (Appendix G5, Tuolumne Groundwater Well Assessment).

Dudek performed a desktop study and site reconnaissance of the Tuolumne project site in October 2023 to identify and inspect existing on-site groundwater wells. Following the initial desktop study and site reconnaissance, Dudek conducted a well condition assessment and performed a pumping test at one of the on-site wells. The desktop study and site reconnaissance identified three existing groundwater wells at the project site, referred to as Wells 1, 2, and 3 (Figure 3.9-9 – Tuolumne On-Site Wells). Well 1 is currently used to fill a water storage tank for fire supply, Well 2 is inactive, and Well 3 is assumed to be actively used by the adjacent parcel owner to the west. Information about the wells gathered during the site reconnaissance and well condition assessment is presented in Table 3.9-4 (Appendix G4; Appendix G5).

**Table 3.9-4. On-Site Groundwater Well Information**

| Well Name | Use Type | Casing Diameter (inches) | Casing Material Type | Depth (feet bgs) | Yield (GPM) | Pump Size (horsepower) | Depth to Water (feet btoc)[a] | Status |
|---|---|---|---|---|---|---|---|---|
| Well 1 | Industrial | 8 | Steel | 412 | 137 | 15 | 23.70 | Active |
| Well 2 | N/A | 6 | Steel | N/A | N/A | N/A | 9.74 | Inactive |
| Well 3 | N/A | 6 | PVC | N/A | N/A | N/A | 16.59 | Active |

**Source:** Appendix G4; Appendix G5
**Note:** bgs – below ground surface, GPM – gallons per minute, btoc – below top of casing
[a] Depth to water as measured in February 2024 (in Wells 1 and 2) and November 2023 (in Well 3)

Groundwater level data for wells located on and nearby the Tuolumne project site is limited. Based on a review of well completion reports for wells drilled within the two public land survey system sections the project site falls within, depth to groundwater ranges from approximately 10 feet below ground surface (bgs) to 95 feet bgs. One well completion report (Legacy Log Number 247908) showed matching characteristics to construction features observed during the site reconnaissance at Well 1. The static depth to groundwater measured in Well 1 when the well was drilled in February 1984 was 35 feet bgs. The static depth to groundwater measured during a pumping test in February 2024 was 23.7 feet bgs. Based on these two data points, it appears that the groundwater table has remained stable over time (Appendix G4; Appendix G5).

Groundwater quality data for wells located on and nearby the Tuolumne project site is also limited. The quality of groundwater from wells in the project vicinity is reported to vary significantly depending on a number of factors including well depth, geology, and proximity to point sources of contamination. Iron and manganese are naturally occurring constituents that are commonly detected at elevated concentrations. Based on groundwater quality results for two nearby public water systems (CA5500148 and CA550360; Figure 3.9-8, Public Water Systems – Tuolumne Processing Facility), groundwater in the project vicinity is good quality with all constituents below drinking water maximum contaminant levels, except for iron, which has been detected at slightly elevated levels (Appendix G4).

#### Other Water Sources

Imported water and recycled water infrastructure are not currently available in the vicinity of the Tuolumne project site (Appendix G4).

### 3.9.1.4 Port of Stockton

#### Precipitation

The Stockton area has a typical Mediterranean climate with wet, cool winters, and warm, dry summers. Most of the rainfall occurs between November and April, with an average annual rainfall of 13.7 inches (Port of Stockton 2003). Rainfall depths for various storm durations and recurrence intervals at the project site were obtained using NOAA Atlas 14 precipitation estimates (NOAA 2023), as summarized in Table 3.9-5, Rainfall Depths.

**Table 3.9-5. Rainfall Depths, Port of Stockton**

| Duration | Precipitation (inches) | |
|---|---|---|
| | Average Recurrence Interval (years) | |
| | 10 | 100 |
| 1-hour | 0.66 | 1.02 |
| 3-hour | 0.99 | 1.51 |
| 6-hour | 1.30 | 1.97 |
| 24-hour | 2.44 | 3.58 |

**Source:** NOAA 2023

## Site Hydrology

The Port of Stockton project site is located on Rough and Ready Island, which is bound by the San Joaquin River to the east, the Burns Cutoff to the west and south, and the Stockton Deepwater Ship Channel (SDWC) to the north (Figure 3.9-10, Port of Stockton Surface Water Features). These waterways generally flow from east to west, with water levels subject to variations in river flows within the San Joaquin River and its tributaries, and tidal action extending upstream from the San Francisco Bay. The San Joaquin River, in the reach upstream of Stockton, is typically about 8 to 12 feet deep, and experiences a three-foot tidal range. In the project vicinity, delta flows moving upstream during a flood tide can be as much as several thousand cubic feet per second, and non-tidal flows during summer and fall are highly regulated, with net flow at Stockton sometimes becoming negative due to upstream diversions at Old River. Average monthly flows in the San Joaquin River during 2000 varied between 345 and 5,800 cfs. The DWSC is a maintained portion of the San Joaquin River that begins in the San Francisco Bay and terminates in Stockton (Port of Stockton 2003).

Rough and Ready Island contains no streams but includes 8.4 acres of engineered ponds, including an excavated pond in the wildlife area on the western portion of the island, and two ponds within the golf course located in the northeastern portion of the island. Runoff from most of the island is collected in a series of culverts and ditches and is conveyed to a single outfall on the western side of the island. The warehouse and dock area located along the DWSC drain directly into the channel via sheetflow. The areas draining to the internal ponds have no outfalls; in the event of increased pond levels, excess water is pumped to a stormwater overflow area. The developed areas on the island are served by a combination of underground pipes and open drainage ditches, while the undeveloped areas of the island are served exclusively by ditches (Port of Stockton 2003).

The island has been divided into nine separate drainages for purposes of stormwater management. Stormwater is directed to a collection and pumping area near the southwest corner of the island. This facility includes three pumps with a capacity of 37,400 gallons per minute. An approximate 5-acre stormwater overflow area just north of the pumphouse collects any overflow runoff until it can be pumped into Burns Cutoff. Historically, the stormwater drainage and pumping system has been adequate to control surface runoff, and the pump intakes have been regularly maintained and kept free of vegetation. However, the main drainage infrastructure is anticipated to require significant upgrades to meet modern codes and standards, as well as to accommodate the configuration and drainage characteristics of future terminals and other land uses (Port of Stockton 2003).

The proposed product receiving and product storage areas are located on relatively flat to gently sloping topography, approximately 1,700 feet from the DWSC, at the closest point. Approximately 20% of the site is paved, with the

remainder unpaved and pervious (Figure 1-8, Project Location: Port Rough Terminal, Port of Stockton). Stormwater runoff occurs as sheetflow to adjacent streets and the island drainage system, as described above.

## Water Quality

Quality of surface waters is greatly influenced by local land uses, which on Rough and Ready Island have historically included institutional (military), urban/industrial, and agricultural uses. Pollutant sources within the island include past waste disposal practices, agricultural chemicals, urban and industrial stormwater runoff, and chemicals and fertilizers applied to landscaping, including the golf course. Typical contaminants include sediment, hydrocarbons and metals, pesticides, nutrients, bacteria, and trash. Within the island, 12 locations with surface water contamination have been discovered as a result of military and other historic land uses. These sites include storm drainage lines, aboveground storage tanks, potential spill areas, pits, construction yards, and storage and maintenance areas. Contaminants include volatile organic compounds, metals, and pesticides (Port of Stockton 2003).

Water quality in the DWSC has received particular attention due to exhibiting chronically low dissolved oxygen levels. The depth of the ship channel, which is much deeper than the natural conditions found in the San Joaquin River, greatly slows the net downstream transport rate of San Joaquin River water. This alters the ability of the channel to assimilate oxygen demand downstream of the Port by increasing the hydraulic residence time of the water and by decreasing the amount of re-aeration per unit volume of the channel (i.e., the surface to volume ratio decreases due to the increased depth, providing less opportunity for aeration). Also, the greater water volume in the DWSC relative to natural conditions dilutes the dissolved oxygen that is photosynthetically produced by algae and aquatic plants (Port of Stockton 2003).

While Port-related runoff is not thought to contribute significantly to the oxygen demand in the DWSC relative to loadings from agricultural return flows and municipal discharges, periodic dredging and passage of ships resuspends sediment that can deplete oxygen levels in the water column. Port activities, ship passage, and ballast water exchange also hold the potential to substantially influence other water quality parameters besides dissolved oxygen. However, ballast water is generally only a concern for providing a potential vector for invasive species, although certain invasive species could also ultimately result in negative water quality impacts.

With respect to SWRCB 303(d) list of impaired water bodies, the San Joaquin River in Delta Waterways, southern portion, and from Delta Waterways to the Stockton Ship Channel, is impaired with temperature, imidacloprid, and toxicity. The Delta Waterways, in the vicinity of the DWSC, is impaired with chlorpyrifos, dichlorodiphenyltrichloroethane (DDT), diazinon, dioxin, furan compounds, Group A pesticides, invasive species, mercury, organic enrichment/low dissolved oxygen, polychlorinated biphenyls (PCBs), temperature, and toxicity (SWRCB 2023).

Beneficial uses of the Sacramento-San Joaquin Delta include municipal and domestic supply, irrigation, stock watering, industrial process supply, industrial service supply, water contact recreation, other non-contact water recreation, warm, cold freshwater habitat, warm migration of aquatic organisms, cold migration of aquatic organisms, warm spawning/reproduction/early development, wildlife habitat, and navigation (Central Valley RWQCB 2019).

## Flood Zones

The project site is not located within a 100-year Special Flood Hazard Area, as designated by FEMA. The project site is within Flood Zone X, with the majority of the site being located within an area of 0.2% annual chance of flood (i.e., 500-year floodplain); area of 1% annual chance of flood (i.e., 100-year floodplain), with an average depth of less than 1 foot or with drainage areas less than 1 square mile; or areas protected by levees from 1% annual chance flood. A small portion of the project site, in the vicinity of the ship loading area, is also Flood Zone X, but is an area determined to be outside the 0.2% annual chance floodplain (FEMA 2023c).

Stockton is close enough to major earthquake faults to be vulnerable to seismic activity, including the Greenville Fault, located approximately 22 miles away. The Hayward Fault, about 40 miles away, has an over 60% probability of a magnitude 6.7 or greater earthquake by 2036, according to the U.S. Geological Survey. Earthquakes of this magnitude can create ground accelerations in Stockton severe enough to cause major damage to structures and foundations not designed to resist the forces generated by earthquakes. Earthquakes are also among the threats to levee and dam stability. According to FEMA, most of the levees in the City of Stockton area meet minimum standards, but levees are subject to structural failure, erosion, and damage from vegetation and rodents, as well as earthquakes and floods. Given these possible risks, the California DWR provides Levee Flood Protection Zone maps to increase awareness of flood risks from levee failure. Based on these maps, the project site is located in an area that is protected by levees from the 100-year storm (1% probability in any given year). However, the project site is located within an area subject to flooding of 4 to 5 feet during a 200-year storm event (0.5% probability in any given year) (City of Stockton 2018).

The site is not located within a potential dam inundation area, based on potential failure of the New Melones and New Hogan Dams. Failure of either of these dams, located approximately 30 miles from Stockton, would give Stockton residents about seven hours to evacuate. Other major regional dams could also affect Stockton, but would have longer lead times. The California Division of Safety of Dams inspects each dam on an annual basis to ensure the dam is safe and performing as intended. The dams have also been assessed for seismic stability and are projected to withstand the maximum credible earthquake (City of Stockton 2018).

## Groundwater

The project site overlies the San Joaquin Valley - Tracy Groundwater Basin, which is a sub-section of the Greater Central Valley Basin. Groundwater in the project area is recharged by local precipitation, and through percolation from the surrounding surface waters. The project area is not identified as a substantial groundwater recharge area. Due to the project site's location (i.e., surrounded by water bodies), groundwater levels are extremely shallow. Surface water levels in the surrounding channels vary seasonally and with the tides, and on average, are at mean sea level during most of the year. Because much of the Island is at or below the surrounding river elevations, portions of the Island would remain flooded in a natural state. The elevation of the water table beneath the island is therefore maintained below its natural level by pumping. This pumping creates a gradient in which groundwater is drawn towards the interior of the island, which increases during high flow conditions in winter and spring. Pumped groundwater is discharged into the network of drainage ditches and flows toward the pumping stations on the western edge of the Island. A groundwater well is present on the northeastern portion of the island, with a production capacity of 750 GPM. This well was historically maintained as a backup water source for the island, but is not currently in use (Port of Stockton 2003).

The San Joaquin Valley - Tracy Groundwater Basin (DWR Basin 5-022.15) has a high to medium priority with regard to potential overdraft and is regulated by the County of San Joaquin Groundwater Services Agency (GSA) – Tracy,

under SGMA (California DWR 2023). (See Section 3.9.2.2, Regulatory Setting – State, for more information pertaining to SGMA.)

## 3.9.2 Regulatory Setting

### 3.9.2.1 Federal

#### Clean Water Act

The Clean Water Act (CWA) of 1948 (as amended in 1972 and 1987) establishes federal policy for the control of point and non-point pollution and assigns the states the primary responsibility for control of water pollution. The CWA regulates the dredging and filling of freshwater and coastal wetlands. Section 404 (33 USC 1344) prohibits the discharge of dredged or fill material into waters (including wetlands) of the United States without first obtaining a permit from the U.S. Army Corps of Engineers. Wetlands are regulated in accordance with federal Non-Tidal Wetlands Regulations (Sections 401 and 404).

Compliance with the CWA by the U.S. Forest Service in California is achieved under state law. The California Water Code consists of a comprehensive body of law that incorporates all state laws related to water, including water rights, water developments, and water quality. The laws related to water quality (sections 13000 to 13485) apply to waters on the national forests and are directed at protecting the beneficial uses of water.

#### Section 402 of the Clean Water Act (National Pollutant Discharge Elimination System)

The NPDES permit program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States (33 USC 1342). In the state of California, EPA has authorized the State Water Resources Control Board (SWRCB) permitting authority to implement the NPDES program. Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES Program to address stormwater discharges from construction sites that disturb land equal to or greater than 1.0 acres and less than 5.0 acres (small construction activity). The regulations also require that stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) be regulated by an NPDES General Permit for Storm Water Discharges Associated with Construction Activity, Order No. 2022-0057-DWQ (i.e., the Construction General Permit [CGP]).

The CGP requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards
- Good site management “housekeeping”
- Non-stormwater management
- Erosion and sediment controls
- Run-on and runoff controls

- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The CGP requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which describes best management practices (BMPs) the discharger would use to protect stormwater runoff. The BMPs fall into several categories, including erosion control, sediment control, waste management and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Each category contains specific BMPs to achieve the goals of the overarching category. Specific BMPs may include the following:

- Soil Stabilizing BMPs: Use of straw mulch, erosion control blankets or geotextiles, and/or wood mulching
- Sedimentation Control BMPs: Use of storm drain inlet protection, sediment traps, gravel bag berms, and fiber rolls
- Waste Management BMPs: Stockpile management, solid waste management, and concrete waste management
- Good Housekeeping BMPs: Vehicle and equipment cleaning, implementing water conservation practices, and implementing rules for fueling construction vehicles and equipment

Routine inspection of all BMPs is required under the provisions of the CGP. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. On September 8, 2022, the SWRCB issued a new NPDES General Permit for Storm Water Associated with Construction Activities (Order No. 2022-0057-DWQ, NPDES No. CAS000002), which became effective September 8, 2022.

In the project areas (i.e., Lassen facility, Tuolumne facility, Port of Stockton), the CGP is implemented and enforced by the Central Valley Regional Water Quality Control Board (RWQCB), which administers the stormwater permitting program. Dischargers are required to electronically submit a Notice of Intent (NOI) and permit registration documents in order to obtain coverage under this CGP. Dischargers are responsible for notifying the LARWQCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State Qualified SWPPP Developer (QSD) and implementation of the SWPPP must be overseen by a State Qualified SWPPP Practitioner (QSP). A Legally Responsible Person, who is legally authorized to sign and certify permit registration documents, is responsible for obtaining coverage under the permit.

### Federal Antidegradation Policy

The federal Antidegradation Policy (40 CFR 131.12) requires states to develop statewide antidegradation policies and identify methods for implementing those policies. Pursuant to this policy, state antidegradation policies and implementation methods will, at a minimum, protect and maintain (1) existing in-stream water uses; (2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource. State permitting actions must be consistent with the federal Antidegradation Policy.

### National and State Safe Drinking Water Acts

The federal Safe Drinking Water Act, established in 1974, is administered by the EPA and sets drinking water standards throughout the country. The drinking water standards established in the act, as set forth in the Code of Federal Regulations (CFR), are referred to as the National Primary Drinking Water Regulations (Primary Standards; 40 CFR 141), and the National Secondary Drinking Water Regulations (Secondary Standards; 40 CFR 143). According to the EPA, the Primary Standards are legally enforceable standards that apply to public water systems. The Secondary Standards are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water. The EPA recommends the Secondary Standards for water systems but does not require systems to comply. California passed its own Safe Drinking Water Act in 1986 that authorizes the state's Department of Health Services to protect the public from contaminants in drinking water by establishing maximum contaminant levels (as set forth in the California Code of Regulations (CCR), Title 22, Division 4, Chapter 15) that are at least as stringent as those developed by the EPA, as required by the federal Safe Drinking Water Act.

## U.S. Forest Service

### Water Quality Management Handbook

The 2011 Forest Service Region 5 Water Quality Management Handbook 2509.22, Chapter 10 (U.S. Forest Service 2011) includes requirements for best management practices (BMP) implementation monitoring of all projects with the potential to adversely affect water quality using a "checklist" approach. The USFS water quality protection program relies on implementation of prescribed BMPs. The checklists are the primary means for early detection of potential water-quality problems and should be completed early enough to allow corrective actions to be taken, if needed, prior to any significant rainfall or snowmelt throughout the duration of the project.

These BMPs are procedures and techniques that are incorporated in project actions and determined by the State of California to be the most effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals. Forest Service BMPs, as presented in the 2011 Handbook, include detailed descriptions of individual BMPs (section 12), a requirement that site-specific BMPs be included in timber sale contracts (section 13), and direction that legacy sites (sites disturbed by previous land use that is causing or has potential to cause adverse effects to water quality) within timber project boundaries will be restored or improved. Additionally, the 2011 Handbook amendment establishes an expanded water quality management monitoring program (section 16).

### National Best Management Practices for Water Quality Management on National Forest System Lands

Volume 1 – National Core BMP Technical Guide (FS-990a) directs compliance with required CWA permits and State regulations, and requires the use of BMPs to control nonpoint source pollution to meet applicable water quality standards and other CWA requirements. The Social and Ecological Resilience Across the Landscape (SERAL) BMP checklist was prepared to identify all of the applicable BMPs that need to be followed during implementation of the SERAL project.

## National Flood Insurance Act

The National Flood Insurance Act of 1968 established the National Flood Insurance Program in order to provide flood insurance within communities that were willing to adopt floodplain management programs to mitigate future

flood losses. The act also required the identification of all floodplain areas within the United States and the establishment of flood-risk zones within those areas. FEMA is the primary agency responsible for administering programs and coordinating with communities to establish effective floodplain management standards. FEMA is responsible for preparing Flood Insurance Rate Maps that delineate the areas of known special flood hazards and their risk applicable to the community. The program encourages the adoption and enforcement by local communities of floodplain management ordinances that reduce flood risks. In support of the program, FEMA identifies flood hazard areas throughout the United States on FEMA flood hazard boundary maps.

## Executive Order 11988

Under Executive Order 11988 – Floodplain Management, FEMA is responsible for management of floodplain areas defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a one percent or greater chance of flooding in any given year (the 100-year floodplain). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. The Order addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to avoid incompatible floodplain development, be consistent with the standards and criteria of the National Flood Insurance Program, and restore and preserve natural and beneficial floodplain values.

With respect to encroachment or placement of fill within a 100-year floodplain, 44 CFR 60.3(d)(3) prohibits encroachments, including fill, new construction, substantial improvements, and other development within an adopted regulatory floodway, unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.

However, 44 CFR 60.3(d)(4) indicates that notwithstanding any other provisions of § 60.3, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in BFEs, provided that the community first applies for a conditional FIRM and floodway revision, fulfills the requirements for such revisions as established under the provisions of § 65.12, and receives the approval of the Administrator. If a community proposes to permit an encroachment in the floodway or the floodplain that will cause increases in the BFE in excess of the allowable level, the community would be required to apply to the FEMA Regional Office for conditional approval of such action prior to permitting the project to occur.

As part of the application for conditional approval, the applicant must submit:

- A complete application and letter of request for conditional approval of a change in the FIRM or a Conditional Letter of Map Revision (CLOMR), along with the appropriate fee for the change.
- An evaluation of alternatives which, if carried out, would not result in an increase in the BFE more than allowed, along with documentation as to why these alternatives are not feasible.
- Documentation of individual legal notice to all affected property owners (anyone affected by the increased flood elevations, within and outside of the community) explaining the impact of the proposed action on their properties.
- Concurrence, in writing, from the chief executive officer of any other communities affected by the proposed actions.

- Certification that no structures are located in areas which would be affected by the increased BFE (unless they have been purchased for relocation or demolition).
- A request for revision of BFE determinations in accordance with the provisions of 44 CFR 65.6 of the FEMA regulations.

Upon receipt of the FEMA conditional approval of the map change and prior to approving the proposed encroachments, the applicant must provide evidence to FEMA that the community's floodplain management ordinance incorporates the post project condition BFEs (FEMA 2005).

In addition, based on 44 CFR 60.3(c)(10), if a community has a FIRM with BFEs along rivers or streams, but no mapped floodway, the applicant must evaluate proposed developments to ensure that the development will not increase flood stages by one foot. However, in some states, floodways are mapped based on allowing flood heights to increase by less than one foot. In those states, the encroachment certification must be based on that more restrictive state standard, not the FEMA standard that allows a one-foot rise (FEMA 2005). In California, development is not allowed unless certified to cause "no rise" (no increase) in BFEs. "No rise" certifications must be signed, sealed, and dated by a Professional Engineer licensed in California and qualified to conduct hydraulic analyses (California DWR 2020).

### 3.9.2.2 State

The Lassen facility feedstock area encompasses portions of the RWQCB Central Valley, North Coast, and Lahontan regions. The Tuolumne facility feedstock area encompasses portions of the RWQCB Central Valley and Lahontan regions. Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs developed and implement the North Coast, Central Valley, and Lahontan RWQCB Basin Plans, which consider regional beneficial uses, water quality characteristics, and water quality problems throughout their jurisdictional boundaries. The Basin Plans outline water quality parameters for inland surface waters and for groundwaters for a wide variety of water quality constituents. The plans also include the narrative and numerical water quality objectives that must be attained or maintained to protect the designated beneficial uses, conform to the state's anti-degradation policy, and describe implementation programs and other actions that are necessary to achieve the water quality objectives established in the Basin Plan.

#### NPDES Permits

The Lassen wood pellet facility, Tuolumne wood pellet facility, and Port of Stockton are located with the RWQCB Central Valley Region. Stormwater discharge to Municipal Separate Storm Sewer Systems (MS4s) in the RWQCB Central Valley Region are regulated under General Order R5-2016-0040, NPDES No. CAS0085324, National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements General Permit for Discharges from Municipal Separate Storm Sewer Systems, effective on October 1, 2016.

Lassen and Tuolumne Counties do not operate under a county-specific MS4 permit. However, stormwater runoff in Tuolumne County is regulated in accordance with the Tuolumne County Water Quality Plan (Tuolumne County 2007), which addresses water quality issues in terms of the State General Permit. Regulatory requirements in the water quality plan were developed consistent with the Tuolumne County General Plan Goal 4.L, which directs the County to maintain and conserve the quality and quantity of the County's water resources, while protecting the rights of the land owners. The goal is intended to apply to all of the County's unincorporated lands and emphasizes

approaches to minimizing and preventing the discharge of non-point source pollutants into contributing drainages of local waterways.

Stormwater runoff in the City of Stockton is regulated under the City NPDES Municipal Stormwater Program, Stormwater Management Plan, which includes existing and enhanced program control measures and represents strategies for controlling the discharge of pollutants from the municipal storm drain system to the maximum extent practicable (City of Stockton 2009). The Port of Stockton MS4 is regulated under Order No. R5-2016-0040-011 (NPDES Permit No. CAS0085324), Stockton Port District, Facility-Wide Storm Water Discharges From Municipal Separate Storm Sewer System and Non-Storm Water Discharges From the Port of Stockton.

### Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including surface water and groundwater) and directs the RWQCBs to develop regional water quality control plans. Section 13170 of the California Water Code authorizes the SWRCB to adopt water quality control plans on its own initiative.

### Waste Discharge Requirements

All dischargers of waste to waters of the state are subject to regulation under the Porter-Cologne Water Quality Control Act, and the requirements for WDRs are incorporated into Section 13263 of the California Water Code. This includes point-source and nonpoint-source dischargers. All current and proposed nonpoint-source discharges to land must be regulated under WDRs, waivers of WDRs, a water quality control plan prohibition, or some combination of these administrative tools. Discharges of waste directly to state waters are subject to an individual or general NPDES permit, which also serves as WDRs. The RWQCBs have primary responsibility for issuing WDRs to cover a category of discharges. WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions. Violations of WDRs may be addressed by issuing Cleanup and Abatement Orders or Cease and Desist Orders, assessing administrative civil liability, or seeking imposition of judicial civil liability or judicial injunctive relief.

### Waiver of Waste Discharge Requirements

The California Regional Water Quality Control Board, North Coast Region, Order No. R1-2015-0021, Waiver of Waste Discharge Requirements for Nonpoint Source Discharges Related to Certain Federal Land Management Activities on National Forest System Lands in the North Coast Region (North Coast RWQCB Waiver of Waste Discharge Requirements) (North Coast RWQCB 2015) covers discharges from nonpoint source activities that have the potential to discharge wastes that may affect waters of the state. Most of the potential water quality impacts would be associated with erosion and sediment delivery and/or alterations to riparian systems that may reduce shade and affect water temperatures, including timber harvesting, road use and maintenance, grazing, recreation, vegetation management, vegetation restoration, fire suppression, and fire salvage. Sediment and temperature TMDLs have been developed for the majority of the impaired waters in the North Coast Region. The conditions in the Waiver of Waste Discharge Requirements provide reasonable assurance that sediment, temperature, and nutrient impairments on U.S. Forest Service lands would be restored by requiring (1) protection, maintenance, and enhancement of riparian conditions and shade; (2) inventories and remediation of legacy sediment sites; (3) the application of BMPs and on-the-ground prescriptions on U.S. Forest Service land to avoid excess sediment discharges and to improve shade; and 4) periodic review, monitoring, and reassessment.

A similar waiver applies to the Central Valley Region: California Regional Water Quality Control Board, Central Valley Region, Order No. R5-2018-0017, Renewal of Conditional Waiver of Waste Discharge Requirements for Discharges Related to Timber Harvesting Activities, which would apply to the Proposed Action in the Sacramento River Basin of the Central Valley Region. This waiver is a renewal of the 1981 Water Quality Management for National Forest System Lands in California, which was developed and submitted by the Forest Service for specified activities on National Forest System lands in California that may result in nonpoint source discharges, including timber management, vegetative manipulation, fuels management, road construction, and watershed management (Central Valley RWQCB 2019).

Similarly, with respect to the Lahontan Region, Order No. R6T-2014-0030, Conditional Waiver of Waste Discharge Requirements for Waste Discharges Resulting from Timber Harvest and Vegetation Management Activities in the Lahontan Region, regulates waste discharges resulting from timber harvest and vegetation management. This waiver applies to vegetation management projects that range from homeowner defensible space operations to local Fire Protection District community protection plans, to large wildland/urban interface projects proposed by the California Department of Parks and Recreation, the Bureau of Land Management, and the Forest Service. Commercial timber harvest conducted by small landowners, industrial timber companies, and the Forest Service are also covered under the waiver. This waiver structures the enrollment conditions and implementation and monitoring requirements based on levels of increasing potential risk to water quality, focusing on sedimentation from disturbed land and solar/thermal heating of surface waters after vegetation is removed (Lahontan RWQCB 2014). The 2014 waiver was renewed in March 2019 by Order No. R6T-2019-0240 (Lahontan RWQCB 2019), and is in the process of being renewed again.

### NPDES Construction Stormwater General Permit

Effective September 1, 2023, Construction Stormwater General Permit Order 2022-0057-DWQ supersedes SWRCB Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ (i.e., the former CGP). SWRCB adopted the current CGP on September 8, 2022. The order requires that, prior to beginning any construction activity, the permit applicant obtain coverage under the CGP by preparing and submitting to the SWRCB a Permit Registration Document that includes a Notice of Intent, Stormwater Pollution Prevention Plan (SWPPP), and other compliance related documents required by the CGP. Regulating many stormwater discharges under one general permit greatly reduces the administrative burden associated with permitting individual stormwater discharges.

Construction activities subject to the NPDES CGP include clearing, grading, and disturbances to the ground (e.g., stockpiling or excavating), which result in soil disturbances of at least 1 or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than 1 acre of land surface. Because construction of individual projects within the Specific Plan area would cumulatively disturb more than 1 acre, all improvements and development activities would be subject to these permit requirements. The SWPPP has two main objectives: to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges, and to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges.

### Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package—Assembly Bill 1739 (Dickinson), Senate Bill 1168 (Pavley), and Senate Bill 1319 (Pavley)—collectively known as SGMA, which requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within

20 years of implementing their sustainability plans. For critically overdrafted basins, sustainability should be achieved by 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. Through SGMA, the California Department of Water Resources (DWR) provides ongoing support to local agencies through guidance, financial assistance, and technical assistance. SGMA empowers local agencies to form Groundwater Sustainability Agencies to manage basins sustainably and requires those Groundwater Sustainability Agencies to adopt Groundwater Sustainability Plans (GSPs) for medium- and high-priority groundwater basins in California.

### Senate Bill 610 and Senate Bill 221: Water Supply Assessments and Water Supply Verifications

SB 610 and SB 221, amended into state law effective January 1, 2002, improve the linkage between certain land use decisions made by cities and counties and water supply availability. The statutes require detailed information regarding water availability and reliability with respect to certain developments to be included in the administrative record, to serve as evidentiary basis for an approval action by the city or county on such projects. Under Water Code Section 10912(a), projects subject to the California Environmental Quality Act (CEQA) requiring a water supply assessment include: residential development of more than 500 dwelling units; shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space; commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space; hotel, motel or both, having more than 500 rooms; industrial, manufacturing, or processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land or having more than 650,000 square feet of floor area; mixed-use projects that include one or more of the projects specified; or a project that would demand an amount of water equivalent to or greater than the amount required by a 500 dwelling unit project. A fundamental source document for compliance with SB 610 is the Urban Water Management Plan, which can be used by the water supplier to meet the standard for SB 610. SB 221 applies to the applicant of a subdivision map of 500 dwelling units or more to verify that the public water supplier has sufficient water available to serve the proposed development. Related to Water Code Section 1912(a) is California Water Code Section 10910(d)(2), which requires the identification of existing water supply entitlements, water rights, or water service contracts; federal, state, and local permits for construction of necessary infrastructure, and any regulatory approvals required in order to be able to deliver the water supply.

### California Water Code, Section 12924

Under California Water Code Section 12924, the California DWR, in conjunction with other public agencies, conducts investigations of the state's groundwater basins. The DWR identifies the state's groundwater basins on the basis of geological and hydrologic conditions and with consideration of political boundary lines whenever practical. The DWR also investigates existing general patterns of groundwater extraction and groundwater recharge within those basins to the extent necessary to identify basins that are subject to critical conditions of overdraft.

### California Building Standards Code

The state regulations protecting structures from geo-seismic hazards are contained in the California Building Code (CBC) (24 CCR Part 2), which is updated on a triennial basis. These regulations apply to public and private buildings in the state. Until January 1, 2008, the CBC was based on the then-current Uniform Building Code and contained additions, amendments, and repeals specific to building conditions and structural requirements of the State of California. The 2022 CBC, effective January 1, 2023, incorporates by reference the 2021 International Building Code of the International Code Council, with necessary California amendments.

The updated 2022 CBC requires new flood hazard documentation, in accordance with Chapter 16, Section 1612.4. Item 1.3 requires the flood emergency plan required by American Society of Civil Engineers (ASCE) 24 to be included in construction documents. ASCE 24-14, Flood Resistant Design and Construction, states the minimum requirements and expected performance for the siting and design and construction of buildings and structures in flood hazard areas that are subject to building code requirements. Types of buildings and structures include commercial, residential, industrial, educational, healthcare, critical facilities, and other occupancy types. Buildings and structures designed according to ASCE 24 are better able to resist flood loads and flood damage. FEMA deems ASCE 24 to meet or exceed the minimum NFIP requirements for buildings and structures. ASCE 24 includes additional specificity, some additional requirements, and some limitations that are not in NFIP regulations. Buildings and structures within the scope of the International Building Code and proposed to be located in any flood hazard area must be designed in accordance with ASCE 24.

## 3.9.2.3 Local

### Lassen County

#### Lassen County General Plan

The Lassen County General Plan 2000 Land Use Element includes a section on Flood Hazard Areas. In addition, the Natural Resources Element includes a section on Water Resources. Relevant goals and policies from these elements include the following.

Goal L-21. Minimize damage caused to and by development within areas which are subject to flooding.

Policy LU-46. The County shall continue to discourage inappropriate development in areas subject to flooding as indicated in the most recent and effective Flood Insurance Rate Maps adopted by the Federal Emergency Management Agency; said maps being hereby incorporated by reference into this Land Use Element.

Policy LU-47. Land within identified 100-year flood hazard areas should be zoned for agricultural uses or other relatively low-intensity land uses.

Implementation Measure:

- LUCC - The County shall continue to comply with and enforce the flood plain management regulations of its Flood Damage Prevention Ordinance, and to participate in the National Flood Insurance Program. This shall include review by the County of proposed project and building permit sites in respect to designated flood hazard areas.

Policy LU-48. In consideration of proposed development within areas subject to flooding, the County shall encourage the use of sites outside of flood prone areas when such alternatives exist and options are feasible.

Goal N-3. Water supplies of sufficient quality and quantity to serve the needs of Lassen County, now and in the future.

Policy NR-13. The County recognizes the critical importance and future value of its water resources and shall support the conservation of water supplies and protection of water quality.

Policy NR-14. The County supports efforts by state and Federal agencies, including the California Department of Water Resources, to monitor the quantity and quality of the County's water supplies and to protect the water resources of the County when such efforts are demonstrated to be based on sound, scientific assessment of potentially adverse impacts to those resources.

Policy NR-15. The County advocates the cooperation of state and Federal agencies, including the State Water Resources Control Board and its regional boards, in considering programs and actions to protect the quality of groundwater and surface water resources.

Policy NR-16. The County supports the continued use of appropriated and adjudicated surface water rights.

Policy NR-17. The County supports measures to protect and insure the integrity of water supplies and is opposed to proposals for the exportation of groundwater and surface waters from ground water basins and aquifers located in Lassen County (in whole or part) to areas outside those basins.

Implementation Measure:

- NR-H - The County will maintain groundwater ordinances and other forms of regulatory authority to protect the integrity of water supplies in Lassen County and regulate the exportation of water from ground water basins and aquifers in the county to areas outside those basins.

Policy NR-18. The County may adopt specific resource policies and development restrictions to protect specified water resources (e.g., Eagle Lake, Honey Lake, special recharge areas, etc.) to support the protection of those resources from development or other damage which may diminish or destroy their resource value.

Policy NR-19. The County supports control of water resources at the local level, including the formation of local groundwater management districts to appropriately manage and protect the long-term viability of groundwater resources in the interest of County residents and the County's resources.

Goal N-5. The development of new, well-planned reservoirs and other facilities and projects for water supply and/or flood control purposes which will benefit related resources and provide opportunities for multiple public benefits.

Policy NR-21. The County encourages feasibility studies for and, when appropriate, the development of new, well-planned reservoirs and the conservation and replenishment of water resources through means such as infiltration basins and reinjection when feasible.

Policy NR-22. Plans for reservoirs, flood control facilities and other water supply and flood control programs and projects shall regard the related impacts and cost-benefit relationships to other resource

values and land uses which may be affected, and shall consider opportunities and design elements to achieve multiple public benefits including recreation and enhancement of wildlife and fishery resources.

Goal N-6. Eliminate the threat of flood events which may result in the loss of lives and major damage to property and resources.

Policy NR-23. The County supports interagency cooperation.in developing programs and considering projects to protect people, property and resources from the threat of and damages from flood events.

Policy NR-24. The County encourages feasibility studies, planning projects and, when appropriate, the development of new, well-planned reservoirs, flood channels and other facilities and programs which can serve to control flooding and help reduce flood-related damage.

### Lassen County Hazard Mitigation Plan

The primary purpose of a Local Hazard Mitigation Plan (LHMP) is to identify community policies, actions, and tools for implementation over the short and long-term that will result in a reduction in risk and potential future losses community wide. This is accomplished by using a systematic process of learning about the hazards that can affect each of the participating jurisdictions, setting clear goals and objectives, identifying and implementing appropriate actions, and keeping the plan current. The Lassen County Operational Area LHMP is an integral part of a multi-pronged approach to minimizing personal injury and property damage from natural, manmade, and technological hazards, including flooding, and it complements other planning documents and regulatory authorities governing pre-disaster land use planning and post-disaster response and recovery. It is intended to set the tone for the implementation of hazard mitigation practices that will build a disaster resistant and sustainable community.

The impetus and authority to create this plan is derived from the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000. In response to escalating disaster costs, the federal government adopted the Disaster Mitigation Act of 2000, which places emphasis on hazard mitigation planning. Under the Disaster Mitigation Act of 2000, state and local governments are required to have a FEMA-approved LHMP to be eligible for Hazard Mitigation Assistance grants.

Lassen County, the City of Susanville, and the Susanville Indian Rancheria are working cooperatively to update the October 2018 Lassen County Operational Area LHMP. The Lassen County Department of Planning and Building Services is responsible for coordinating this effort. FEMA requires that LHMPs be updated every five years and the current LHMP expired on January 15, 2024.

### Lassen County Code

#### Title 12, Buildings and Construction, Article I. Building Code, Chapter 12.12, Uniform Plumbing Code

This chapter describes requirements for septic tanks that would ensure lot size and soil conditions would adequately support such facilities. As part of the code requirements, a flow test may be required to the point of effluent disposal, and it must be demonstrated that all lines and components are watertight.

### Title 12, Buildings and Construction, Article I. Building Code, Chapter 12.26, Flood Damage Prevention

This chapter includes methods and provisions that:

1. Restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;
2. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
3. Control the alteration of natural floodplains, stream channels and natural protective barriers, which help accommodate or channel floodwaters;
4. Control filling, grading, dredging and other development which may increase flood damage; and
5. Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas. (Ord. 2014-003 § 2)

### Title 17, Groundwater, Chapter 17.01, Extraction and Exportation

This chapter describes how the County seeks to foster prudent water management practices to avoid significant adverse overdraft-related environmental, social, and economic impacts. In order to assure protection of the County's important groundwater resources the County requires a permit to extract groundwater for use outside the County. This chapter requires a permit for the export of groundwater outside the county and is not intended to regulate groundwater in any other way. The County in no way intends to limit either the County or other public entities, including the Lassen-Modoc County Flood Control and Water Conservation District, in managing groundwater under the Groundwater Management Act, the Honey Lake Valley Groundwater Basin Act, the Long Valley Groundwater Basin Act, the Willow Creek Valley Groundwater Basin Act, the Surprise Valley Groundwater Basin Act, and any other applicable laws in a manner consistent with any groundwater management plan adopted by the County or the Districts. (Ord. 539 § 1, 1999).

### Title 17, Groundwater, Chapter 17.02, Basin Management Objectives

The purpose of this chapter is to establish a basin management objective program to facilitate the understanding and public dissemination of groundwater in Lassen County. The basin management objective program does not, and is not intended to, regulate any action or inaction; establish or increase any fees; or impose a penalty for any action or inaction. It is the purpose and intent of this chapter to establish an effective policy concerning groundwater that will assure that the overall economy and environment of the county is protected. Through adoption of this chapter, the Board of Supervisors seek to protect the health, safety, and welfare of county residents. The Board does not intend to determine whether any groundwater in storage above established basin management objectives is surplus groundwater, to define surplus groundwater, or to impose fees, assessments, charges, or taxes upon county residents and or business owners. (Ord. 2012-002 § 2)

## Tuolumne County

### Tuolumne County General Plan

The 2018 Tuolumne County General Plan Water Supply Element includes goals and policies pertaining to groundwater supply and watershed protection. In addition, the Natural Resources Element includes goals and policies pertaining to flood hazards. Relevant goals and policies from these elements include the following.

Goal 14A. Pursue adequate water supply for all Tuolumne County residents and visitors.

Policy 14.A-3. Work with other agencies in developing joint water policies supporting healthy watershed management.

Implementation Programs:

- 14.A.e - Implement the Tuolumne County Water Action Plan: Developing a Plan for Our Future adopted by the Board of Supervisors on April 7, 2015, as it may be amended from time to time.
- 14.A.f - Collaborate with the other agencies and water purveyors to develop a Comprehensive Water Resources Plan to manage and protect the County's water resources by developing and prioritizing a list of water resources projects and a monitoring program. Utilize planning reports from the Tuolumne-Stanislaus Integrated Water Management Authority (IRWM) in future water planning efforts.

Policy 14.A-5. Manage groundwater resources consistent with the requirements of the Sustainable Groundwater Management Act, in response to the probability that the State will extend regulations to the County of Tuolumne.

Implementation Program:

- 14.A.h - Use of groundwater recharge to help stabilize and supplement groundwater levels and protect water supplies. Discourage incompatible development near groundwater recharge stations, such as ponds, basins and tanks, that could affect the recharged groundwater levels.

Policy 14.A-6. Encourage water purveyors to provide an adequate water supply to meet long term needs in a manner that is consistent with this General Plan and urban water management plans and that maintains water resources for water users while protecting the natural environment.

Policy 14.A-7. Encourage the beneficial capture and utilization of stormwater to promote healthy watersheds, fire-safe landscapes, and groundwater recharge.

Goal 14.B. Pursue adequate water supply for all Tuolumne County residents and visitors.

Policy 14.B.1. Support water districts in establishing conservation standards to reduce demand for water.

Implementation Program:

- 14.B.a - Support the efforts, such as funding applications and inter-agency coordination, of water agencies and districts to prevent the depletion of water resources and promote the conservation and reuse of water.

Policy 14.B.2. Increase water conservation efforts to maximize water use efficiency within Tuolumne County through conservation, recycling and education.

Implementation Program:

- 14.B.b - Encourage water reuse programs in new development to conserve raw or potable water supplies consistent with State Water Resources Control Board guidelines through the application review process.
- 14.B.f - Prohibit any processing activities with high water use practices near areas where groundwater overdraft problems exist, unless the facility uses water recycling and conservation techniques that minimize effects of water use on the groundwater table.
- 14.B.i - Explore the feasibility of reducing wastewater through the use of dry/composting toilets in new construction consistent with Goal 3E.

Goal 14.C. Protect and improve the quality and quantity of the County's water resources, while protecting the rights of land owners.

Policy 14.C.1. Protect the quality of the County's water resources by supporting the efforts of local districts to maintain infrastructure and cross-connect sewer systems and ensuring Tuolumne County's development standards are adequate to protect surface and groundwater resources from contamination.

Implementation Programs:

- 14.C.a - Maintain local source water protection and wellhead protection programs in the Tuolumne County General Plan, such as setbacks, to protect the sources of drinking water supplies.
- 14.C.b - Implement grading and surface runoff standards, such as retention and detention, permeable surfaces and recharge, necessary to protect water resources in compliance with State and Federal water quality regulations and with the County's water quality plan.

Policy 14.C.5. Develop and evaluate criteria to allow limited development to occur where harmful area-wide impacts to groundwater exist based on known hazard areas when feasible.

Implementation Program:

- 14.C.f - Consider creating and maintaining soil maps that identify areas of high ground water, impervious soils, limestone or other hazards which, either by themselves or in combination, create potentially serious health conditions due to failing septic systems or which are inappropriate for on-site sewage treatment and disposal on an areawide basis. Continue to

develop and evaluate criteria to allow development to occur in areas of high groundwater, impervious soils, limestone or other hazards without degrading the water resources.

Policy 14.C.7. Recognize that clean water is essential to the public health, safety and welfare, fosters economic development and job creation, protects the environment, maintains fish and wildlife, and supports recreation.

Policy 14.C.8. Encourage water resources to be protected from pollution, conserved, and recycled whenever possible to provide for continued economic, community, and social growth.

Implementation Program:

- 14.C.h - Continue to regulate the exportation of groundwater to preserve the County's limited groundwater reserves for use by its residents and businesses through the provision of Chapter 13.20 of the Tuolumne County Ordinance Code.

Policy 14.C.9. Promote improved watershed health, improved water quality and water quantity yields of the watersheds in Tuolumne County.

Implementation Program:

- 14.C.i - Promote the development of plans for watershed rehabilitation projects which provide for such watershed improvements.
- 14.C.j - Initiate or assist in the formulation of plans for watershed rehabilitation projects with the County serving as the coordinating agency for the various stakeholders in such a plan, such as property owners, water agencies, other public agencies, private industry, recreational facility providers and other interested groups and organizations. Provide technical assistance in the development of plans for watershed rehabilitation projects through such means as data sharing.
- 14.C.k - Cooperate and consult with Federal, State and local agencies, such as the Tuolumne County Water Agency, in promoting the stewardship of the watersheds within the County. Consult with these agencies to avoid duplication of effort and to maximize use of public resources in working towards a common goal of improving the watersheds within Tuolumne County which will, in turn, contribute to the State and Federal objective of providing long-term Bay-Delta recovery and protection.
- 14.C.l - Support the Tuolumne County Resource Conservation District in its efforts to improve watersheds within Tuolumne County, including stream water quality sampling, which can assist agencies where to direct their efforts.
- 14.C.m - Submit applications for grants which become available for funding for County initiated or sponsored watershed rehabilitation projects and support the efforts of other public agencies and water agencies, such as the Tuolumne County Water Agency, Tuolumne-Stanislaus Integrated Regional Water Management Authority and other entities in their efforts to seek funding for watershed improvement projects. This support may manifest itself in such ways as adopting a resolution of support or co-sponsoring an application for funding for a watershed project.

Goal 17.B. Protect structures and land uses from flood hazards in order to minimize loss of life, injury, damage to property, and economic and social dislocations.

Policy 17.B.1. Reduce the potential for future damages and economic losses that result from flood hazards by implementing the Tuolumne County Multi-Jurisdictional Hazard Mitigation Plan.

Policy 17.B.2. Reduce the potential for damage to property within the 100 year floodplains as designated on the Federal Emergency Management Agency, Flood Insurance Rate Maps and other areas prone to flooding due to rain or dam failure, through limitations on land use.

Implementation Programs:

- 17.B.a - Implement and enforce the Flood Damage Prevention Ordinance, Chapter 15.28 of the Tuolumne County Ordinance Code, as it pertains to designated "special flood hazard areas", as identified on the Flood Insurance Rate Maps.
- 14.B.b - Review and notify FEMA of errors or other information to correct or update FIRM maps.

Policy 17.B.3. Solve flood control problems in areas where existing development has encroached into a floodplain.

Implementation Programs:

- 17.B.c - Encourage property owners with existing structures within areas subject to flooding, whether identified on the Flood Insurance Rate Maps or not, to conform to the requirements of the Flood Damage Prevention Ordinance.
- 14.B.d - Based upon the Flood Insurance Rate Maps, provide notification to the owners of property within designated floodplains of the consequences of constructing within the floodplain.

Policy 17.B.4. Projects proposed within areas identified on the dam failure inundation maps designated by the Office of Emergency Services and evacuation plans on file with the County Office of Emergency Services shall not be approved if a project presents a direct threat to human life or structures. Projects should be modified to ensure public safety.

Implementation Programs:

- 17.B.g - Regularly update the Emergency Operations Plan for Tuolumne County, which addresses dam failures in the Flood Annex. In the event of a dam failure, the Emergency Operations Plan refers to the Emergency Action Plan of the owner agency of the dam. The County will notify and assist in evacuation along federally designated flood plains.

Goal 17.C. Manage floodplains for their natural resource value.

Policy 17.C.1. Minimize the risk from flood hazards through land use planning and the avoidance of incompatible structural development in floodplains.

Implementation Programs:

- 17.C.a - Utilize regulatory methods of flood control, such as designating identified floodplains and drainage easements as Open Space, where possible, rather than construction-related methods of flood control. Regulatory methods reduce the need for flood control projects, minimize losses in areas where flooding is inevitable, and attempt to notify those who own property in flood hazard areas of the risks and that they should assume responsibility for their actions.
- 14.C.b - Maintain stream carrying capacity by continuing to regulate new fill, grading, dredging, and other new development which may increase flood damage by increasing sedimentation in streams and watercourses, or by constricting water courses with structures for roads and driveways. Encourage owners of land and improvements within floodplains to maintain the stream carrying capacity by allowing thinning of dense vegetation, subject to approval of the Community Resources Agency.

Policy 17.C.2. Continue to require evaluation of potential flood hazards prior to approval of development projects and require on-site mitigation to minimize off-site flows.

Implementation Programs:

- 17.C.c - Proponents of new development shall submit accurate topographic and flow characteristics information and depiction of the 100-year floodplain boundaries under fully developed, unmitigated conditions.
- 14.C.d - Review policies and available data concerning development in floodplains to ensure lives and property are not at risk from future flood conditions.
- 14.C.e - Require new development to mitigate impacts on downstream drainages if new development results in increased peak flows due to project-generated stormwater runoff. Measures necessary to mitigate impacts will be attached to development entitlements issued by the County, which may include retention/detention facilities, permeable surfacing materials, greywater systems, and green roofs.

Policy 17.C.3. Strive to maintain natural conditions within the 100-year floodplain of rivers and streams in order to maintain stream capacity except under the following circumstances:

a. Where work is required to restore the stream's drainage characteristics and where such work is done in accordance with the Tuolumne County Water Quality Plan, County Flood Damage Prevention Ordinance, California Department of Fish and Wildlife regulations, and Clean Water Act provisions administered by the U.S. Army Corps of Engineers; or
b. When facilities for the treatment of development generated runoff can be located in the floodplain provided that there is minimal destruction of riparian vegetation, and such work is done in accordance with the County Flood Damage Prevention Ordinance and California Department of Fish and Wildlife regulations.

Implementation Programs:

- 17.C.f - Maintain essential public facilities, such as culverts and drainage facilities along County maintained roads, and eliminate logjams and other obstructions from bridges.

### Tuolumne County Code

#### Chapter 13.08, On-Site Sewage Treatment and Disposal Code

This chapter describes requirements for septic tanks that would ensure soil conditions would adequately support such facilities. As part of the code requirements, any new disposal systems or modifications to an existing system require a permit from the County's Environmental Health Division, which would review the site and location of such systems and confirm that the installation of such a system at that location is feasible and would not result in significant impacts. In addition, this Chapter establishes minimum requirements for the protection of public health, welfare, and safety in the design, construction, maintenance, and use of sewage disposal systems and to protect surface and groundwater from contamination by inadequately treated sewage.

#### Chapter 13.20, Groundwater Management

This chapter focuses on preventing the export of groundwater supplies outside Tuolumne County. It is essential for the protection of the environment as well as the health, welfare, and safety of the residents of Tuolumne County in addition to land use planning and regulation, that groundwater resources within the County be protected from potential harm resulting from the extraction of groundwater for use on lands outside the basin from which the water is taken, particularly when those lands that lay outside the boundaries of the County. With exceptions, is unlawful for any person to extract groundwater underlying the County, directly or indirectly, for use outside of County boundaries, or to replace water transported outside County boundaries, without first obtaining a conditional use permit.

#### Chapter 15.24, Flood Damage Prevention

It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by legally enforceable regulations applied uniformly throughout the County, to all publicly and privately owned land within flood prone or flood related erosion areas.

## City of Stockton

### City of Stockton 2040 General Plan

The City's 2018 Envision Stockton 2040 General Plan includes a Safety Element that addresses flooding. Relevant Safety Element goals and policies include the following.

Policy SAF-2.3. Protect the community from potential flood events.

Action SAF-2.3A. Coordinate with appropriate State, federal, and local flood control agencies to develop a flood protection plan for the levee systems protecting the city that:

- Identifies the levees protecting the city and the entities responsible for the operation and maintenance of the levees;

- Determines the flood levels in the waterways and the level of protection offered by the existing levees along the waterways;
- Identifies a long-term plan to upgrade the system as necessary to provide at least a 100-year level of flood protection to the city, and 200-year level of flood protection, where feasible;
- Encourages multi-purpose flood management projects that, where feasible, incorporate recreation, resource conservation, preservation of natural riparian habitat, and scenic values of the city's streams, creeks, and lakes; and
- Includes provisions for updates to reflect future State or federally mandated levels of flood protection.

Action SAF-2.3B. Collaborate with State and local flood management agencies and other interested parties to develop funding mechanisms to finance the local share of flood management responsibilities, and maintain cooperative working relationships with appropriate agencies to minimize flood hazards and improve safety.

Action SAF-2.3C. Require new public and private waterfront development to be oriented to waterways and provide setbacks and easements along levees and channels to provide space for levee widening, flood fighting, roadway and maintenance access, open space and trail amenities, and appropriate landscaping.

Action SAF-2.3D. Prepare and maintain a map of evacuation routes for major flood events.

Policy SAF-2.4. Minimize risks to the community from flooding through appropriate siting and protection of structures and occupants.

Action SAF-2.4A. Regulate new urban development in accordance with State requirements for 200-year level of flood protection and federal requirements for 100-year level of flood protection.

Action SAF-2.4B. Investigate and implement when feasible mitigation measures that offer 200-year level of flood protection for existing urban development in flood-prone areas.

Action SAF-2.4C. Preserve floodways and floodplains for non-urban uses to maintain existing flood carrying capacities, except when mitigated in conformance with the City's floodplain management program.

Action SAF-2.4D. Consider the best available flood hazard information and mapping from regional, State, and federal agencies to inform land use and public facilities investment decisions.

## 3.9.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to hydrology and water quality are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to hydrology and water quality would occur if the project would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
  - result in a substantial erosion or siltation on- or off-site;
  - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
  - create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
  - cause the proposed development, when combined with all other existing and anticipated development, to increase the water surface elevation of the base flood more than one foot at any point within the community;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

## 3.9.4 Impact Analysis

### 3.9.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to hydrology and water quality. The impact analysis evaluates potential project impacts during both construction and operation. The following analysis of impacts related to hydrology and water quality is based on publicly available information project-specific technical reports, and policies described above in Section 3.9.2, Regulatory Setting. Technical reports prepared for the project include those listed in the introduction to this EIR section.

### 3.9.4.2 Project Impacts

Impact HYD-1 The project may violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Soil Erosion

As discussed in detail in Section 3.6.4, Impact Analysis, Impact GEO-2, forest thinning activities could potentially result in sediment releases due to exposure of previously stabilized soils to rainfall/runoff and wind. Such activities include the removal of vegetation and disturbance of soil by equipment. Environmental factors that affect erosion include topographic, soil, and rainfall characteristics. Erosion and sedimentation affect water quality and interferes with photosynthesis; oxygen exchange; and the respiration, growth, and reproduction of aquatic species. According to the USGS National Hydrography Dataset, the Northern California Feedstock Area intersects 157 watersheds and 42,476 linear miles of streams, rivers, canals, and ditches (USGS 2023). Soils most susceptible to erosion are those high in coarse silt- and fine sand-sized particles (Balasubramanian 2017), particularly when organic matter content is low and soil structure is weak or nonexistent. Erosion can be substantially minimized by avoiding certain actions on highly erosive soils, choosing management activities appropriate for given slopes, and by managing the maintenance of soil cover (USDA Forest Service 2009).

The likelihood of erosion is greater when the vegetative cover is removed or reduced, the soil is otherwise disturbed, or when both of these conditions exist. Soil erosion by water is more aggressive on steep slopes than on shallow slopes (e.g., 10% gradient or less), because at lower slope gradients surface runoff cannot reach peak velocities necessary to erode the soil. In general, areas with less vegetative cover are more prone to soil erosion than heavily vegetated areas, because surface cover and additional soil structure from plant roots can reduce soil erosion potential. Soil erosion can also be caused by wind in areas with a combination of high winds, removed or disturbed vegetation, fine sandy or silty textures, and low organic matter content. The erosion rate of a particular soil in the absence of human activities is referred to as the natural (background) or geologic erosion rate. Soil erosion in excess of the natural erosion rate is called accelerated soil erosion and is usually caused by poorly implemented human activities such as timber harvesting, road construction, grading, and other land-disturbing activities (Robichaud et al. 2010).

Studies by the California Geological Survey indicate that areas with more abundant landslides result in excessive erosion and sedimentation of downstream drainages. This is particularly true for watersheds underlain by the Franciscan Formation, a widespread geologic formation in California characterized by abundant deep-seated landslides and earthflows. Long duration precipitation results in localized shallow failures, gully erosion, and erosion of the in-channel toes of these large unstable features, which in turn results in excessive sedimentation of water bodies (CGS 2002).

#### Roads and Erosion

As discussed in detail in Section 3.6.4, Impact Analysis, Impact GEO-2, roads are ubiquitous in the forest environment and typically have very low infiltration rates and, as a result, generate large amounts of surface runoff. Road surfaces are subjected to rain-splash, and the combination of rain-splash with large amounts of surface runoff results in surface erosion rates that are several orders of magnitude higher than the adjacent undisturbed forest. Research has consistently shown that roads, including tractor skid trails and log landings, have the greatest effect on erosion of all practices associated with forest management. Roads affect geomorphic processes by increasing mass wasting and surface erosion; altering stream channel morphology; extending stream channel networks by modifying surface flows; and causing interactions of water, sediment, and wood at road stream crossings. Although

other forest management activities usually occur on a larger proportion of the landscape, the erosion rates on roads are the dominant source of sediment in most managed forests. Road erosion rates generally increase with increased traffic, and heavy vehicles tend to cause more erosion than light vehicles. Higher use also is associated with more frequent maintenance operations, and grading increases the amount of available sediment and road erosion rates (Robichaud et al. 2010; USDA Forest Service 1980, 2012).

As set forth in Section 2.4, each GSNR Biomass Only Thinning Project could include construction of up to 1.0 mile of low-standard (i.e., unpaved roads) per project. The only in-stream disturbance of streams during project implementation would be at designated stream crossings to access treatment sites. In addition, existing unpaved roads would be improved and maintained as part of feedstock acquisition. Road construction and maintenance in hillside areas typically involves pushing sediments over the downslope side of the road (i.e., sidecast material), which can result in thick accumulation of sediments on the hillsides. These sediment accumulations would be subject to excessive erosion and siltation of down-slope water bodies during precipitation events. Mass wasting events could occur during periods of high intensity precipitation, resulting in substantial quantities of sediment in downstream water bodies. Increased sediment in downstream water bodies could contribute to increased sediment that would be in excess of USEPA TMDL requirements for sediment and turbidity.

Feedstock acquisition on both flat and hillside unpaved roads would result in heavy truck traffic, which could result in surface erosion rates that are several orders of magnitude higher than the adjacent undisturbed forest. As described above, research has consistently shown that roads have the greatest effect on erosion of all practices associated with forest management. Although other forest management activities usually occur on a larger proportion of the landscape, the erosion rates on roads are the dominant source of sediment in most managed forests. As a result, erosion from unpaved roads during feedstock acquisition could result in **potentially significant** erosion and siltation and downstream water bodies. However, PDFs (see Section 2.4) would minimize the potential for erosion during road construction, maintenance, and use. PDF-GEO-1 requires suspension of road use during wet winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). In addition, **MM-HYD-1** requires protection of water quality at stream crossings by minimization of the number of crossings; selection of crossings where the erosion potential is low; use of a temporary bridge, culvert, or log culvert to minimize siltation of the stream; using suitable drainage measures to disconnect the road from the waterbody; and removal and stabilization of the stream crossing prior to the winter rainy season. With implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1**, Protection of Existing Water Bodies, potential significant impacts would be reduced to less than significant levels.

### Forest Thinning and Erosion

As discussed in detail in Section 3.6.4, Impact Analysis, Impact GEO-2, numerous studies have evaluated the effects of timber harvest on runoff, water quality, erosion, and sediment yields. The removal of forest cover, including tree canopy and other vegetation, decreases interception and transpiration, and in wetter areas, this generally increases annual water yields. No measurable increase in runoff can be expected from thinning operations that remove less than 15% of the forest cover or in areas with less than 18 inches of annual precipitation. Since evapotranspiration rapidly recovers with vegetative regrowth in partially thinned areas, any increase in runoff due to thinning operations is likely to persist for no more than 5 to 10 years. The timing of the increase in runoff due to forest harvest is

important because of the potential impact on water supplies, sediment transport capacity, bank erosion, and aquatic ecosystems. If forest harvest only increases low or moderate flows, one would expect little or no change in channel erosion or sediment yields. An increase in larger flows provides a mechanism for increasing annual sediment yields. Because the climate in northern California is dry in summer and rainy during the winter, the largest increase in runoff occurs in the fall to early winter. In snow-dominated environments, nearly all of the increase in runoff will occur in early spring (Robichaud et al. 2010). Depending on the timing of forest thinning in any given area, project feedstock acquisition would result in **potentially significant** erosion related impacts.

However, PDFs (see Section 2.4) would minimize the potential for erosion during feedstock acquisition. PDF-GEO-1 requires suspension of mechanical treatments during wet winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion during feedstock acquisition. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester, California Professional Geologist, or California Geotechnical Engineer evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). In addition, **MM-HYD-1** requires protection of water quality at stream crossings by minimization of the number of crossings; selection of crossings where the erosion potential is low; use of a temporary bridge, culvert, or log culvert to minimize siltation of the stream; using suitable drainage measures to disconnect the road from the waterbody; and removal and stabilization of the stream crossing prior to the winter rainy season. With implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1**, Protection of Existing Water Bodies, erosion related impacts during forest thinning would be reduced to less than significant levels.

### Tree Felling and Erosion

As discussed in detail in Section 3.6.4, Impact Analysis, Impact GEO-2, the use of machines for tree felling is a potential source of erosion. Non-commercial thinning to reduce fuel loads is being done on an increasingly large scale using masticating machines. These machines are usually large, rubber-tired or tracked skidders with a mulching or wood grinding attachment such as a Hydro-Ax or a Bull-Hog. Some machines are designed to masticate standing trees, while others fell the trees before masticating the material. Like mechanized fellers, the movement of masticating machines can disturb or compact the soil and thereby increase the potential for erosion. The shredded wood that remains after these operations may increase the amount of ground cover and reduce the erosion potential (Robichaud et al. 2010). Depending on the method of tree felling, project feedstock acquisition would result in **potentially significant** erosion related impacts.

However, PDFs (see Section 2.4) would minimize the potential for erosion during tree felling. PDF-GEO-1 requires suspension of mechanical treatments during wet winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion during tree felling operations. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester, California Professional Geologist, or California Geotechnical Engineer evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). In addition, **MM-HYD-1** requires protection of water quality at stream crossings by minimization of the number of crossings; selection of crossings where the erosion potential is low; use of a temporary bridge, culvert, or log culvert to minimize siltation of the stream; using suitable drainage measures to disconnect the road from the waterbody; and removal and stabilization of the stream crossing prior to the winter rainy season. With

implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1**, Protection of Existing Water Bodies**,** erosion related impacts during forest thinning would be reduced to less than significant levels.

### Yarding and Erosion

As discussed in detail in Section 3.6.4, Impact Analysis, Impact GEO-2, the amount of disturbed area and bare soil due to thinning will depend largely on the amount and type of yarding activities. The use of ground-based logging systems can result in increased soil disturbance by displacing soil cover through the mechanical action of machine travel. Commercial thinning operations which utilized tractors and rubber-tired skidders could result in 34% disturbance of a given activity area. Tractor logging of clearcuts can result in up to 43% areal extent of disturbance. But when skid trail layout is considered, disturbance could be as low as 4% to 11% depending on skid trail spacing. Soil disturbance monitoring on the Klamath National Forest of conventional tractor logging with rubber-tired skidders showed that an average of 11.5% of a particular unit was in main skid trails and landings after harvest. Commercial thinning requires yarding methods appropriate for smaller trees, such as small skylines with light cables and short towers, small crawler tractors, rubber-tired skidders, horses, tractor-mounted winches, or specialty yarding machines. The use of skyline logging systems would be expected to cause smaller amounts of soil displacement than ground-based logging systems because the primary disturbance lies in the skyline yarding corridors where the butt end of logs drag over the soil surface (USDA Forest Service 2009, Robichaud et al. 2010). Depending on the type of yarding used, project feedstock acquisition would result in **potentially significant** erosion related impacts.

However, PDFs (see Section 2.4) would minimize the potential for erosion during yarding. PDF-GEO-1 requires suspension of mechanical treatments during wet winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion during yarding operations. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester California Professional Geologist, or California Geotechnical Engineer evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). In addition, **MM-HYD-1** requires protection of water quality at stream crossings by minimization of the number of crossings; selection of crossings where the erosion potential is low; use of a temporary bridge, culvert, or log culvert to minimize siltation of the stream; using suitable drainage measures to disconnect the road from the waterbody; and removal and stabilization of the stream crossing prior to the winter rainy season. With implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1**, Protection of Existing Water Bodies, erosion related impacts during forest thinning would be reduced to less than significant levels.

### Hazardous Substances Spills

Forest thinning operations would include equipment and vehicle fueling and maintenance, which typically includes use of gasoline, diesel fuel, oils/lubricants, hydraulic fluids, antifreeze, coolants, solvents/cleaners, and degreasers. Incidental spills of these substances could adversely affect the water quality of stormwater and nearby surface water bodies, including streams, rivers, and reservoirs. Pollutants can also attach to sediment and be transported downstream, which could contribute to degradation of water quality. In addition, in the event that forest thinning operations occurred on legacy soil contamination sites, soil disturbance could result in erosion of contaminated soils and siltation of downstream water bodies with entrained contaminated soils. Impacts to surface waters could also adversely impact the underlying shallow groundwater.

As discussed in Section 3.9.2.2, Waiver of Waste Discharge Requirements for Discharges Related to Timber Harvesting Activities have been established for the North Coast RWQCB, Central Valley RWQCB, and Lahontan RWQCB Regions. The waivers cover discharges from nonpoint source activities that have the potential to discharge wastes that may affect waters of the state. Most of the potential water quality impacts would be associated with erosion and sediment delivery and/or alterations to riparian systems that may reduce shade and affect water temperatures, including timber harvesting, road use and maintenance, grazing, recreation, vegetation management, vegetation restoration, fire suppression, and fire salvage. Sediment and temperature TMDLs have been developed for the majority of the impaired waters in these regions.

The conditions in the Waiver of Waste Discharge Requirements provide reasonable assurance that sediment, temperature, and nutrient impairments would be restored by requiring (1) protection, maintenance, and enhancement of riparian conditions and shade; (2) inventories and remediation of legacy sediment sites; (3) the application of BMPs and on-the-ground prescriptions to avoid excess sediment discharges and to improve shade; and 4) periodic review, monitoring, and reassessment. These waivers apply to vegetation management projects that range from homeowner defensible space operations to local Fire Protection District community protection plans, to large wildland/urban interface projects proposed by the California Department of Parks and Recreation, the Bureau of Land Management, and the Forest Service. Commercial timber harvest conducted by small landowners, industrial timber companies, and the Forest Service are also covered under the waiver.

Although the Waiver of Waste Discharge Requirements includes general requirements designed to prevent adverse impacts to water quality, in the absence of project specific measures to prevent such adverse impacts, impacts would be **potentially significant**. However, with implementation of PDFs, including PDF-HAZ-1, Equipment Maintenance, and PDF-HYDRO-3, Watercourse and Lake Protection Zones, and mitigation measures **MM-HYD-1**, Protection of Existing Water Bodies, **MM-HYD-2**, Spill Prevention and Response Plan, **MM-HYD-3**, Protection of Existing Drainage Systems, and **MM-HYD-4**, Avoidance of Legacy Soil Contamination, water quality related impacts during forest thinning would be reduced to less than significant levels.

## Wood Pellet Production

### Lassen Facility

#### Construction

The production facilities would be located on a parcel approximately 65 acres in size and the log decking (storage) would occur on approximately 51 acres of the 95-acre parcel immediately south of the production site. The production facilities site currently includes railroad siding, a cement deck, internal roadways, a well pump house, and water tower. The majority of the undeveloped areas of the project site consist of non-native grassland with a mix of annual grasses and forbs. Mowed agricultural fields are present in the northern portion of the project site.

Construction activities would include demolition of the railroad siding, cement deck, and internal roadways, followed by importing 5,220 cubic yards of fill soil to raise the proposed production facilities above the 100-year floodplain. The total area of disturbance would be approximately 192.52 acres. As discussed in Section 3.6, Geology and Soils, erosion and sedimentation affects water quality and interferes with photosynthesis; oxygen exchange; and the respiration, growth, and reproduction of aquatic species. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported downstream, which could contribute to degradation of water quality. Non-sediment-related pollutants that are also of concern during construction relate to construction materials and non-stormwater flows and include construction materials (e.g., paint); chemicals,

liquid products, and petroleum products used in construction or the maintenance of heavy equipment; and concrete-related pollutants.

Because the proposed project is greater than 1 acre in size, construction impacts would be minimized through compliance with the SWRCB CGP, which is the NPDES General Permit for Storm Water Associated with Construction Activities (Construction Stormwater General Permit Order 2022-0057-DWQ). The applicant would be required to submit a Notice of Intent to the SWRCB in order to obtain approval to complete construction activities under the CGP. This permit requires the discharger to perform a risk assessment for the proposed development (with differing requirements based upon the determined level) and to prepare and implement a SWPPP. A Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction is a required component of the SWPPP. The SWPPP is also required to include construction-phase BMPs to be implemented. Typical BMPs that would be implemented during grading and construction of the proposed project that would minimize degradation of surface water quality include the following.

- Diverting off-site runoff away from the construction site.
- Vegetating landscaped/vegetated swale areas as soon as feasible following grading activities.
- Placing perimeter straw wattles to prevent off-site transport of sediment.
- Using drop inlet protection (filters and sandbags or straw wattles), with sandbag check dams within paved areas.
- Regular watering of exposed soils to control dust during demolition and construction.
- Implementing specifications for demolition/construction waste handling and disposal.
- Using contained equipment wash-out and vehicle maintenance areas.
- Maintaining erosion and sedimentation control measures throughout the construction period.
- Stabilizing construction entrances to avoid trucks from imprinting soil and debris onto the project site and adjoining roadways.
- Training, including for subcontractors, on general site housekeeping.
- Managing the following types of materials, products, and wastes: solid, liquid, sanitary, concrete, hazardous, and equipment-related wastes. Management measures include covered storage and secondary containment for material storage areas, secondary containment for portable toilets, covered dumpsters, dedicated and lined concrete washout/waste areas, proper application of chemicals, and proper disposal of all wastes.
- Incorporating a spill response and prevention program, including conspicuously located spill response materials at all times on site.
- Incorporating good housekeeping practices to reduce or limit pollutants at their source before they are exposed to stormwater, including such measures as water conservation practices, vehicle and equipment cleaning and fueling practices, illicit connection/discharge elimination, and concrete curing and finishing.

Through implementation of the requirements outlined in the CGP, construction-related impacts to surface water and groundwater would be minimized and impacts would be **less than significant**.

### Operations

The proposed project would include construction of a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, project storage, and loadout area. New onsite paved roads for truck access and mill personnel access would be added, including a new road for truck access from Babcock Road at the

southwest corner of the site. A new rail spur connecting to the adjacent BNSF Railway line would be added for finished product load out as well as additional rail siding tracks on-site for the storage of full and empty railcars. Other improvements would include new truck scales and a graded area for overflow raw material storage.

Wastewater generated as part of wood pellet production would be recycled to the dryer system. However, each of the project components described above are potential sources of stormwater pollution as a result of incidental spills of petroleum products and hazardous substances from trucks, processing equipment, and railcars. Stormwater runoff would be channeled through a stormwater drainage system, which in turn would flow into an on-site detention basin. However, no water quality Low Impact Development (LID) features were included in the original project design. Runoff from the site exits through a culvert beneath the railroad in the southeast portion of the site. Numerous small streams, sloughs, and marshy areas are present east of the project site. The Pit River is approximately 2.9 miles east of the site; Bull Run Slough is approximately 0.7 mile to the east; and a tributary creek to Bull Run Slough is approximately 500 feet to the east, at the closest point (Figure 3.9-3, Lassen Surface Water Features). In the absence of water quality LID features, stormwater runoff could result in adverse impacts to these downstream water bodies. Due to shallow groundwater, the proposed stormwater detention basin is not a feasible alternative for stormwater infiltration into the subsurface. In the absence of proposed LID features, water quality impacts would be potentially significant. However, with implementation of **MM-HYD-6**, Lassen Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced to less than significant levels.

Sanitary sewers are not available for wastewater disposal; therefore, a septic system would be required during project operations. Based on percolation testing at two on-site locations, the site may not be suitable for infiltration as the infiltration at the site will be very low to non-existent. In addition, the shallow depth of existing groundwater for the site is a concern with respect to the distance between the bottom of the system and groundwater. The geotechnical report recommends that the drainage system be designed by an experienced and qualified engineer familiar with the applicable regulatory agencies requirements and an appropriate factor of safety should be included in the overall design (Appendix E2 – Supplemental Geotechnical Investigation).

As a result, use of a septic system may result in a **potentially significant** impact to groundwater quality.

An engineered septic system, which is designed to treat the effluent prior to discharge to the subsurface, would prevent potential adverse bacterial impacts to groundwater beneath the site. The requirement for such a system is described in mitigation measure **MM-GEO-1.**

### Tuolumne Facility

The proposed project would include construction of a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, project storage and loadout area. New roads for truck access and mill personnel access would be added, including a new truck access from La Grange Road at the southeast corner of the site. A new rail spur connecting to the adjacent Sierra Northern Railway line would be added for finished product loadout. Other improvements would include repurposing existing truck scales and a graded area for overflow raw material storage.

Construction related water quality impacts would be the same as that described above for the Lassen Facility. Through implementation of the requirements outlined in the CGP, construction-related impacts to surface water and groundwater would be minimized and impacts would be **less than significant**.

Operation related water quality impacts would be similar as that described above for the Lassen Facility, In the absence of proposed LID features, water quality impacts would be potentially significant. However, with implementation of **MM-HYD-8**, Tuolumne Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced to less than significant levels.

Sanitary sewers are not available for wastewater disposal; therefore, a septic system would be required during project operations. A geotechnical investigation completed at the site (Appendix E3 – Tuolumne Geotechnical Report) included percolation tests at two locations on-site. In addition, a test pit was excavated near the percolation test locations to determine the depth of weathered bedrock. Resistant bedrock was encountered at a depth of about 3.5 feet below ground surface, overlain by low plastic clay (residual soil). Based on the percolation testing, which were completed at depths of 1 and 2 feet, respectively, the percolation rate was 150 and 300 minutes per inch, which is very slow.

Based on Section 13.08.220 of the Tuolumne County On-Site Sewage Treatment and Disposal Code (Chapter 13.08), "there shall be a minimum of five feet of permeable soil below the bottom of a leach trench or bed" with permeable soil defined as soil with a percolation rate not slower than 120 minutes per inch for standard leach trenches or beds. With the shallow bedrock conditions and slow percolation test results, a conventional absorption trench, bed or pit sewage treatment system will not meet Tuolumne County criteria. The geotechnical report recommended that a mound system or a system that incorporates pre-treatment prior to evaporation or ground disposal, be constructed.

As a result, use of a standard septic tank system may result in a **potentially significant** impact to groundwater quality.

An engineered septic tank system, which is designed to treat the effluent prior to discharge to the subsurface, would prevent potential adverse bacterial impacts to groundwater beneath the site. The requirement for such a system is described in mitigation measure **MM-GEO-1**.

## Transport to Market

### Port of Stockton Facility

The proposed project would include a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, and a ship loadout system. A new road for truck access and facility personnel access would be added on site. A new rail spur connecting to an existing nearby rail line operated by CCT would be added for pellet receipt. New rail scales and a truck scale would be installed for weighing pellets received.

Construction and operation related water quality impacts would be the same as that described above for the Lassen Facility. Shallow groundwater is similarly present beneath the Port facility. In the absence of proposed LID features, water quality impacts would be potentially significant. However, with implementation of **MM-HYD-10**, Stockton Low Impact Development Features, water quality related impacts during proposed wood pellet storage and loading would be reduced to less than significant levels.

Impact HYD-2 The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Groundwater Supplies

The water demand for feedstock acquisition would primarily be related to dust suppression along unpaved roads. Water would secured from various sources, including local water purveyors and local water wells. The demand would be relatively minor and spread out throughout the Working Area. As a result, feedstock acquisition would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

#### Groundwater Recharge

Tracked and wheeled equipment use during forest thinning operations could result in soil compaction, which in turn could decrease infiltration of precipitation and decrease groundwater recharge, resulting in **potentially significant impacts**. However, with implementation of **MM-HYD-5**, Minimize Soil Compaction, groundwater recharge related impacts during forest thinning would be reduced to less than significant levels.

## Wood Pellet Production

### Lassen Facility

#### Groundwater Supply

##### Project Water Demand

The Project is anticipated to require approximately 20 AF of water for construction over a one-year period and approximately 47 AFY for operation. The operational water demand of 47 AFY is anticipated to remain constant over the life of the project. This estimate is based on the volume of water required to produce 700,000 metric tons of pellets per year (15,159,017 gallons per year), plus the sanitary and drinking water demands of 60 employees at 10 gallons per employee per shift (156,000 gallons per year). This equates to an amortized pumping rate of approximately 29 GPM, assuming the well is pumped 24 hours per day seven days per week, or approximately 123 GPM, assuming the well is pumped eight hours per day five days per week. Based on these estimates, the total project water demand is estimated to be approximately 913 AF over a 20-year period, or 47 AFY (Appendix G2).

##### Onsite Well Evaluation

A 24-hour constant rate pumping test was performed by Dudek at Well 1 in March 2024. Well 1 was pumped at an average rate of 180 GPM. The static groundwater level measured in Well 1 before the constant rate test was approximately 47.00 feet bgs and at the end of the test was 74.15 feet bgs for a total groundwater level drawdown of 27.15 feet. Approximately 24 hours after the pump was shut off, the recovered water level in Well 1 was measured at 48.30 feet bgs. There was 1.30 feet of residual drawdown and 95.2% recovery to the pre-test static water level 24 hours after shutdown. An analysis of the pump test data indicated the well would need to be pumped continuously for 59 days at the tested rate of 180 GPM to achieve the total annual water demand of 46.85 AFY. The water level would drop to approximately 76.20 feet bgs (approximate drawdown of 29.20 feet) after 59 days of continuous pumping at 180 GPM and approximately 77.00 feet bgs (approximate drawdown of 30.00 feet) after

1 year of continuous pumping at 180 GPM. Based on the results of the 24-hour pumping test conducted at Well 1, the well has sufficient capacity to satisfy the estimated project demand of 47 AFY (Appendix G2; Appendix G3).

### Basin-Wide Groundwater Supply

As discussed in Section 3.9.1, the Big Valley Groundwater Basin has been classified by the DWR as a medium priority basin, with respect to SGMA. Groundwater provides 65% of water supply in the basin. A GSP was adopted by the Modoc and Lassen County GSAs and submitted to DWR in December 2021; however, the GSP was marked as incomplete in October 2023. The basin GSAs were instructed to resubmit the revised GSP for evaluation no later than April 23, 2024 (Appendix G2). As of October 1, 2024, a revised GSP has been submitted to DWR but has not yet been approved (California DWR 2024).

Typical 20-year water supply and demand projections are lacking due to the project existing outside of a public water system; however, the GSP prepared for the Big Valley Groundwater Basin provides long-term forecasting of inflows and outflows within the Basin. A spreadsheet-based water budget was developed for the basin as part of the GSP development. The water budget evaluated the average projected total basin water budget for 2019 to 2068 for both the future baseline condition and the future condition when factoring in climate change. Both projections use climate data from 1962 to 2011 as an estimate of future conditions (Appendix G2).

The future baseline projections with climate change result in an average overdraft of 1,000 AF less than baseline conditions, due to climate models forecasting weather in the basin being warmer with increased precipitation and more precipitation falling in the form of rain than snow. The analysis predicts that the basin will be nearly in balance through 2068, with overdraft of about 1,000 to 2,000 AFY. In addition, groundwater levels in Well 38N07E32A002M, located near the project site, have remained stable since the beginning of the measurement record in 1959, indicating a stable groundwater supply (Appendix G2).

Implementation of the Big Valley Groundwater Basin GSP will ensure that the groundwater basin is managed sustainably for existing and future beneficial uses of the groundwater supply. Based on the onsite pump test and basin-wide water budget analysis, local groundwater supplies are available during normal, single dry, and multiple dry years during a 20-year projection and will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses of the groundwater supply (Appendix G2). As a result, the project would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

### Groundwater Recharge

Currently, the project site is predominantly unpaved and pervious to rainfall infiltration. Approximately 5,220 cubic yards of fill soil would be imported to the site to raise the grade above the 100-year flood plain. A portion, but not all, of the production facility parcel within the project site would be paved for construction and operation of the wood pellet production facility, resulting in locally denied groundwater recharge. However, the project site is located in a mostly rural area that is predominantly unpaved and pervious to rainfall infiltration. As a result, localized denied recharge as a result of construction of the proposed pellet production facility would not interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

## Tuolumne Facility

### Groundwater Supply

#### Project Water Demand

The project is anticipated to require approximately 10 AF of water for construction, over a 1-year period, and approximately 25 AFY for operations. The operational water demand of 25 AFY is anticipated to remain constant over the life of the project. This estimate is based on the volume of water required to produce 300,000 metric tons of pellets per year (8,033,731 gallons per year), plus the sanitary and drinking water demands of 51 employees at 10 gallons per employee per shift (132,600 gallons per year), as well as a one-time demand to fill a 180,000-gallon water storage tank for fire supply. This equates to an amortized pumping rate of approximately 16 GPM, assuming the well is pumped 24 hours per day seven days per week, or approximately 65 GPM, assuming the well is pumped eight hours per day five days per week. Based on these estimates, the total project water demand is estimated to be 485 AF over a 20-year period, or 24.25 AFY. SB 610 requires assessment of the availability of the identified water supply over a 20-year projection (Appendix G4).

#### Onsite Well Evaluation

During an onsite pump test in February 2024 (Appendix G5), Well 1 was pumped at a constant rate of 137 GPM for approximately 24 hours. Depth to water in Well 1 after 24 hours of pumping was measured at 85.5 feet bgs (equivalent to 61.8 feet of drawdown). Approximately 24 hours after the pump was shut off, the recovered water level in Well 1 was measured at 26.7 feet bgs. There was 3 feet of residual drawdown and 88.8% recovery to the pre-test static water level 24 hours after shutdown. Drawdown was projected over 42 days, which represents the number of days the well would need to be pumped continuously at the tested rate of 137 GPM to achieve the total annual water demand of 24.6 AFY. The drawdown projection estimates that the depth to water would drop to approximately 97 feet bgs (approximate drawdown of 73.3 feet) after 42 days of continuous pumping at 137 GPM. In addition, drawdown estimates projected over a 1 year period resulted in drawdown to approximately 103.5 feet bgs (approximate drawdown of 79.8 feet) after 1 year of continuous pumping at 137 GPM. The pump test also indicated Wells 1 and 2 are hydraulically connected. In summary, groundwater level projections using the 24-hour constant rate data show that there is available water column in the well to produce the annual water demand of 24.65 AFY.

#### Basin-Wide Groundwater Supply

As discussed in Section 3.9.1, the Tuolumne project site does not overlie a groundwater basin, as designated by DWR, and is therefore not regulated under SGMA. However, because of the presence of other groundwater users in the project contributing watershed, their associated pumping demands, and the fact that groundwater recharge can vary from year-to-year due to climatic variability, an analysis of the long-term availability of groundwater resources was completed. The project site contributing watershed area, which is the upslope area that contributes recharge to the project site, includes the southeastern part of the Green Spring Run watershed. Green Spring Run flows near the southwestern boundary of the Project site and is a perennial tributary of Tulloch Reservoir and the Stanislaus River. The contributing watershed area is approximately 1,802 acres (Appendix G4).

The groundwater in storage underlying the Tuolumne project site contributing watershed was calculated using conservative estimates of the saturated thickness and specific yield of the fractured rock aquifer. The saturated thickness of the fractured rock was assumed to be uniform across the 1,802-acre contributing watershed at

500 feet (approximate average depth of wells drilled in project vicinity). Specific yield values for fractured rock generally range from approximately 0.1% to 8% depending on rock type, degree of weathering, and other factors. For this analysis, the specific yield of the fractured rock was conservatively assumed to be 0.25%. By multiplying the acreage of the contributing watershed by the assumed saturated thickness and specific yield, the total groundwater in storage in the Tuolumne project site contributing watershed is estimated to be 2,253 AF (Appendix G4).

### Recharge from Precipitation

The percentage of precipitation that becomes recharge is spatially and temporally variable, depending on the geologic units, land use, and other factors, and can range from less than 10% to as much as 90%. For this study, the groundwater recharge rate was assumed to be 10% of the mean annual precipitation as measured at the Sonora weather station (station no. 048353). The average annual precipitation at the Sonora weather station for the period from 1903 to 2024 is approximately 31 inches. Assuming a conservative recharge rate of 10%, the average annual recharge within the 1,802-acre contributing watershed is approximately 466 AFY. This estimate does not take into account underflow, recharge from septic systems, and other potential sources of aquifer recharge (Appendix G4).

### Basin-Wide Groundwater Demand

Groundwater demand within the contributing watershed was estimated by identifying all existing groundwater users in the contributing watershed using aerial imagery and well completion reports. Based on available information, there are eight domestic groundwater users, one agricultural user, and one industrial user. The agricultural user appears to be a turkey ranch and the industrial user is a sawmill.

One residential dwelling typically consumes approximately 0.5 AFY. Therefore, the eight domestic groundwater users are estimated to require a total of 4 AFY. The sawmill and turkey ranch water use is more difficult to estimate. For this analysis, the sawmill was assumed to require 25 AFY, the same amount of water as the proposed project, and the turkey ranch was assumed to require 100 AFY, based on Dudek's professional judgement from working on agricultural water use projects throughout California. Thus, the combined total groundwater demand within the contributing watershed, including the proposed project, is estimated to be 154 AFY. This estimate does not take into account groundwater discharge to streams, evapotranspiration by phreatophytes, and other potential sources of aquifer discharge (Appendix G4).

### Projected Groundwater Supplies

Based on precipitation values from the most recent 20-year period, groundwater recharge exceeds groundwater extraction in all years except years where the total annual precipitation is less than 33% of the average, or approximately 10.26 inches, such as in 2013. It should be noted that this is a simplified groundwater budget that does not take into account all budget components such as underflow, recharge from septic systems, groundwater discharge to streams, evapotranspiration by phreatophytes, etc. and actual conditions may vary. However, considering that groundwater levels in the Tuolumne project vicinity have generally remained stable over the past few decades, the groundwater budget analysis presents a reasonable demonstration of sufficient groundwater availability for the project over a 20-year period (Appendix G4).

Based on the results of the groundwater budget analysis for the Tuolumne project site contributing watershed, there is sufficient groundwater recharge and groundwater in storage to satisfy the project water demand and the

demands of all other groundwater users in the watershed during normal, single dry, and multiple dry years over a 20-year projection. As a result, the project would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

#### Groundwater Recharge

Impacts would be similar to those described for the Lassen facility. Localized denied recharge as a result of construction of the proposed wood pellet production facility would not interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

## Transport to Market

### Port of Stockton Facility

#### Groundwater Supplies

The City of Stockton treats and distributes water from the following sources:

- Surface water diverted from the Sacramento San Joaquin Delta;
- Surface water from the Mokelumne River purchased from Woodbridge Irrigation District;
- Local groundwater from wells owned and operated by the City;
- Treated water purchased from the Stockton East Water District (SEWD), imported from the New Melones (Stanislaus River) and New Hogan (Calaveras River) Reservoirs (City of Stockton 2024).

As discussed in Section 3.9.1, Environmental Setting, the San Joaquin Valley - Tracy Groundwater Basin has a high to medium priority with regard to potential overdraft and is regulated by the County of San Joaquin GSA – Tracy, under SGMA. As a result, in 2029, the County of San Joaquin GSA – Tracy completed the Eastern San Joaquin Groundwater Subbasin GSP, which shows that groundwater elevations have declined since the 1950s. The GSP outlined the need to reduce overdraft conditions and identified 23 projects for potential development, along with management actions, that either replace groundwater use or supplement groundwater supplies to meet current and future water demands. The list of 23 potential projects included in the GSP represent a variety of project types, including direct and in-lieu recharge, intra-basin water transfers, demand conservation, water recycling, and stormwater reuse to be undertaken by the member agencies. The GSP determined an estimated pumping offset and/or recharge need of 78,000 afy subbasin-wide to achieve sustainability. To improve water supply reliability, several groundwater wells will be rehabilitated, a new well installed, and recommended studies include a comprehensive groundwater supply study and a groundwater storage bank/recharge basin study (City of Stockton 2021). Based on the 2020 Urban Water Management Plan, Stockton District, purchased water and groundwater supplies are expected to be able to serve water demands in the District through 2045 (Cal Water 2021).

The proposed project would include a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, and a ship loadout system. Water demand would primarily be related to potable water supplies for employees and dust suppression. Based on the diversified water supplies for project operations, in combination with oversight of groundwater withdrawals by the County of San Joaquin GSA – Tracy, project related Port operations would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

#### Groundwater Recharge

Approximately 20% of the Port site is paved, with the remainder unpaved and pervious (Figure 1-8, Project Location: Port Rough Terminal, Port of Stockton). Paving of the site for the project would preclude infiltration of precipitation, resulting in a lack of groundwater recharge. As discussed in Section 3.9.1, Environmental Setting, the project area is not identified as a substantial groundwater recharge area. Because the Rough and Ready Island is surrounded by water bodies, groundwater levels are extremely shallow and on average, are at mean sea level during most of the year. This pumping creates a gradient in which groundwater is drawn towards the interior of the island, which increases during high flow conditions in winter and spring. Based on this continuous flow of shallow groundwater from the San Joaquin River to the east, the Burns Cutoff to the west and south, and the SDWC to the north, denied recharge associated with paving of the project site would result in negligible impacts with respect to groundwater supplies. As a result, the project would not interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

Impact HYD-3 The project may substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- result in a substantial erosion or siltation on- or off-site;
- substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
- create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
- cause the proposed development, when combined with all other existing and anticipated development, to increase the water surface elevation of the base flood more than one foot at any point within the community.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Increased Runoff – Soil Compaction

As discussed for Impact HYD-2, tracked and wheeled equipment use during forest thinning operations could result in soil compaction, which in turn could decrease infiltration of precipitation and increase stormwater runoff, resulting in excessive erosion or siltation of nearby streams, rivers, lakes, or reservoirs; off-site flooding; and exceedance of the capacity of adjacent or downstream drainage systems. The risk soil compaction and accelerated runoff from mechanical fuel reduction treatments varies depending on factors such as methods of treatment, types of equipment used, amounts and types of materials being yarded or piled, soil types, soil moisture conditions, slope steepness, and history of past disturbance. The primary potential sources for erosion are skid trails, landings, and treatment areas near watercourses. Potential impacts related to soil compaction and increased runoff would be **potentially significant**. However, with implementation of **MM-HYD-5**, Minimize Soil Compaction, increase runoff related impacts during forest thinning would be reduced to less than significant levels.

### Increased Runoff – Road Construction

As discussed in detail Impact GEO-1, roads are ubiquitous in the forest environment and typically have very low infiltration rates and, as a result, generate large amounts of surface runoff. As set forth in Section 2.4, each GSNR Biomass Only Thinning Project could include construction of up to 1.0 mile of low-standard (i.e., unpaved roads) per project. The only in-stream disturbance of streams during project implementation would be at designated stream crossings to access treatment sites. In addition, existing unpaved roads would be improved and maintained as part of feedstock acquisition. New road construction completed during forest thinning operations would be a primary source of increased stormwater runoff, which in turn could result in excessive erosion or siltation of nearby streams, rivers, lakes, or reservoirs; off-site flooding; and exceedance of the capacity of adjacent or downstream drainage systems. Downstream sedimentation results from improper road location, inadequate road drainage, lack of energy dissipators at culvert outlets, road use during wet weather, and poor culvert alignment (USDA Forest Service 1991).

Roads affect geomorphic processes by increasing mass wasting and surface erosion; altering stream channel morphology; extending stream channel networks by modifying surface flows; and causing interactions of water, sediment, and wood at road stream crossings. Climate, geology, road age, construction practices, and storm history all significantly influence the degree of these effects. Many researchers have shown that roads can deliver more sediment to streams than any other human disturbance in forested land. In areas where mass wasting is common, forest roads can be especially problematic (USDA Forest Service 2004a).

Many studies have shown that surface erosion from roads can be reduced through improved design, construction, and maintenance practices. Operational monitoring by the U.S. Forest Service has shown similar results. For example, 10 years of monitoring different road-related BMPs throughout California demonstrated that they were effective in meeting their on-site water quality objectives (e.g., minimal erosion) at 90% of the 1,072 sites where they had been implemented. Water quality effects of significant magnitude, duration, or extent occurred at only 1% of all 1,255 monitored sites. Proper road location, drainage, surfacing, and cut slope and fill slope treatments are important in limiting effects. Surfacing materials and vegetative treatments, in particular, have been demonstrated to reduce the amount of fine sediment produced by roads. For example, rocked roads in the central Sierra Nevada produce 10% to 50% less sediment than native surfaced roads; others have observed greater reductions of up to 80% or more. Research and monitoring have also demonstrated that a small percentage of roads are often responsible for a large amount of the total road-related erosion and the most harm to fish and fish habitats. Most road problems during floods result from poor design or construction, particularly at road stream crossings where streamflow diversions can cause road failures (USDA Forest Service 2004b).

Limited information is available regarding long-term, watershed-scale changes to sediment yields associated with road decommissioning and restoration. However, one recent study documented that these treatments in Northern California reduced sediment yields from abandoned logging roads by 75%. Monitoring of U.S. Forest Service projects in Northern California indicate that reductions may be significantly higher in some cases. Besides these geomorphic effects, roads affect hydrologic processes because roads intercept rainfall on the road surface and cutbanks, and intercept subsurface water moving down adjacent hillslopes. Roads also concentrate flow and divert water from areas to which it would normally flow. These altered processes modify the amount of time required for water to enter streams. In turn, the timing of peak flows may be changed. However, studies show that the effects of roads on streamflow are generally smaller than the effects of timber harvest (USDA Forest Service 2004b).

Potential impacts related to road construction and increased runoff would be **potentially significant**. However, PDFs (see Section 2.4) would minimize the potential for runoff during road construction, maintenance, and use. PDF-GEO-1 requires suspension of road use during wet winter weather, thus reducing the potential for soil erosion in

saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). In addition, **MM-HYD-1** requires protection of water quality at stream crossings by minimization of the number of crossings; selection of crossings where the erosion potential is low; use of a temporary bridge, culvert, or log culvert to minimize siltation of the stream; using suitable drainage measures to disconnect the road from the waterbody; and removal and stabilization of the stream crossing prior to the winter rainy season. With implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1,** Protection of Existing Water Bodies, potential significant impacts would be reduced to less than significant levels.

#### Flood Flows

Forest thinning operations would locally occur within 100-year floodplains, throughout the Working Area. These operations would not impede or redirect flood flows. **No impacts** would occur.

## Wood Pellet Production

### Lassen Facility

#### Increased Runoff

As discussed in Section 3.9.1, Environmental Setting, runoff across the site primarily occurs as sheetflow to the south and southeast toward drainage ditches, including one ditch that coincides with the western property boundary, and two other ditches that merge in the southern portion of the site and connect with a culvert beneath the railroad in the southeast portion of the site. The site is predominantly unpaved and pervious to rainfall infiltration. Five upland ditches located throughout the project site are unlined, earthen water conveyance systems that were constructed in upland habitat and exhibit a mild break in slope and change in vegetation. Ditches within the project site are generally 5 to 6 feet wide at the top of bank and have an ordinary high water mark width of 1 to 2 feet (Appendix G1, Hydrology and Hydraulics Technical Study).

Construction of the proposed wood pellet production facility would result in an increase in impervious surfaces, which in turn would result in increased stormwater runoff. Numerous small streams, sloughs, and marshy areas are present east of the project site. The Pit River is approximately 2.9 miles east of the site; Bull Run Slough is approximately 0.7 mile to the east; and a tributary creek to Bull Run Slough is approximately 500 feet to the east, at the closest point (Figure 3.9-3, Lassen Surface Water Features). Stormwater runoff emanating from the hilly areas to the west and southwest flows in the direction of the southern proposed project area. An increase in stormwater runoff as a result of increased impervious surfaces on site could potentially result in excessive erosion or siltation of these downstream water bodies; off-site flooding; and exceedance of the capacity of adjacent or downstream drainage systems. Potential impacts related to increased runoff would be **potentially significant**. However, with implementation of **MM-HYD-7**, Lassen Stormwater Detention, potential significant impacts would be reduced to less than significant levels.

### Flood Flows

The project site is located within a 100-year Special Flood Hazard Area, as designated by FEMA. The project site is within Flood Zone A, which is subject to inundation by the 1% annual flood chance, but the base flood elevation (BFE) has not yet been determined (44 CFR 64.3). The project site is not within an area subject to seiches or dam failure inundation (Lassen County 2018).

The project, as described in Section 2, includes construction of occupied structures which will be raised above the BFE. The placement of fill in the Special Flood Hazard Area can result in an increase in the water surface elevation by reducing the ability to convey and store flood waters. This can result in increased flood damage to both upstream and downstream properties.

FEMA regulations, 44 CFR 60.3, permit encroachments (i.e., construction) within the Special Flood Hazard Area, subject to numerous requirements to ensure that both the proposed development and surrounding community are safe from flooding. The project will be required to comply with these regulatory requirements, and to obtain and comply with floodplain development permits from Lassen County (the floodplain administrator). For developments greater than 5 acres in the Zone A Special Flood Hazard Areas, where BFE has not yet been established, the floodplain development permit application must include BFE data, utilizing Federal, State, or other data sources.

Upon establishment of BFE, FEMA regulations further prohibit new construction, substantial improvements, or other development (including fill) "unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community" (44 CFR 60.3(c)(10).) This EIR consequently adopts this standard as the threshold of significance for flood flow impacts. (Compared to Appendix G of the CEQA Guidelines, this standard allows for a more useful and meaningful assessment of potential impacts in areas that have flooding risks, but for which no BFE has yet been established, in that it provides an objective measurable metric against which the effects of the project along with existing and anticipated development can be evaluated.)

A preliminary grading plan has been prepared for the project (Kimley-Horn and Associates, Inc. 2024), and flood flow modeling based upon this design has been conducted utilizing the Army Corps of Engineers HEC-RAS software and a publicly available (USGS) 1-meter digital elevation model (DEM) (Appendix G1). This modeling indicates that the project, combined with all other existing development, will not increase the water surface elevation more than one foot at any point within the community of Nubieber or elsewhere in Lassen County. (As discussed in Chapter 3.0, there is no anticipated development in the vicinity of the project.) This impact would consequently be **less than significant**.

Mitigation is not required for impacts that are less than significant; nevertheless, the project will include the following Site Design Feature (SDF) to confirm that all applicable permits will be obtained and all regulatory requirements of FEMA and Lassen County will be implemented, and to ensure that no occupied structure that is not currently subject to inundation by flood will become inundated as a result of this project. (As set forth in Chapter 2, SDFs will be incorporated as enforceable contract terms in the public-private partnership agreement between GSFA and GSNR through which GSNR is authorized to perform project activities.)

SDF-HYD-1 Lassen Flood Protection.

Prior to issuance of a building permit, the following requirements shall be fulfilled to the satisfaction of the Lassen County Floodplain Administrator and consistent with 40 CFR 60.3 (b):

1. the Base Flood Elevation (BFE) shall be identified in Zone A within the community of Nubieber where the project site is located;
2. the proposed construction shall comply with all applicable regulatory requirements of FEMA and Lassen County, and has obtained all permits required for development in the floodplain; and
3. the applicant shall provide modeling or data to demonstrate that no occupied structure not presently subject to inundation by flood will become inundated as a result of the project combined with any other then existing or anticipated development within the community of Nubieber.

## Tuolumne Facility

### Increased Runoff

As discussed in Section 3.9.1, Environmental Setting, the Tuolumne facility project site is located on relatively flat to gently sloping topography. An east-west trending drainage divide is present in the northern portion of the project site, resulting in surface runoff in the southern portion to the west and southwest toward off-site Green Spring Run and runoff in the northern portion to the west and northwest toward an on-site tributary creek to Green Spring Run, located approximately 1,200 feet southwest of the site. A wetlands area is located in the northern portion of the site (Figure 3.9-7, Tuolumne Surface Water Features). A perennial pond is present in this area, which is located within east-west-trending, unnamed blue-line creek, which is a tributary to Green Spring Run, located west of Keystone.

An increase in stormwater runoff as a result of increased impervious surfaces on site could potentially result in excessive erosion or siltation of these downstream water bodies; off-site flooding; and exceedance of the capacity of adjacent or downstream drainage systems. A stormwater detention area, which was previously used by Sierra Pacific Industries for a former wood mill facility, is present in the northern portion of the site. The detention basin presumably captures stormwater flowing to the north. The stormwater capacity of this detention basin is unknown. In addition, a detention facility is not present in the southern portion of the property to detain runoff flowing towards the south. Based on a lack of adequate stormwater detention facilities, potential impacts related to increased runoff would be **potentially significant**. However, with implementation of **MM-HYD-9**, Tuolumne Stormwater Detention, potential significant impacts would be reduced to less than significant levels.

### Flood Flows

The project site is not located within a 100-year Special Flood Hazard Area, as designated by FEMA. The project site is within Flood Zone X, which is an area outside the 0.2% annual floodplain (i.e. 500-year floodplain). In addition, the project site is not within an area subject to seiches or dam failure inundation. As a result, project construction would not impede or redirect flood flows. **No impacts** would occur.

## Transport to Market

### Port of Stockton Facility

#### Increased Runoff

The proposed product receiving and product storage areas are located on relatively flat to gently sloping topography, approximately 1,700 feet from the DWSC, at the closest point. Approximately 20% of the site is paved, with the remainder unpaved and pervious (Figure 2-10, Project Location: Port Rough Terminal, Port of Stockton). Stormwater runoff occurs as sheetflow to adjacent streets and the island drainage system. The developed areas on the island are served by a combination of underground pipes and open drainage ditches, while the undeveloped areas of the island are served exclusively by ditches. Stormwater on the island is directed to a collection and pumping area near the southwest corner of the island. An approximate 5-acre stormwater overflow area just north of the pumphouse collects any overflow runoff until it can be pumped into Burns Cutoff.

An increase in stormwater runoff as a result of increased impervious surfaces on site could potentially result in excessive erosion or siltation of these downstream water bodies; off-site flooding; and exceedance of the capacity of adjacent or downstream drainage systems. Potential impacts related to increased runoff would be **potentially significant**. However, with implementation of **MM-HYD-11**, Stockton Stormwater Detention, potential significant impacts would be reduced to less than significant levels.

#### Flood Flows

The project site is not located within a 100-year Special Flood Hazard Area, as designated by FEMA. The project site is within Flood Zone X, which is an area outside the 0.2% annual floodplain (i.e. 500-year floodplain). In addition, the project site is not within an area subject to seiches or dam failure inundation. As a result, project construction would not impede or redirect flood flows. **No impacts** would occur.

Impact HYD-4 The project would not potentially risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Forest thinning operations would locally occur within 100-year floodplains, throughout the Working Area. Use of equipment that might result in incidental spills of petroleum products and hazardous substances would not occur during flood events or within flood waters. As a result, **no impacts** would occur.

## Wood Pellet Production

### Lassen Facility

As discussed in Impact HYD-3, the project site is located within a 100-year floodplain. Project operations would include use of fuels, oils, paints, commercial cleaners, lubricants, and other miscellaneous maintenance and repair products. In the event the designated hazardous materials storage area were inundated by a flood event, these hazardous substances could spill into the flood waters, resulting in potentially significant water quality impacts. However, approximately 5,220 cubic yards of fill soil would be placed on the site to raise the proposed facility above

the 100-year flood plain (Appendix G1), thus minimizing the potential for flood waters to impact the hazardous materials storage area.

A chemical storage facility is located on the property immediately west of the project site. In the event that the proposed final site elevation would impede and redirect flood flows such that flood elevations rose on this adjacent property, hazardous substances stored at the facility could be potentially released into the environment, resulting in significant water quality impacts. However, as discussed for Impact HYD-3, the project includes a Site Design Feature (SDF-HYD-1) ensuring that no occupied structure that is not currently subject to inundation by flood will become inundated as a result of this project, which includes structures comprising the chemical storage facility. Further, as illustrated on Figure 7c, flood flow modeling indicates that the project, combined with all other existing and anticipated development, will not increase the water surface elevation more than one foot anywhere on this adjacent property. This impact would consequently be **less than significant**.

### Tuolumne Facility

The project site is not located within a 100-year Special Flood Hazard Area, as designated by FEMA. The project site is within Flood Zone X, which is an area outside the 0.2% annual floodplain (i.e. 500-year floodplain). In addition, the project site is not within an area subject to tsunamis, seiches, or dam failure inundation. As a result, project construction would not impede or redirect flood flows. **No impacts** would occur.

### Port of Stockton Facility

The project site is not located within a 100-year Special Flood Hazard Area, as designated by FEMA. The project site is within Flood Zone X, which is an area outside the 0.2% annual floodplain (i.e. 500-year floodplain), nor is the site in an area subject to tsunamis. The ship loading/unloading area would potentially be subject to inundation by a seiche in the event of a large earthquake, as it is immediately adjacent to the SDWC. However, the project would not include storage, use, or disposal of hazardous substances during loading and unloading of ships. As a result, **no impacts** would occur.

Impact HYD-5 The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

## Feedstock Acquisition

### Sustainable Forest Management Projects

As discussed for Impact HYD-1, tractor skid trails and log landings have the greatest effect on erosion of all practices associated with forest management. Although other forest management activities usually occur on a larger proportion of the landscape, the erosion rates on roads are the dominant source of sediment in most managed forests. As set forth in Section 2.4, each GSNR Biomass Only Thinning Project could include construction of up to 1.0 mile of low-standard (i.e., unpaved roads) per project. The only in-stream disturbance of streams during project implementation would be at designated stream crossings to access treatment sites. In addition, existing unpaved roads would be improved and maintained as part of feedstock acquisition. In the absence of proper erosion control features, these activities could result in erosion induced sedimentation of streams, rivers, and reservoirs.

However, PDFs (see Section 2.4) would minimize the potential for erosion during 1) road construction, maintenance, and use, 2) forest thinning, 3) tree felling, and 4) yarding. PDF-GEO-1 requires suspension of road use during wet

winter weather, thus reducing the potential for soil erosion in saturated soils. PDF-GEO-2 requires implementation of erosion prevention and control measures in areas with slopes in excess of 50% (27 degrees). PDF-GEO-3 and PDF-GEO-4 require implementation of a SWPPP or equivalent document, which would reduce the potential for soil erosion. PDF-GEO-5 requires construction of drainage features in treatment areas, which will reduce erosion. And PDF-GEO-6 requires that a Registered Professional Forester or licensed geologist evaluate treatment areas with slopes greater than 50% for unstable soil areas (i.e., soil with moderate to high erosion potential). In addition, **MM-HYD-1** requires protection of water quality at stream crossings by minimization of the number of crossings; selection of crossings where the erosion potential is low; use of a temporary bridge, culvert, or log culvert to minimize siltation of the stream; using suitable drainage measures to disconnect the road from the waterbody; and removal and stabilization of the stream crossing prior to the winter rainy season. With implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1**, Protection of Existing Water Bodies, potentially significant erosion related impacts would be reduced such that the project would not conflict or obstruct implementation of a water quality control plan, including water quality objectives of the North Coast, Central Valley, and Lahontan RWQCB Basin Plans. Impacts would be **less than significant**.

As discussed in Impact HYD-1, forest thinning operations would include equipment and vehicle fueling and maintenance, which typically includes use of gasoline, diesel fuel, oils/lubricants, hydraulic fluids, antifreeze, coolants, solvents/cleaners, and degreasers. Incidental spills of these substances could adversely affect the water quality of stormwater and nearby surface water bodies, including streams, rivers, and reservoirs. Pollutants can also attach to sediment and be transported downstream, which could contribute to degradation of water quality. However, with implementation of PDFs, including PDF-HAZ-1, Equipment Maintenance, and PDF-HYDRO-3, Watercourse and Lake Protection Zones, and mitigation measures **MM-HYD-1**, Protection of Existing Water Bodies, **MM-HYD-2**, Spill Prevention and Response Plan, **MM-HYD-3**, Protection of Existing Drainage Systems, and **MM-HYD-4**, Avoidance of Legacy Soil Contamination, water quality related impacts during forest thinning would be reduced such that the project would not conflict or obstruct implementation of a water quality control plan, including water quality objectives of the North Coast, Central Valley, and Lahontan RWQCB Basin Plans. Impacts would be **less than significant**.

As discussed in Impact HYD-2, water demand for feedstock acquisition would primarily be related to dust suppression along unpaved roads. Water would be secured from various sources, including local water purveyors and local water wells. The demand would be relatively minor and spread out throughout the Working Area. As a result, feedstock acquisition would not substantially decrease groundwater supplies such that the project may impede or conflict with a groundwater sustainability management plan. Impacts would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

#### Construction

As discussed in Impact HYD-1, construction activities would include demolition of the railroad siding, cement deck, and internal roadways, followed by importing 5,220 cubic yards of fill soil to raise the proposed production facilities above the 100-year floodplain to a final elevation. The total area of disturbance would be approximately 192.52 acres. Grading and construction could potentially result in adverse water quality impacts related to erosion and incidental spills of petroleum products and building materials. Because the proposed project is greater than 1 acre in size, construction impacts would be minimized through compliance with the SWRCB CGP, which is the NPDES General Permit for Storm Water Associated with Construction Activities (Construction Stormwater General Permit

Order 2022-0057-DWQ). The CGP requires preparation and implementation of a SWPPP to control runoff from construction work sites. The SWPPP would include BMPs, such as physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other measures would substantially reduce the potential for impacts to surface water quality from occurring during construction. Through implementation of the requirements outlined in the CGP, construction-related impacts to surface water and groundwater would be minimized such that the project would not conflict or obstruct implementation of a water quality control plan, including water quality objectives of the Central Valley RWQCB Basin Plan. Impacts would be **less than significant**.

### Operations

As discussed in Impact HYD-1, project operations are potential sources of stormwater pollution as a result of incidental spills of petroleum products and hazardous substances from trucks, processing equipment, and railcars. Stormwater runoff would be channeled through a stormwater drainage system, which in turn would flow into an on-site detention basin. Numerous small streams, sloughs, and marshy areas are present east of the project site. Due to shallow groundwater, the proposed stormwater detention basin is not a feasible alternative for stormwater infiltration into the subsurface. In the absence of proposed LID features, water quality impacts would be potentially significant. However, with implementation of **MM-HYD-6**, Lassen Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced such that the project would not conflict or obstruct implementation of a water quality control plan, including water quality objectives of the Central Valley RWQCB Basin Plan. Impacts would be **less than significant**.

As discussed in Impact HYD-2, implementation of the Big Valley Groundwater Basin GSP will ensure that the groundwater basin is managed sustainably for existing and future beneficial uses of the groundwater supply. Based on the onsite pump test and basin-wide water budget analysis, local groundwater supplies are available during normal, single dry, and multiple dry years during a 20-year projection and will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses of the groundwater supply (Appendix G2). As a result, the project would not substantially decrease groundwater supplies such that the project may conflict with or obstruct implementation of a groundwater sustainability plan, including the Big Valley Groundwater Basin GSP. Impacts would be **less than significant**.

## Tuolumne Facility

### Construction

As discussed in Impact HYD-1, the proposed project would include construction of a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, project storage and loadout area. New roads for truck access and mill personnel access would be added, including a new truck access from La Grange Road at the southeast corner of the site. A new rail spur connecting to the adjacent Sierra Northern Railway line would be added for finished product loadout. Other improvements would include repurposing existing truck scales and a graded area for overflow raw material storage. Construction related water quality impacts would be the same as that described above for the Lassen Facility. Through implementation of the requirements outlined in the CGP, construction-related impacts to surface water and groundwater would be minimized such that the project would not conflict or obstruct implementation of a water quality control plan, including water quality objectives of the Central Valley RWQCB Basin Plan. Impacts would be **less than significant**.

#### Operations

Operation related water quality impacts would be similar as that described above for the Lassen Facility, In the absence of proposed LID features, water quality impacts would be potentially significant. However, with implementation of **MM-HYD-8**, Tuolumne Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced such that the project would not conflict or obstruct implementation of a water quality control plan, including water quality objectives of the Central Valley RWQCB Basin Plan. Impacts would be **less than significant**.

As discussed in Impact HYD-2, the Tuolumne project site does not overlie a groundwater basin, as designated by DWR, and is therefore not regulated under SGMA. Based on the results of the groundwater budget analysis for the Tuolumne project site contributing watershed, there is sufficient groundwater recharge and groundwater in storage to satisfy the project water demand and the demands of all other groundwater users in the watershed during normal, single dry, and multiple dry years over a 20-year projection. As a result, the project would not substantially decrease groundwater supplies such that the project may conflict with or obstruct implementation of a groundwater sustainability plan. Impacts would be **less than significant**.

### Port of Stockton Facility

#### Construction and Operation

As discussed in Impact HYD-1, the proposed project would include a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, and a ship loadout system. A new road for truck access and facility personnel access would be added on site. A new rail spur connecting to an existing nearby rail line operated by CCT would be added for pellet receipt. New rail scales and a truck scale would be installed for weighing pellets received. Construction and operation related water quality impacts would be the same as that described above for the Lassen Facility. Shallow groundwater is similarly present beneath the Port facility. In the absence of proposed LID features, water quality impacts would be potentially significant. However, with implementation of **MM-HYD-10**, Stockton Low Impact Development Features, water quality related impacts during proposed wood pellet storage and loading would be reduced such that the project would not conflict or obstruct implementation of a water quality control plan, including water quality objectives of the Central Valley RWQCB Basin Plan. Impacts would be **less than significant**.

As discussed in Impact HYD-2, the San Joaquin Valley - Tracy Groundwater Basin has a high to medium priority with regard to potential overdraft and is regulated by the County of San Joaquin GSA – Tracy, under SGMA. Based on the diversified water supplies for project operations, in combination with oversight of groundwater withdrawals by the County of San Joaquin GSA – Tracy, project related Port operations would not substantially decrease groundwater supplies such that the project may conflict with or obstruct implementation of a groundwater sustainability plan, including the Eastern San Joaquin Groundwater Subbasin GSP. Impacts would be **less than significant**.

## 3.9.4.3 Cumulative Impacts

Impact HYD-1 The project may violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Erosion

As discussed for cumulative impacts in Section 3.6, Geology and Soils, fuel management treatments generally are needed every 10 to 20 years and the associated cumulative effects occur during each access and treatment cycle. Although hillslope erosion rates recover quickly, the road system, which is typically used and maintained between treatment activities, is a chronic source of sediment. Sediment yields from high severity wildfires are much greater than the increase in sediment yields due to fuel management activities, but the recurrence interval of such wildfires can be hundreds of years. Over longer time scales, the cumulative impacts of fuel treatments, repeated at 10 to 20 year intervals, when combined with the impacts of continuous road maintenance and use, may be similar to the pulse impact from wildfires (Robichaud et al. 2010).

The cumulative effect of fuel management activities is related to their location and concentration within a given watershed as well as the degree and frequency of disturbance for each activity. The watershed-scale impacts of any fuel management activity must consider the associated activities of road use, road maintenance, increased traffic, and multiple entries with various types of equipment as well as the combined effects of all the fuel treatments being applied. However, these effects are complex and interrelated. Few studies have examined the role of different controlling factors, much less the effects and interactions of the different activities on runoff and erosion at the watershed scale. Identifying the cumulative effects of timber harvest activities is a continuing challenge, as it is almost impossible to quantify the relative contribution of each activity at each location. It follows that determining the cumulative effects of fuel treatments, which generally cause less disturbance than timber harvesting, is even more of a challenge (Robichaud et al. 2010).

Roads greatly increase runoff and erosion rates at the plot and road segment scale. The effect of these increases at the watershed scale depends on the connectivity of the road and stream networks, but several studies have indicated that roads have minimal effect on runoff at larger spatial scales. More studies have shown that unpaved forest roads are chronic sediment sources and that roads can significantly increase sediment yields on small to moderate-sized catchments. Road building, maintenance, and obliteration can generate significant short-term increases in runoff and sediment. The effects of forest roads on runoff and sediment yields can be greatly reduced by improved road placement, road designs that dissipate runoff and direct it away from streams, and the widespread use of erosion mitigation techniques (Robichaud et al. 2010).

The geographic context of water quality impacts is the defined Working Area located within a 100-mile radius from the Lassen and Tuolumne wood pellet production facilities. Erosion from unpaved roads, as a result of new road construction or road maintenance during feedstock acquisition, could result in potentially significant erosion and siltation of downstream water bodies. In addition, forest thinning operations could result in increased stormwater runoff and increased erosion, resulting in potentially significant impacts. However, with implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1**, Protection of Existing Water Bodies, erosion related impacts would be reduced to less than significant.

Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would result in creation and implementation of erosion control related mitigation measures, similar to the proposed project. As a result, Impact HYD-1 would be considered **potentially significant** for both direct and cumulative erosion related impacts, but would be reduced to **less than significant**.

### Hazardous Substances Spills

Forest thinning operations would include equipment and vehicle fueling and maintenance, which typically includes use of gasoline, diesel fuel, oils/lubricants, hydraulic fluids, antifreeze, coolants, solvents/cleaners, and degreasers. Incidental spills of these substances could adversely affect the water quality of stormwater and nearby surface water bodies, including streams, rivers, and reservoirs. As discussed in Section 3.9.2.2, Waiver of Waste Discharge Requirements for Discharges Related to Timber Harvesting Activities have been established for the North Coast RWQCB, Central Valley RWQCB, and Lahontan RWQCB Regions. The waivers cover discharges from nonpoint source activities that have the potential to discharge wastes that may affect waters of the state. Although the Waiver of Waste Discharge Requirements includes general requirements designed to prevent adverse impacts to water quality, in the absence of project specific measures to prevent such adverse impacts, impacts would be potentially significant. However, with implementation of PDF-HAZ-1, PDF-HYDRO-3, **MM-HYD-1**, **MM-HYD-2**, **MM-HYD-3**, and **MM-HYD-4**, water quality related impacts during forest thinning would be reduced to less than significant with mitigation. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would result in creation and implementation of erosion control related mitigation measures, similar to the proposed project. As a result, Impact HYD-1 would be considered **potentially significant** for both direct and cumulative water quality related impacts with respect to hazardous substances spills, but would be reduced to **less than significant with mitigation**.

## Wood Pellet Production

### Lassen Facility

The cumulative area of influence with respect to erosion and hazardous substances spills is the encompassing Pit River Watershed, of the larger Sacramento River and San Francisco Bay watersheds (Figure 3.9-1, Feedstock Area Hydrologic Areas), as erosion induced siltation and spills of hazardous substances can result in adverse impacts to downstream water bodies. During construction activities, the project site and cumulative projects would have the potential to result in local soil erosion during excavation, grading, trenching, and soil stockpiling. Erosion could result in sediment and other pollutants (attached to sediment) entering surface water bodies and adversely affecting water quality. In addition, the project site and cumulative projects would have the potential to result in incidental spills of petroleum products and hazardous materials from vehicles and construction equipment. However, the project and the cumulative projects would be subject to the same regulatory requirements discussed in Section 3.9.4.2, Project Impacts. Compliance with existing regulations would prevent violation of water quality standards as a result of erosion induced siltation of downstream water bodies and incidental spills of hazardous substances. Similar to the proposed project, any cumulative projects greater than 1.0 acre would be subject to provisions of the Construction General Permit, which requires implementation of a project-specific SWPPP and associated BMPs to minimize the potential for erosion and incidental spills.

During operations, the proposed project would include sources of stormwater pollution as a result of incidental spills of petroleum products and hazardous substances from trucks, processing equipment, and railcars, which in turn could result in adverse water quality impacts. However, with implementation of **MM-HYD-6**, Lassen Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced to less than significant with mitigation. Cumulative projects within the area of influence would similarly be subject to CEQA review, which would result in creation and implementation of hazardous substances spills related mitigation measures, similar to the proposed project. As a result, Impact HYD-1 would be considered **potentially significant** for both direct and cumulative water quality related impacts with respect to hazardous substances spills, but would be reduced to **less than significant with mitigation**. As a result, the proposed project, in combination with past, present,

and reasonably foreseeable projects, would not result in cumulatively considerable impacts with respect to incidental hazardous substances spills during operations of the Lassen facility.

### Tuolumne Facility

Water quality related impacts would be similar to that described for the Lassen Facility, although the cumulative area of influence with respect to water quality is the Upper Stanislaus River Watershed of the larger San Joaquin River and San Francisco Bay watersheds (Figure 3.9-1). The proposed project, in combination with past, present, and reasonably foreseeable projects would not result in cumulative considerable impacts with respect to erosion. However, during operations, the proposed project would include sources of stormwater pollution as a result of incidental spills of petroleum products and hazardous substances from trucks, processing equipment, and railcars, which in turn could result in adverse water quality impacts. However, with implementation of **MM-HYD-8**, Tuolumne Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced to less than significant with mitigation. Cumulative projects within the area of influence would similarly be subject to CEQA review, which would result in creation and implementation of hazardous substances spills related mitigation measures, similar to the proposed project. As a result, Impact HYD-1 would be considered **potentially significant** for both direct and cumulative water quality related impacts with respect to hazardous substances spills, but would be reduced to **less than significant with mitigation**. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects, would not result in cumulatively considerable impacts with respect to incidental hazardous substances spills during operations of the Tuolumne facility.

## Transport to Market

### Port of Stockton

Water quality related impacts would be similar to that described for the Lassen Facility, although the cumulative area of influence with respect to water quality is the Upper Stanislaus River Watershed of the larger San Joaquin River and San Francisco Bay watersheds (Figure 3.9-1). The proposed project, in combination with past, present, and reasonably foreseeable projects would not result in cumulative considerable impacts with respect to erosion. However, during operations, the proposed project would include sources of stormwater pollution as a result of incidental spills of petroleum products and hazardous substances from the rail unloading system, two storage domes, and the ship loadout system, which in turn could result in adverse water quality impacts. However, with implementation of **MM-HYD-10**, Stockton Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced to less than significant with mitigation. Cumulative projects within the area of influence would similarly be subject to CEQA review, which would result in creation and implementation of hazardous substances spills related mitigation measures, similar to the proposed project. As a result, Impact HYD-1 would be considered **potentially significant** for both direct and cumulative water quality related impacts with respect to hazardous substances spills, but would be reduced to **less than significant with mitigation**. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects, would not result in cumulatively considerable impacts with respect to incidental hazardous substances spills during operations of the Port of Stockton facility.

Impact HYD-2 The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Groundwater Supply

The geographic context of groundwater impacts is the defined Working Area within a 100-mile radius from the Lassen and Tuolumne wood pellet production facilities. The water demand for feedstock acquisition would primarily be related to dust suppression along unpaved roads. Water would be secured from various sources, including local water purveyors and local water wells. The demand would be relatively minor and spread out throughout the Working Area. As a result, project feedstock acquisition would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the basin. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would include assessment of groundwater impacts. Projects overlying high- and medium-priority groundwater basins designated by the California Department of Water Resources would be subject to compliance with the respective basin GSPs, thus minimizing the potential for substantially decreasing groundwater supplies. Impacts would **not be cumulatively considerable**.

#### Groundwater Recharge

With respect to groundwater recharge, tracked and wheeled equipment use during forest thinning operations could result in soil compaction, which in turn could decrease infiltration of precipitation and decrease groundwater recharge, resulting in potentially significant impacts. However, with implementation of **MM-HYD-5**, Minimize Soil Compaction, groundwater recharge related impacts during forest thinning would be reduced to less than significant with mitigation. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would include impact assessments related to potential increased impervious surfaces and denied recharge. Mitigation measures would similarly be included for those cumulative projects that result in the potential for denied recharge, such that residual impacts would be less than significant. As a result, Impact HYD-2 would be considered **potentially significant** for both direct and cumulative groundwater recharge related impacts, but would be reduced to **less than significant with mitigation**. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects, would not result in cumulatively considerable impacts with respect to feedstock acquisition.

## Wood Pellet Production

### Lassen Facility

#### Groundwater Supply

Typical 20-year water supply and demand projections are lacking due to the project existing outside of a public water system; however, the GSP prepared for the Big Valley Groundwater Basin provides long-term forecasting of inflows and outflows within the Basin. A spreadsheet-based water budget was developed for the basin as part of the GSP development. The future baseline projections with climate change result in an average overdraft of 1,000 AF less than baseline conditions, due to climate models forecasting weather in the basin being warmer with increased precipitation and more precipitation falling in the form of rain than snow. The analysis predicts that the basin will be nearly in balance through 2068, with overdraft of about 1,000 to 2,000 AFY. In addition, groundwater levels in Well 38N07E32A002M, located near the project site, have remained stable since the beginning of the measurement record in 1959, indicating a stable groundwater supply (Appendix G2).

Implementation of the GSP will ensure that the groundwater basin is managed sustainably for existing and future beneficial uses of the groundwater supply. Based on the onsite pump test and basin-wide water budget analysis, local groundwater supplies are available during normal, single dry, and multiple dry years during a 20-year projection and will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses of the groundwater supply. As a result, cumulative project development would not substantially decrease groundwater supplies such that those projects may impede sustainable groundwater management of the basin. Impacts would **not be cumulatively considerable**.

#### Groundwater Recharge

A portion, but not all, of the production facility parcel within the project site would be paved for construction and operation of the wood pellet production facility, resulting in locally denied groundwater recharge. However, the project site is located in a mostly rural area that is predominantly unpaved and pervious to rainfall infiltration. As a result, localized denied recharge as a result of construction of the proposed wood pellet production facility would not interfere substantially with groundwater recharge. Similarly, cumulative project development, which would be subject to CEQA review, would be located in a rural area that is predominantly unpaved and pervious to rainfall infiltration. As a result, cumulative project development would not interfere substantially with groundwater recharge such that those projects may impede sustainable groundwater management of the basin. Impacts would **not be cumulatively considerable**.

### Tuolumne Facility

#### Groundwater Supply

The Tuolumne facility site does not overlie a designated groundwater basin, as determined by DWR. Groundwater beneath the site occurs within bedrock fractures, which in general can be highly variable over relatively short distances. As a result, groundwater beneath the site is relatively localized and not subject to oversight by a Groundwater Sustainability Plan under SGMA. As discussed in Section 3.9.4.2, based on the results of the groundwater budget analysis for the Tuolumne project site contributing watershed, there is sufficient groundwater recharge and groundwater in storage to satisfy the project water demand and the demands of all other groundwater users in the watershed during normal, single dry, and multiple dry years over a 20-year projection. As a result, impacts would **not be cumulatively considerable**.

#### Groundwater Recharge

Impacts would be similar to those described for the Lassen facility. cumulative project development would not interfere substantially with groundwater recharge such that those projects may impede sustainable groundwater management of the basin. Impacts would **not be cumulatively considerable**.

## Transport to Market

### Port of Stockton

#### Groundwater Supply

Water demand for the Port of Stockton project site would primarily be related to potable water supplies for employees and dust suppression. Based on the diversified water supplies for project operations, in combination with oversight of groundwater withdrawals by the County of San Joaquin GSA – Tracy, project related Port operations

would not substantially decrease groundwater supplies and impacts would be less than significant. Cumulative projects within the area of influence would similarly be subject to CEQA review, which would include groundwater impact assessments with respect to the Eastern San Joaquin Groundwater Subbasin GSP and the 2020 Urban Water Management Plan, Stockton District. Groundwater supply and demand evaluations completed in compliance with these documents would minimize the potential for substantially decreasing groundwater supplies, such that groundwater supply impacts would **not be cumulatively considerable**.

#### Groundwater Recharge

With respect to groundwater recharge, denied recharge associated with paving of the project site would result in negligible impacts with respect to groundwater supplies due to continuous flow of shallow groundwater from the San Joaquin River to the east, the Burns Cutoff to the west and south, and the SDWC to the north. Cumulative projects within the area of influence would similarly be subject to CEQA review, which would include impact assessments related to potential increases in impervious surfaces and related decreases in groundwater recharge. As a result, cumulative project development would not interfere substantially with groundwater recharge such that those projects may impede sustainable groundwater management of the basin. Impacts would **not be cumulatively considerable**.

Impact HYD-3 The project may substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- result in a substantial erosion or siltation on- or off-site;
- substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
- create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
- cause the proposed development, when combined with all other existing and anticipated development, to increase the water surface elevation of the base flood more than one foot at any point within the community.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Increased Runoff

As discussed for Impact HYD-1, new road construction and existing road maintenance would result in an increase in impervious surfaces and associated increased runoff. Roads greatly increase runoff and erosion rates at the plot and road segment scale. The effect of these increases at the watershed scale depends on the connectivity of the road and stream networks. Road building, maintenance, and obliteration can generate significant short-term increases in runoff and sediment. However, with implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1**, Protection of Existing Water Bodies, potential significant impacts would be reduced to less than significant.

In addition, as discussed for Impact HYD-2, tracked and wheeled equipment use during forest thinning operations could result in soil compaction, which in turn could decrease infiltration of precipitation and increase stormwater runoff, resulting in excessive erosion or siltation of nearby streams, rivers, lakes, or reservoirs; off-site flooding; and exceedance of the capacity of adjacent or downstream drainage systems. The of risk soil compaction and accelerated runoff from mechanical fuel reduction treatments varies depending on factors such as methods of treatment, types of equipment used, amounts and types of materials being yarded or piled, soil types, soil moisture conditions, slope steepness, and history of past disturbance. However, with implementation of **MM-HYD-5**, Minimize Soil Compaction, stormwater runoff related impacts during forest thinning would be reduced to less than significant with mitigation.

The geographic context of stormwater runoff impacts is the defined Working Area within a 100-mile radius from the Lassen and Tuolumne wood pellet production facilities. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would result in creation and implementation of stormwater runoff and erosion control related mitigation measures, similar to the proposed project. As a result, Impact HYD-3 would be considered **potentially significant** for both direct and cumulative erosion related impacts, but would be reduced to **less than significant with mitigation**.

#### Flooding

Forest thinning operations would locally occur within 100-year floodplains, throughout the Working Area. These operations would not impede or redirect flood flows and no impacts would occur. The geographic context of flooding related impacts is the defined Working Area within a 100-mile radius from the Lassen and Tuolumne wood pellet production facilities. Cumulative projects located within this area of influence would be subject to CEQA and/or NEPA, FEMA, and local jurisdictional requirements pertaining to flooding. As a result, each cumulative project would be designed such that the project would not impede or redirect flood flows, resulting in impacts to off-site properties. Impacts would **not be cumulatively considerable**.

### Wood Pellet Production

#### Lassen Facility

As discussed for Impact HYD-3 and illustrated on Figure 7c, flood flow modeling indicates that the project, combined with all other existing and anticipated development, will not increase the water surface elevation more than one foot in the community of Nubieber. This impact would consequently be less than significant. The geographic context of flooding related impacts is the Upper Pit River Watershed. Cumulative projects located within this area of influence would be subject to CEQA, FEMA, Lassen County, and other local jurisdictional requirements pertaining to flooding. As a result, each cumulative project would be designed such that the project would not increase the water surface elevation in the event of flood by more than one foot, resulting in impacts to off-site properties. Impacts would **not be cumulatively considerable**.

#### Tuolumne Facility

The project site is not located within a 100-year floodplain; therefore, no impacts would occur with respect to flooding. The geographic context of flooding related impacts is the Upper Stanislaus River watershed. Cumulative projects located within this area of influence would be subject to CEQA, FEMA, Tuolumne County, and other local jurisdictional requirements pertaining to flooding. As a result, each cumulative project would be designed such that

the project would not increase the water surface elevation in the event of flood by more than one foot, resulting in impacts to off-site properties. Impacts would **not be cumulatively considerable**.

## Transport to Market

### Port of Stockton

The project site is not located within a 100-year floodplain; therefore, no impacts would occur with respect to flooding. The geographic context of flooding related impacts is the San Joaquin River, Burns Cutoff and SDWC in the vicinity of Stockton. Cumulative projects located within this area of influence would be subject to CEQA, FEMA, City of Stockton, San Joaquin County, and other local jurisdictional requirements pertaining to flooding. As a result, each cumulative project would be designed such that the project would not increase the water surface elevation in the event of flood by more than one foot, resulting in impacts to off-site properties. Impacts would **not be cumulatively considerable**.

Impact HYD-4 The project would not potentially risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Forest thinning operations would locally occur within 100-year floodplains, throughout the Working Area. Use of equipment that might result in incidental spills of petroleum products and hazardous substances would not occur during flood events or within flood waters. As a result, no impacts would occur. The geographic context of flooding related impacts is the defined Working Area within a 100-mile radius of the Lassen and Tuolumne processing facilities. Cumulative projects located within this area of influence would be subject to CEQA and/or NEPA, FEMA, and local jurisdictional requirements pertaining to flooding. As a result, each cumulative project would be designed such that releases of pollutants due to flooding would not occur. Impacts would **not be cumulatively considerable**.

## Wood Pellet Production

### Lassen Facility

As discussed for Impact HYD-3, the project includes a Site Design Feature (SDF-HYD-1) ensuring that no occupied structure that is not currently subject to inundation by flood will become inundated as a result of this project, which includes structures comprising the adjacent chemical storage facility. Further, as illustrated on Figure 7c, flood flow modeling indicates that the project, combined with all other existing and anticipated development, will not increase the water surface elevation more than one foot anywhere on the property of this facility. As a result, impacts would be less than significant. The geographic context of flooding related impacts is the Upper Pit River Watershed. Cumulative projects located within this area of influence would be subject to CEQA, FEMA, Lassen County, and other local jurisdictional requirements pertaining to flooding. As a result, each cumulative project would be designed such that releases of pollutants due to flooding would not occur. Impacts would **not be cumulatively considerable**.

### Tuolumne Facility

The project site is not located within a 100-year floodplain; therefore, no impacts would occur with respect to flooding. The geographic context of flooding related impacts is the Upper Stanislaus River watershed. Cumulative

projects located within this area of influence would be subject to CEQA, FEMA, Tuolumne County, and other local jurisdictional requirements pertaining to flooding. As a result, each cumulative project would be designed such that releases of pollutants due to flooding would not occur. Impacts would **not be cumulatively considerable**.

## Transport to Market

### Port of Stockton

The project site is not located within a 100-year floodplain; therefore, no impacts would occur with respect to flooding. The geographic context of flooding related impacts is the San Joaquin River, Burns Cutoff and SDWC in the vicinity of Stockton. Cumulative projects located within this area of influence would be subject to CEQA, FEMA, City of Stockton, San Joaquin County, and other local jurisdictional requirements pertaining to flooding. As a result, each cumulative project would be designed such that releases of pollutants due to flooding would not occur. Impacts would **not be cumulatively considerable**.

Impact HYD-5 The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Cumulative water quality impacts would be as described for Impact HYD-1. With implementation of PDF-GEO-1 through PDF-GEO-6 and mitigation measure **MM-HYD-1**, Protection of Existing Water Bodies, erosion related impacts during forest thinning would be reduced to less than significant levels. In addition, with implementation of PDF-HAZ-1, PDF-HYDRO-3, **MM-HYD-1**, **MM-HYD-2**, **MM-HYD-3**, and **MM-HYD-4**, water quality related impacts associated with incidental spills of petroleum products during forest thinning would be reduced to less than significant. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would result in creation and implementation of water quality control related project design features and mitigation measures, similar to the proposed project. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects, would not conflict with or obstruct implementation of a water quality control plan, including the Central Valley RWQCB Basin Plan, and would **not result in cumulatively considerable impacts** with respect to water quality during feedstock acquisition activities.

Cumulative groundwater supply impacts would be as described for Impact HYD-2. The water demand for feedstock acquisition would primarily be related to dust suppression along unpaved roads. Water would be secured from various sources, including local water purveyors and local water wells. The demand would be relatively minor and spread out throughout the Working Area. As a result, project feedstock acquisition would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the basin. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would include assessment of groundwater impacts. Projects overlying high- and medium-priority groundwater basins designated by the California Department of Water Resources would be subject to compliance with the respective basin GSPs, thus minimizing the potential for substantially decreasing groundwater supplies. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects, would not conflict with or obstruct implementation of a sustainable groundwater management plan. Impacts would **not be cumulatively considerable**

## Wood Pellet Production

### Lassen Facility

Cumulative water quality impacts would be as described for Impact HYD-1. During construction, compliance with existing regulations would prevent violation of water quality standards as a result of erosion induced siltation of downstream water bodies and incidental spills of hazardous substances. Similar to the proposed project, any cumulative projects greater than 1.0 acre would be subject to provisions of the Construction General Permit, which requires implementation of a project-specific SWPPP and associated BMPs to minimize the potential for erosion and incidental spills. During operations, implementation of **MM-HYD-6**, Lassen Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced to less than significant with mitigation. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would result in creation and implementation of hazardous substances spills related mitigation measures, similar to the proposed project. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects, would not conflict with or obstruct implementation of a water quality control plan, including the Central Valley RWQCB Basin Plan, and would **not result in cumulatively considerable impacts** with respect to water quality during proposed wood pellet production.

Cumulative groundwater supply impacts would be as described for Impact HYD-2. Implementation of the Big Valley Groundwater Basin GSP will ensure that the groundwater basin is managed sustainably for existing and future beneficial uses of the groundwater supply. Based on the onsite pump test and basin-wide water budget analysis, local groundwater supplies are available during normal, single dry, and multiple dry years during a 20-year projection and will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses of the groundwater supply. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would include assessment of groundwater impacts. As a result, cumulative project development would not substantially decrease groundwater supplies such that those projects may conflict with or obstruct implementation of a groundwater sustainability plan, including the Big Valley Groundwater Basin GSP. Impacts would **not be cumulatively considerable**.

### Tuolumne Facility

Cumulative water quality impacts would be as described for Impact HYD-1. During construction, compliance with existing regulations would prevent violation of water quality standards as a result of erosion induced siltation of downstream water bodies and incidental spills of hazardous substances. Similar to the proposed project, any cumulative projects greater than 1.0 acre would be subject to provisions of the Construction General Permit, which requires implementation of a project-specific SWPPP and associated BMPs to minimize the potential for erosion and incidental spills. With implementation of **MM-HYD-8**, Tuolumne Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced to less than significant. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would result in creation and implementation of hazardous substances spills related mitigation measures, similar to the proposed project. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects, would not conflict with or obstruct implementation of a water quality control plan, including the Central Valley RWQCB Basin Plan, and would **not result in cumulatively considerable impacts** with respect to water quality during proposed wood pellet production.

Cumulative groundwater supply impacts would be as described for Impact HYD-2. The Tuolumne facility site does not overlie a designated groundwater basin, as determined by DWR. Groundwater beneath the site is relatively

localized and not subject to oversight by a Groundwater Sustainability Plan under SGMA. Based on the results of the groundwater budget analysis for the Tuolumne project site contributing watershed, there is sufficient groundwater recharge and groundwater in storage to satisfy the project water demand and the demands of all other groundwater users in the watershed during normal, single dry, and multiple dry years over a 20-year projection. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would include assessment of groundwater impacts. As a result, cumulative project development would not substantially decrease groundwater supplies such that those projects may conflict with or obstruct implementation of a groundwater sustainability plan. Impacts would **not be cumulatively considerable**.

#### Transport to Market

##### Port of Stockton

Cumulative water quality impacts would be as described for Impact HYD-1. The proposed project, in combination with past, present, and reasonably foreseeable projects would not result in cumulative considerable impacts with respect to erosion. In addition, with implementation of **MM-HYD-10**, Stockton Low Impact Development Features, water quality related impacts during proposed wood pellet production would be reduced to less than significant with mitigation. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would result in creation and implementation of hazardous substances spills related mitigation measures, similar to the proposed project. As a result, the proposed project, in combination with past, present, and reasonably foreseeable projects, would not conflict with or obstruct implementation of a water quality control plan, including the Central Valley RWQCB Basin Plan, and would **not result in cumulatively considerable impacts** with respect to water quality during proposed wood pellet production.

Cumulative groundwater supply impacts would be as described for Impact HYD-2. Based on the diversified water supplies for project operations, in combination with oversight of groundwater withdrawals by the County of San Joaquin GSA – Tracy, project related Port operations would not substantially decrease groundwater supplies and impacts would be less than significant. Cumulative projects within the area of influence would similarly be subject to CEQA and/or NEPA review, which would include groundwater impact assessments with respect to the Eastern San Joaquin Groundwater Subbasin GSP and the 2020 Urban Water Management Plan, Stockton District. Groundwater supply and demand evaluations completed in compliance with these documents would minimize the potential for substantially decreasing groundwater supplies, such that cumulative project development would not conflict with or obstruct implementation of a groundwater sustainability plan, including the Eastern San Joaquin Groundwater Subbasin GSP. Impacts would **not be cumulatively considerable**.

### 3.9.4.4 Mitigation Measures

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

MM-HYD-1 Protection of Existing Water Bodies. The following measures shall be implemented to protect existing water quality during forest thinning operations:

- All equipment and vehicle staging areas shall be a minimum of 100 feet from existing drainages, streams, reservoirs, and lakes.

- Equipment watercourse crossings shall be planned, constructed, maintained, and removed according to standards described in the California Forest Practice Rules (California Licensed Timber Operators and California Registered Professional Foresters 2020) and the National Best Management Practices for Water Quality Management on National Forest System Lands, National Core BMP Technical Guide (USDA Forest Service 2012). Measures include:
  - minimization of the number of crossings;
  - selection of crossings where the erosion potential is low;
  - use of a temporary bridge, culvert, or log culvert to minimize siltation of the stream;
  - using suitable drainage measures to disconnect the road from the waterbody;
  - providing unrestricted passage of the design flow and fish migration; and
  - removal and stabilization of the stream crossing prior to the winter rainy season.

MM-HYD-2 Spill Prevention and Response Plan. A Spill Prevention and Response Plan shall be prepared prior to forest thinning activities to provide protection to onsite workers, the public, and the environment from incidental leaks or spills of petroleum products, herbicides, or hazardous substances. The Spill Prevention and Response Plan shall be consistent with the 2011 Forest Service Region 5 Water Quality Management Handbook 2509.22, Chapter 10 (U.S. Forest Service 2011) and the National Best Management Practices for Water Quality Management on National Forest System Lands, National Core BMP Technical Guide (USDA Forest Service 2012), including, but not limited to:

- All water-drafting vehicles shall be checked daily and shall be repaired as necessary to prevent leaks of petroleum products from entering streams.
- Water-drafting vehicles shall contain petroleum-absorbent pads, which are placed under vehicles before drafting.
- Water-drafting vehicles shall contain petroleum spill kits.
- Disposal of absorbent pads shall be completed according to a Hazardous Response Plan.
- Plan for appropriate equipment refueling and servicing sites during project planning and design.
- Allow temporary refueling and servicing only at approved locations, which are well away from water or riparian resources.
- Develop or use existing fuel and chemical management plans (for example, spill prevention control and countermeasures (SPCC), spill response plan, emergency response plan) when developing the management prescription for refueling and servicing sites. SPCCs measures shall include:
  - Install or construct the containment features or countermeasures called for in the SPCC Plan to ensure that spilled oil does not reach groundwater or surface water.
  - Ensure that each SPCC Plan includes a spill contingency plan at each facility that is unable to provide secondary spill containment.
  - Ensure that clean-up of spills and leaking tanks complies with federal, State and local regulations and requirements.
  - Prepare a contingency plan when quantities of petroleum products are capable of violating Regional Water Quality Control Board Basin Plan water-quality objectives.

- Locate, design, construct, and maintain petroleum and chemical delivery and storage facilities consistent with local, State and federal regulations.
- Install contour berms and trenches around vehicle service and refueling areas, chemical storage and use areas, and waste dumps to fully contain spills.
- Locate new staging to avoid the potential for hydrologic connectivity with water bodies and watercourses. To determine necessary drainage, calculate the expected runoff using the appropriate design storm. Include any run-on from adjacent areas in the calculation.
- Use liners as needed to prevent seepage to groundwater.
- Provide training for all personnel handling fuels and chemicals in their proper use, handling, storage, and disposal.
- Avoid spilling fuels, lubricants, cleaners, and other chemicals during handling and transporting.
- Report spills and initiate appropriate clean-up action in accordance with applicable State and federal laws, rules and regulations.

MM-HYD-3 Protection of Existing Drainage Systems. If a forest thinning activity is located adjacent to a roadway with stormwater drainage infrastructure, the existing stormwater drainage infrastructure shall be marked prior to ground disturbing activities. If a drainage structure or infiltration system is inadvertently disturbed or modified during project activities, the project proponent shall coordinate with owner of the system or feature to repair any damage and ensure that restore pre-project drainage conditions are restored.

MM-HYD-4 Avoidance of Legacy Contaminated Sites. Areas of known or suspected contaminated soil shall be avoided during forest thinning operations. Known contaminated sites shall be based on the California Department of Toxic Substances Control Cortese list, as described in Section 3.8, Hazards and Hazardous Materials.

MM-HYD-5 Minimize Soil Compaction. Consistent with the 2011 Forest Service Region 5 Water Quality Management Handbook 2509.22, Chapter 10 (U.S. Forest Service 2011), the following measures shall be implemented to minimize soil compaction and increase infiltration of precipitation:

- Exclude the use of mechanical equipment in wetland and meadows except for the purpose of restoring wetland and meadow function.
- During road construction and maintenance, limit operation of equipment when ground conditions could result in excessive soil compaction, except on the road prism or other surface to be compacted.
- During restoration of equipment damaged areas, mechanically rip areas of compacted soil to allow infiltration of precipitation.
- Fell trees toward a predetermined skid pattern, also known as felling to the lead, to reduce soil disturbance.
- When restoring water crossings, remove all trail-hardening materials and fill, and restore the channel bottom to its natural gradient and width. If necessary, replace hardening material in the channel with cobble similar in size to the native bed-load.

## Wood Pellet Production

### Lassen Facility

MM-HYD-6 Lassen Low Impact Development Features. A proprietary biotreatment unit (i.e., Modular Wetland System) shall be installed downstream of the proposed detention basin, as infiltration is not feasible at the site. The biotreatment unit shall be designed to capture and treat stormwater pollutants, consistent with commercial/industrial developments and associated parking lots, and including oil, grease, metals, trash, and debris. Treatment design shall be finalized upon completion of final project design. Source control Best Management Practices, such as secondary containment, regular inspections, and equipment maintenance, shall also be implemented whenever possible.

MM-HYD-7 Lassen Stormwater Detention. A stormwater detention basin shall be constructed on-site and designed to provide peak flow detention for a 24-hour, 50-year storm event, with over 2 feet of freeboard during the peak of the storm event. Stormwater flow rates exiting the site shall be less than or equal to existing conditions. The top elevation of the detention basin shall be constructed a minimum of 2 feet above projected 100-year base flood elevations.

In addition, MM-GEO-1 from Section 3.6, Geology and Soils, shall be implemented.

MM-GEO-1 Engineered Septic System. The on-site septic system shall be an engineered system to address on-site constraints including poor soil conditions (insufficient percolation) and high groundwater. The system may consist of an aerobic treatment unit or other system with equivalent pretreatment characteristics. The system, including any dispersal system, shall be located a minimum of 100 feet from any domestic water well. The system shall meet the requirements for protection of water quality of the local environmental health agency and the Regional Water Quality Control Board.

### Tuolumne Facility

MM-HYD-8 Tuolumne Low Impact Development Features. Soil infiltration testing shall be completed on-site to determine the suitability of the site for construction of a stormwater infiltration basin. In the event that the soils are suitable for infiltration, a stormwater detention/infiltration basin shall be constructed to minimize off-site transport of polluted stormwater runoff. In the event, on-site soils are not suitable for stormwater infiltration, a proprietary biotreatment unit (i.e., Modular Wetland System) shall be installed downstream of the proposed detention basin, as described in MM-HYD-7.

MM-HYD-9 Tuolumne Stormwater Detention. Stormwater detention basins shall be provided for stormwater runoff flowing to the north and south of the site. The stormwater detention basins shall be designed to provide peak flow detention for a 24-hour, 50-year storm event, with over 2 feet of freeboard during the peak of the storm event. Stormwater flow rates exiting the site shall be less than or equal to existing conditions.

In addition, MM-GEO-1 from Section 3.6, Geology and Soils, shall be implemented.

MM-GEO-1 Engineered Septic System. The on-site septic system shall be an engineered system to address on-site constraints including poor soil conditions (insufficient percolation) and high groundwater.

The system may consist of an aerobic treatment unit or other system with equivalent pretreatment characteristics. The system, including any dispersal system, shall be located a minimum of 100 feet from any domestic water well. The system shall meet the requirements for protection of water quality of the local environmental health agency and the Regional Water Quality Control Board.

### Transport to Market

#### Port of Stockton

MM-HYD-10 Stockton Low Impact Development Features. A proprietary biotreatment unit (i.e., Modular Wetland System) shall be installed downstream of the proposed detention basin, as infiltration is not feasible at the site. The biotreatment unit shall be designed to capture and treat stormwater pollutants, consistent with commercial/industrial developments and associated parking lots, and including oil, grease, metals, trash, and debris. Treatment design shall be finalized upon completion of final project design. Source control Best Management Practices, such as secondary containment, regular inspections, and equipment maintenance, shall also be implemented whenever possible.

MM-HYD-11 Stockton Stormwater Detention. A stormwater detention basin shall be constructed on-site and designed to provide peak flow detention for a 24-hour, 50-year storm event, with over 2 feet of freeboard during the peak of the storm event. Stormwater flow rates exiting the site shall be less than or equal to existing conditions.

## 3.9.4.5 Significance After Mitigation

Impact HYD-1 The project may violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

PDF-GEO-1 through PDF-GEO-6, PDF-HAZ-1, PDF-HYDRO-3, **MM-HYD-1**, **MM-HYD-2**, **MM-HYD-3**, **MM-HYD-4**, **MM-HYD-6**, **MM-HYD-8**, **MM-HYD-10**, and **MM-GEO-1** would reduce the potential for violation of water quality standards or waste discharge requirements, or degradation of surface or ground water quality, as a result of the proposed project, such that potentially significant impacts would be reduced to **less than significant**.

Impact HYD-2 The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

**MM-HYD-5** would reduce groundwater recharge related impacts during forest thinning, such that potentially significant impacts would be reduced to **less than significant**.

Impact HYD-3 The project may substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- result in a substantial erosion or siltation on- or off-site;
- substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

- create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
- cause the proposed development, when combined with all other existing and anticipated development, to increase the water surface elevation of the base flood more than one foot at any point within the community.

PDF-GEO-1 through PDF-GEO-6, SDF-HYD-1, **MM-HYD-5**, **MM-HYD-1**, **MM-HYD-7**, **MM-HYD-9**, and **MM-HYD-11** would reduce the potential impacts arising from alteration of existing drainage by the proposed project, such that potentially significant impacts would be reduced to **less than significant**.

Impact HYD-4 The project would not potentially risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.

The proposed project components at the feedstock locations, the wood pellet production facilities in Lassen and Tuolumne Counties, and the transport to market at the Port of Stockton, would not result in a significant impact. No mitigation is required, as the potential impact is **less than significant**.

Impact HYD-5 The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

PDF-GEO-1 through PDF-GEO-6, PDF-HAZ-1, PDF-HYDRO-3, PDF-HYDRO-3, **MM-HYD-1** through **MM-HYD-11** would reduce the potential impacts arising from conflict or obstruction of a water quality control plan or sustainable groundwater management plan, such that potentially significant impacts would be reduced to **less than significant**.

## 3.9.5 References

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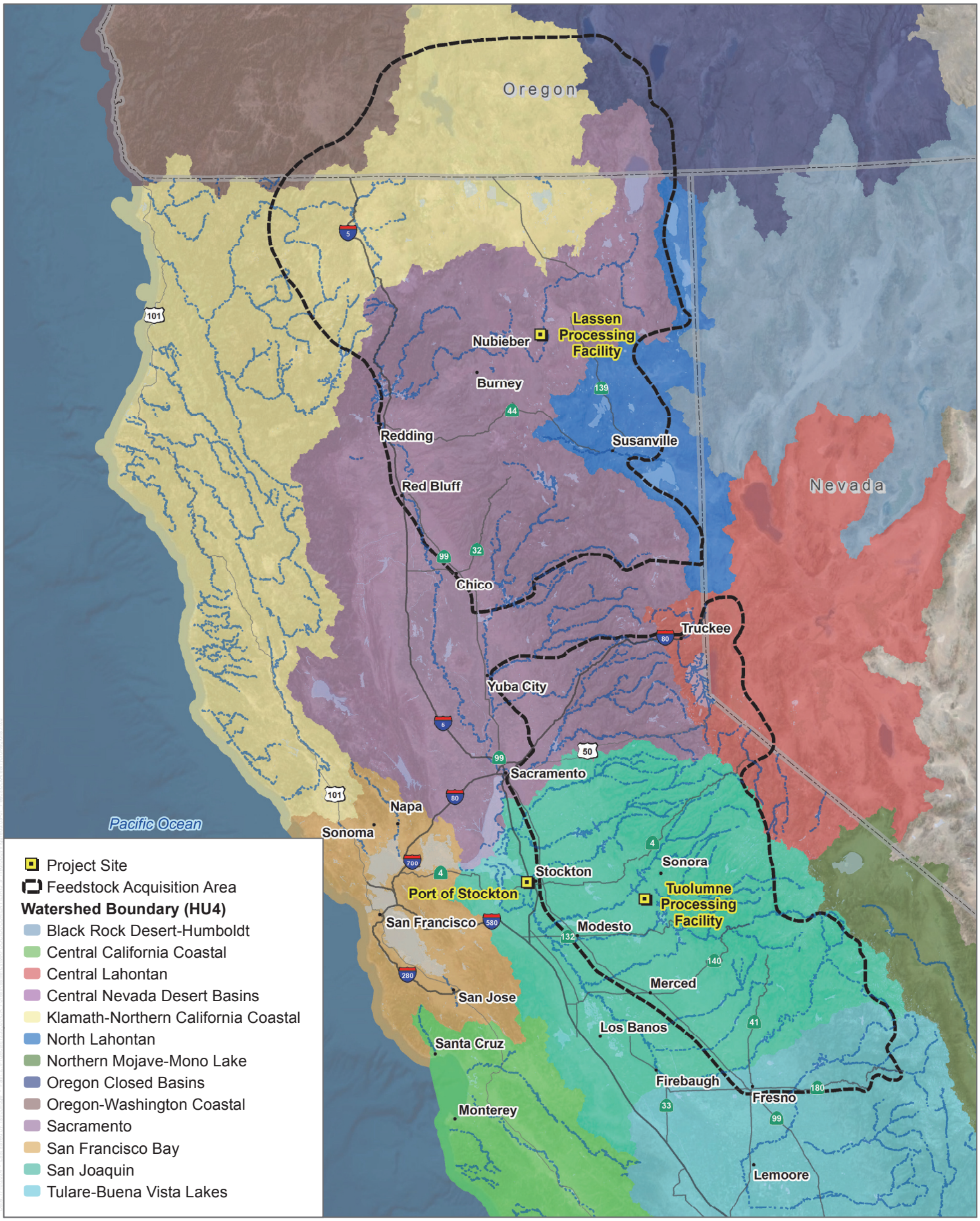


SOURCE: Bing Maps 2022, NHD 2022, CARI

DUDEK

**FIGURE 3.9-1**

Feedstock Area Hydrologic Regions

Golden State Natural Resources Forest Resiliency Demonstration Project

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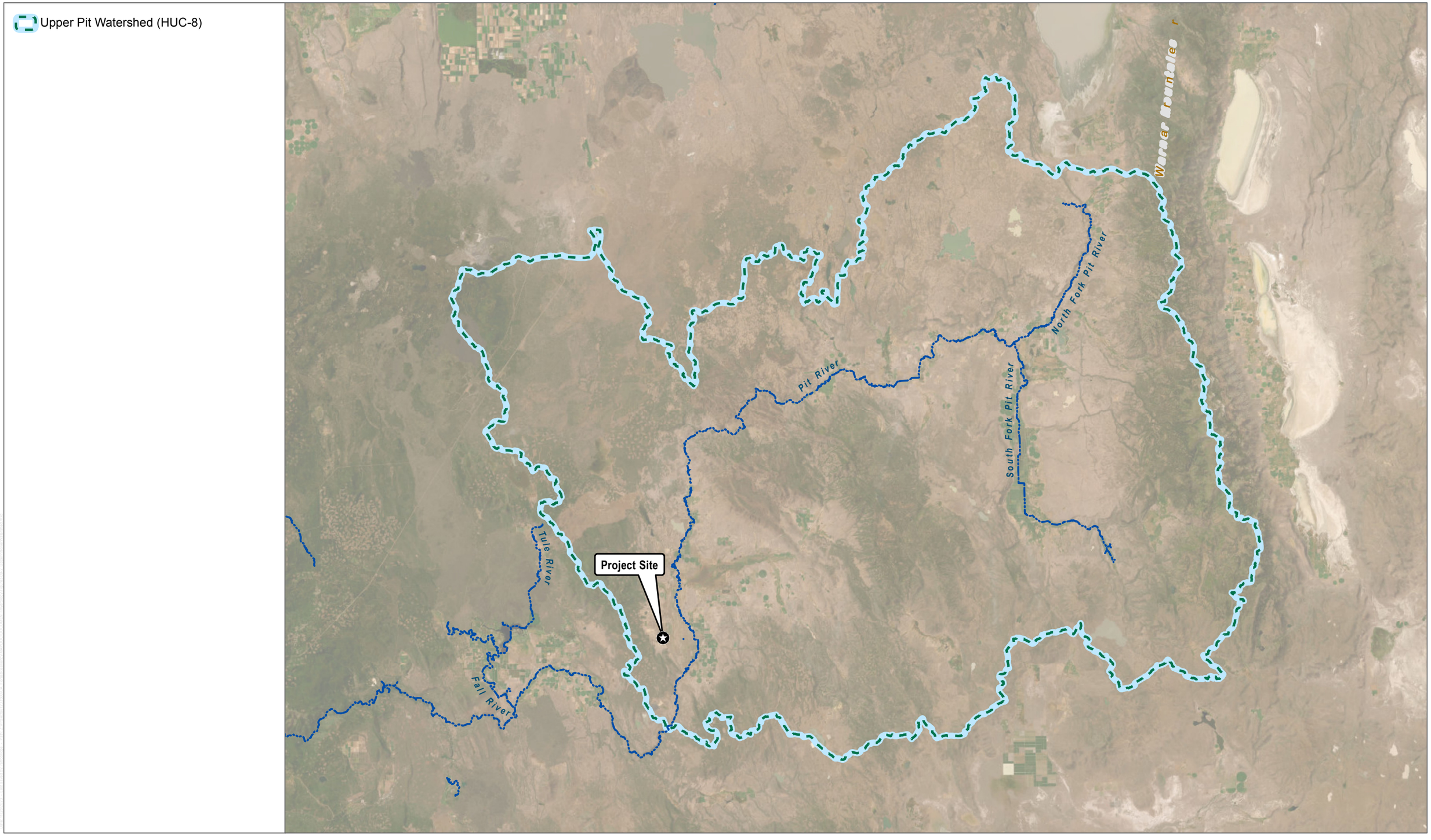


SOURCE: ESRI; USGS

DUDEK

0 4 8 Miles

**FIGURE 3.9-2**

Upper Pit River Watershed

Golden State Natural Resources Forest Resiliency Demonstration Project

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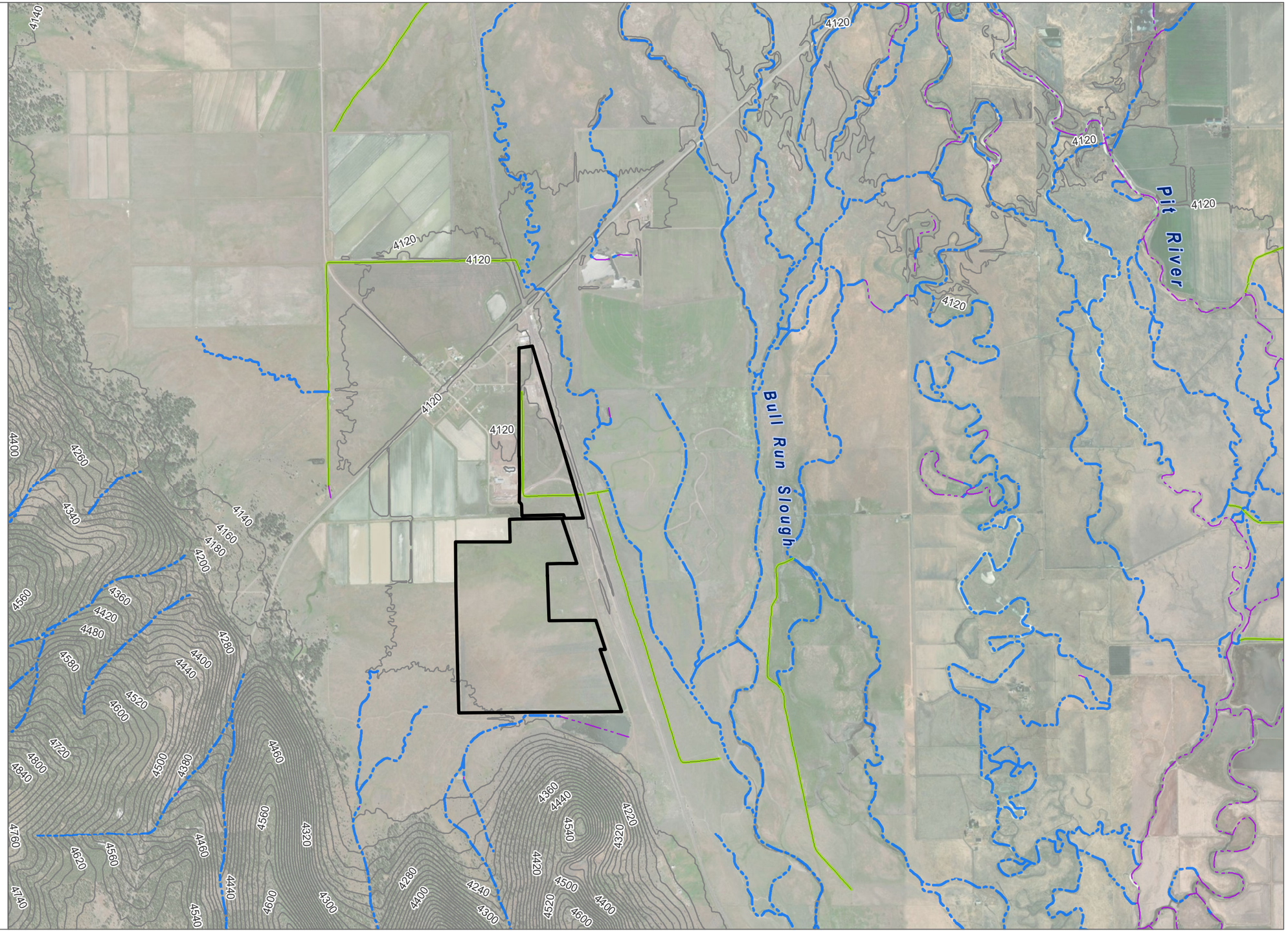
Project Site

**NHD Flowline**

Stream/River

Artificial Path

Canal/Ditch




SOURCE: ESRI; USGS

DUDEK

0 0.175 0.35 Miles

**FIGURE 3.9-3**

Lassen Surface Water Features

Golden State Natural Resources Forest Resiliency Demonstration Project

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Site Boundary

**FEMA Flood Hazard Areas**

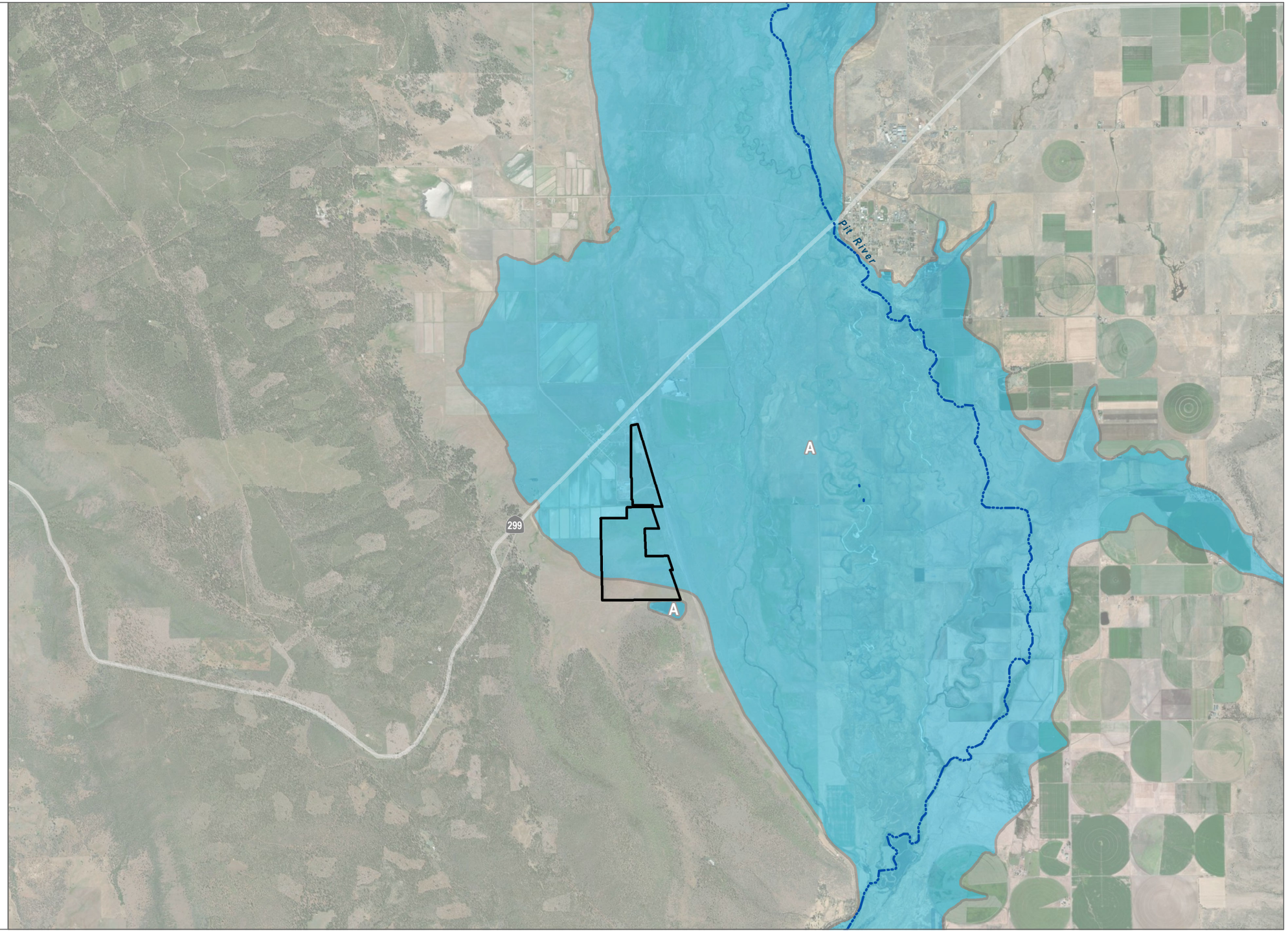
100-Year Flood Hazard Area - Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood.

**FEMA Flood Hazard Areas**

The 1% annual chance flood (100-year flood), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard Area include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

**ZONE A:** No Base Flood Elevations determined.

Note: Zone X - Other Areas of Minimal Flooding and Zone D - Undetermined Areas not shown




SOURCE: ESRI; FEMA

DUDEK

0 2,100 4,200 Feet

**FIGURE 3.9-4**

Lassen FEMA Flood Zones

Golden State Natural Resources Forest Resiliency Demonstration Project

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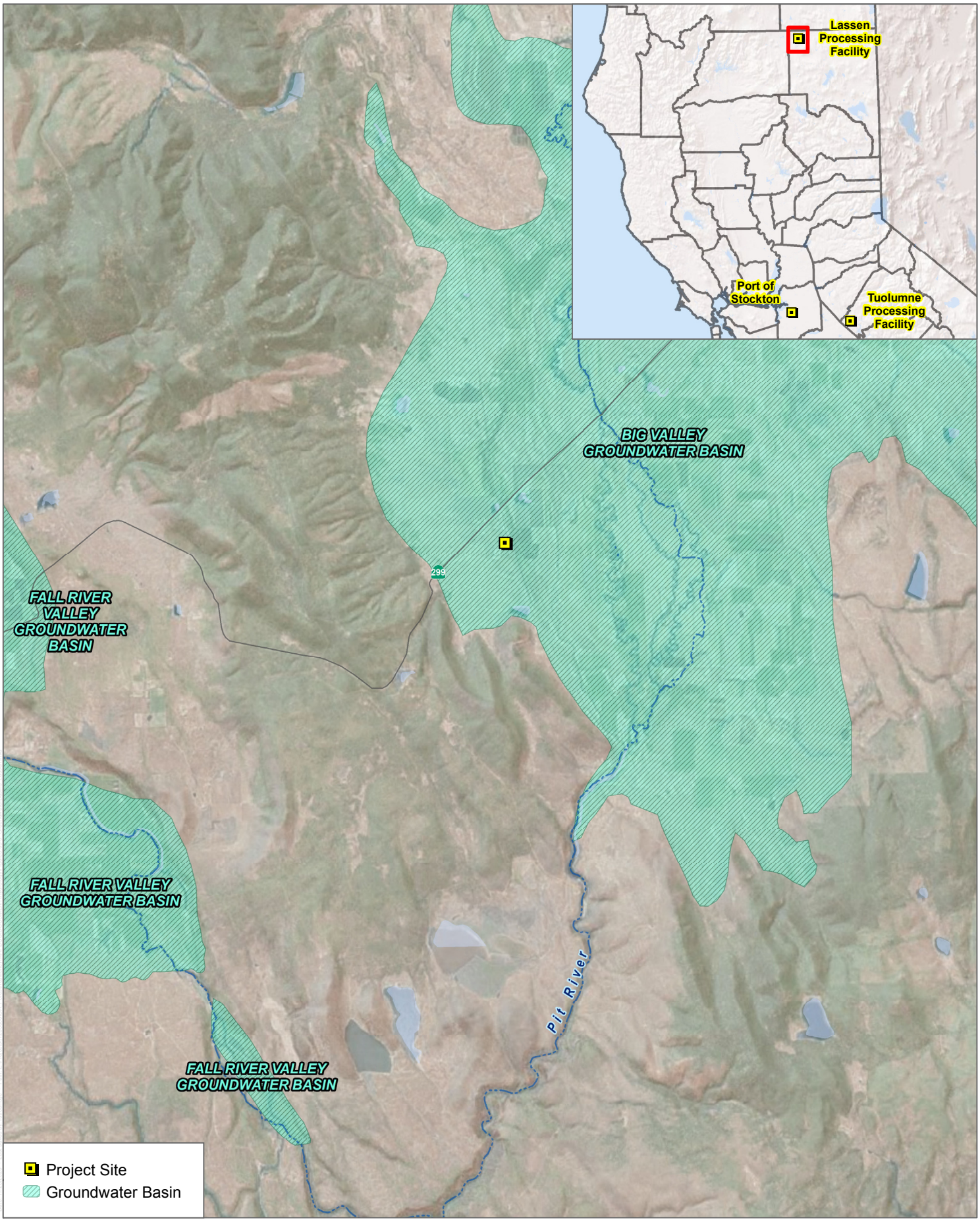


SOURCE: Bing Maps 2022, NHD 2022, CARI

DUDEK

0 1 2 Miles

**FIGURE 3.9-5**

Groundwater Basins - Lassen Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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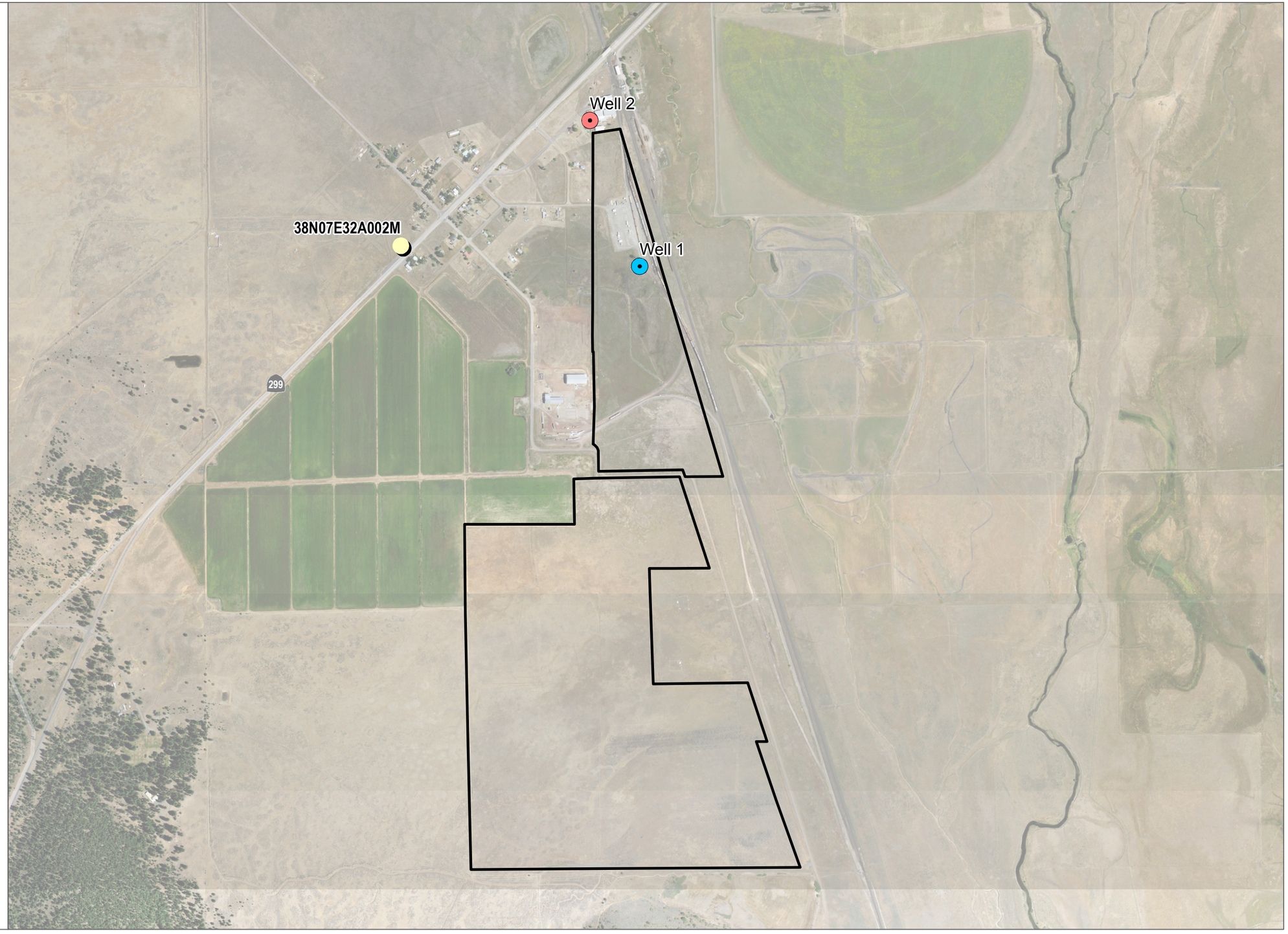
**Legend**

- Project Boundary
- Onsite Well (Well 1)
- Offsite Well (Well 2)




SOURCE: ESRI; DWR

DUDEK

0 600 1,200 Feet

**FIGURE 3.9-6**

On-Site Wells - Lassen Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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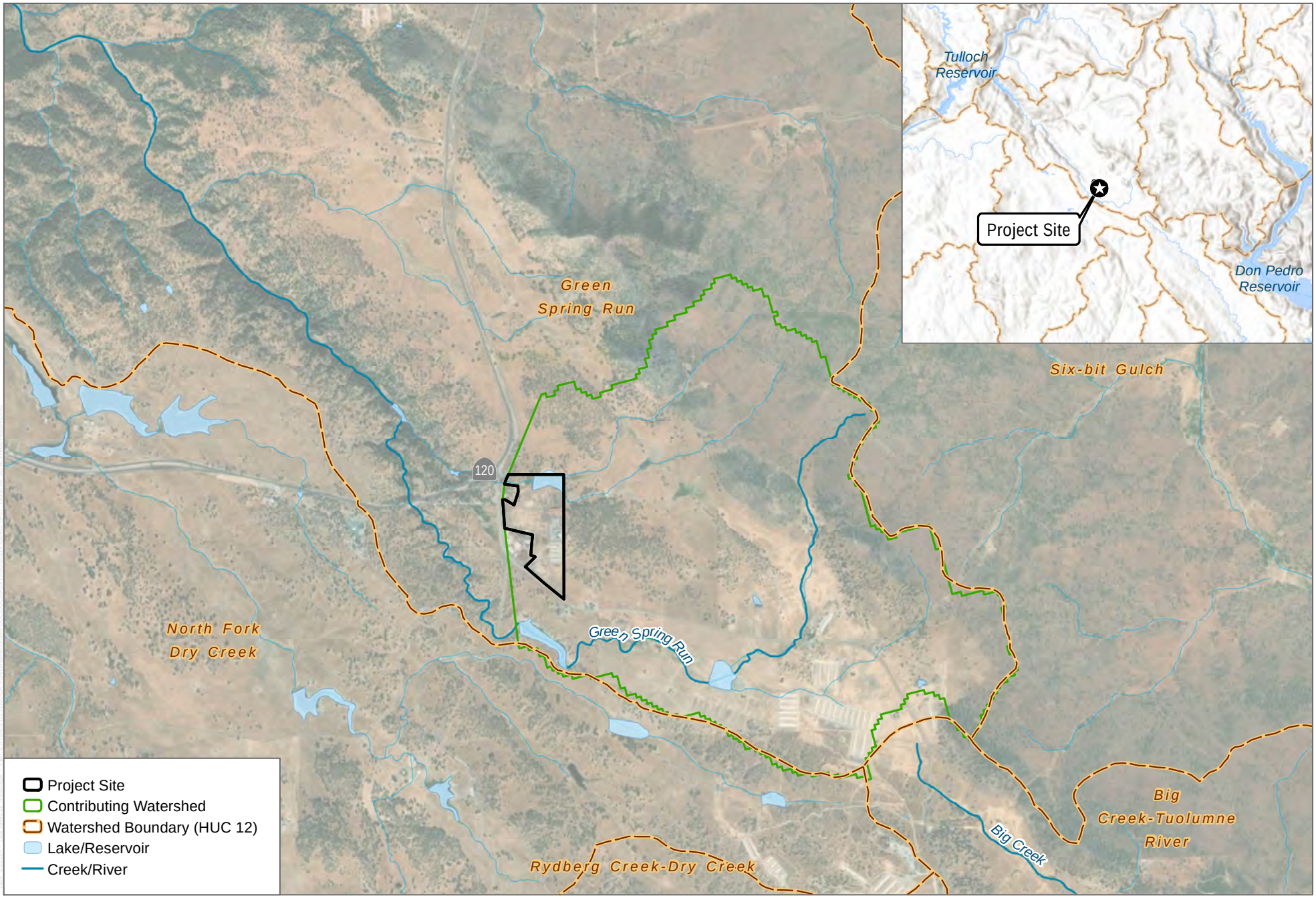


SOURCE: ESRI; USGS

DUDEK

0 0.25 0.5 Miles

FIGURE 3.9-7

Tuolumne Surface Water Features

Golden State Natural Resources Forest Resiliency Demonstration Project

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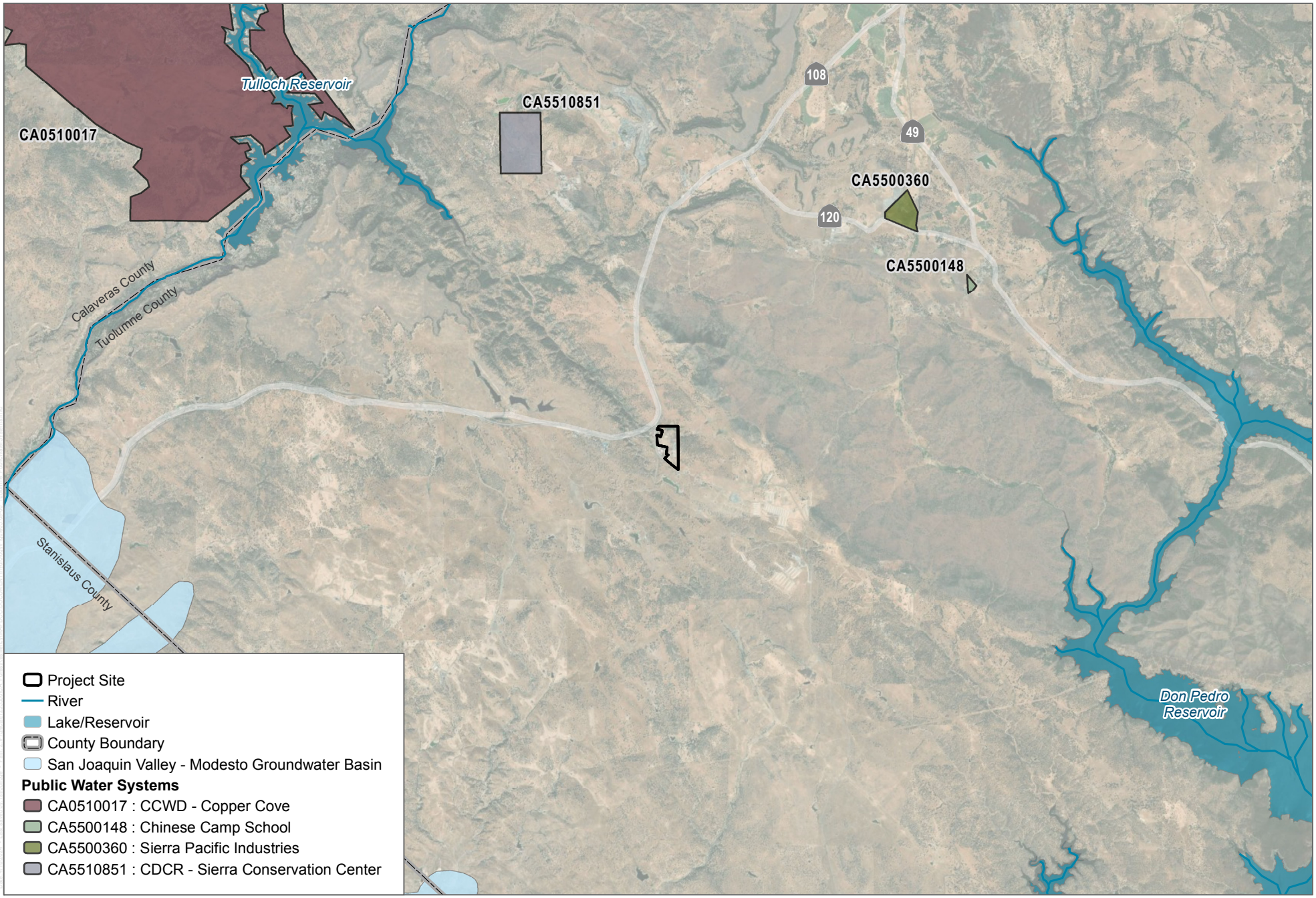


SOURCE: ESRI, SWRCB, Dudek 2024a

DUDEK

0 0.75 1.5 Miles

**FIGURE 3.9-8**

Public Water Systems - Tuolumne Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: ESRI, Tuolumne County, Dudek 2024a

DUDEK

0 370 740 Feet

**FIGURE 3.9-9**

Tuolumne On-Site Wells

Golden State Natural Resources Forest Resiliency Demonstration Project

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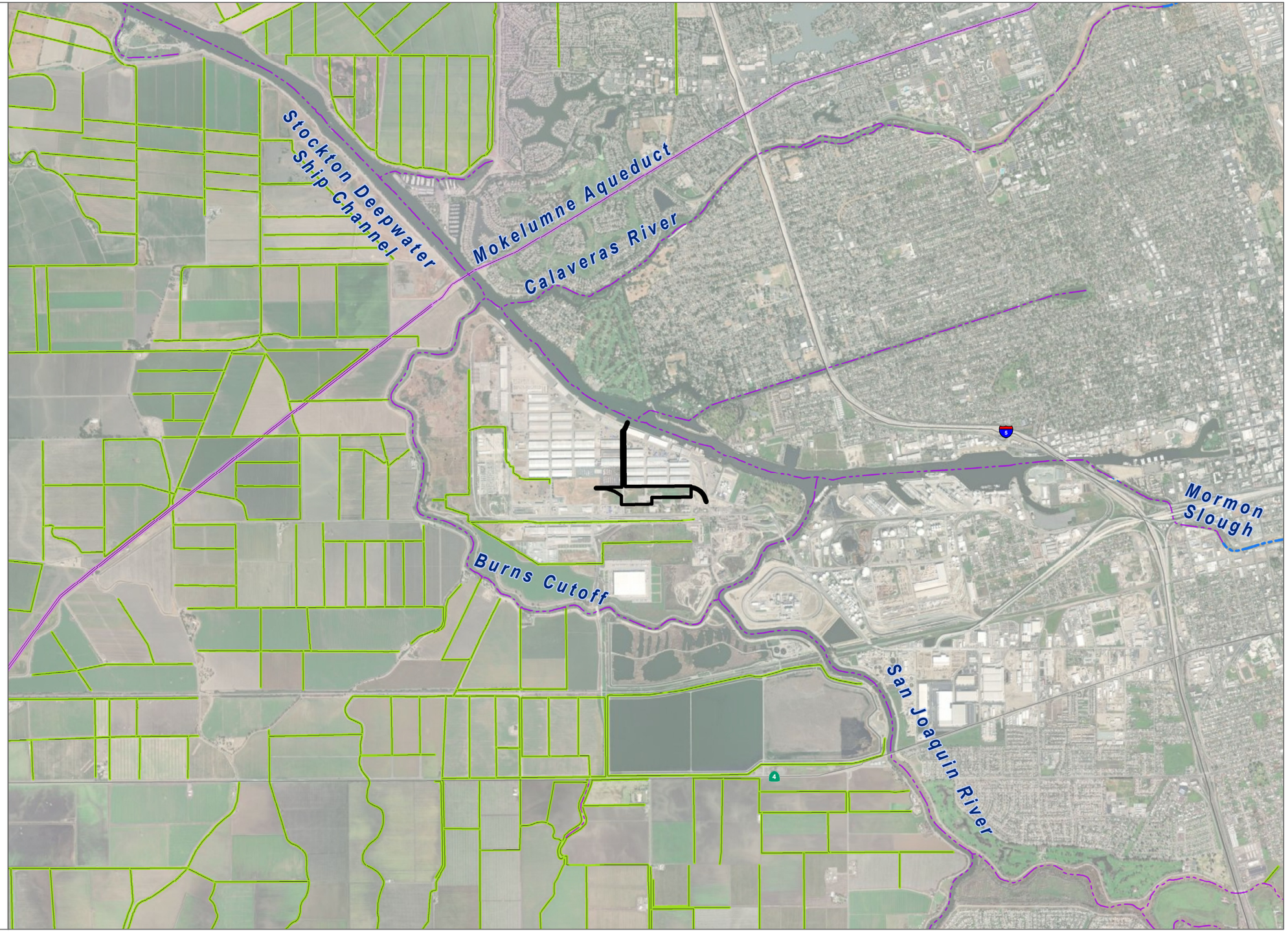
Project Site

**NHD Flowline**

- Stream/River
- Artificial Path
- Canal/Ditch
- Connector
- Pipeline




SOURCE: ESRI; USGS

DUDEK

0 0.275 0.55 Miles

**FIGURE 3.9-10**

Port of Stockton Surface Water Features

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 3.10 Land Use and Planning

This section of the Draft EIR evaluates potential impacts regarding land use and planning associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing land use conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export Port in Stockton, California (Port), and evaluates the potential for project-related land use and planning impacts, considering proposed project design features that could reduce or eliminate associated impacts. In response to the Notice of Preparation (NOP), Lassen County submitted a scoping comment letter that identified the zoning and general plan land use classifications of the Lassen Facility. Several comments were received regarding broader land use compatibility issues with regards to residential uses, and disadvantaged communities in particular. These issues are addressed in the appropriate environmental chapters (e.g. Air Quality, Noise, etc.).

## 3.10.1 Environmental Setting

### 3.10.1.1 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities. in 2019, the Golden State Finance Authority (GSFA) and the U.S. Forest Service signed a master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes all of the 18 national forests located in California. Feedstock for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from California's private, state, tribal, and federal timberlands located within these areas.

### 3.10.1.2 Northern California (Lassen Facility) Site

The proposed Lassen Facility project site is located at 653-800 Washington Avenue, Nubieber, California. Access to the site is provided on the west side via Babcock Road, which connects to State Route 299. The site is adjacent to Burlington Northern Santa Fe Railroad to the east. The overall project site is comprised of four parcels: Lassen County Assessor Parcel Numbers (APNs) 001-270-086, 001-270-026, 001-270-029, and 013-040-13 (see Figure 2-4, Project Site (Lassen)). The pellet processing facility would be located on the northern parcel (-086), which is approximately 65 acres in size. Whereas, a portion of the southern parcels would serve as a log decking area. The Lassen Facility was formerly part of a wood processing sawmill, which utilized the adjacent railroad for shipping. The buildings from the prior sawmill operation are located north of the project site, and were separated from APN 001-270-086 through a lot line adjustment. A portion of APN 001-270-086 is currently licensed to Sierra Pacific Industries for loading wood products onto the railroad.

### Project Site Land Uses

The proposed property is relatively flat. The southern portion of the site was historically used for grazing and the northern parcel was developed for lumper operations. Existing structures include a water tower and pump house on the northern portion of the site. A rail spur crosses the parcel on the southern portion of the site, providing rail access to property west of the project site. The site includes railroad siding, a gravel deck, as well as internal roadways. A portion of the site, including the gravel deck, is currently licensed to Sierra Pacific Industries for the loading of wood products onto the railroad. Additionally, there are mowed agricultural fields located in the northern and southern portion of the site. Most of the vegetation on the undeveloped portions of the site consists of non-native grassland with a mix of annual grasses and forbs.

### Surrounding Land Uses

The project site is located in a predominantly rural and undeveloped portion of the County and is surrounded by widely scattered rural development. To the north of the project site are the structures associated with the prior mill operation, including a water tower and other buildings The Burlington Northern Sante Fe (BNSF) Railroad forms the eastern boundary of the site. An agricultural chemical company (Helena Agri-Business) and scattered residences are located to the north and west of the site, and to the east of the woodyard property. Additional residential areas are located farther west of the project site, towards the center of the Town of Nubieber. Agricultural lands are located east, across the railroad, and to the south and southwest of the site. Most of the lands adjacent to the site are under Williamson Act contracts.

### General Plan Designation and Zoning

The northern parcel (APN 001-270-086) of the project site is designated as Town Center by the County's General Plan and zoned A-1 (General Agriculture). The southern parcels of the project site (APNs 001-270-26, 001-270-29, and 013-040-13) are designated as Intensive Agriculture by the General Plan and zoned Exclusive Agricultural, Agricultural Preserve Combining District (E-A-A-P). None of these parcels is under a Williamson Act contract.

## 3.10.1.3 Central Sierra Nevada (Tuolumne Facility) Site

The proposed Tuolumne Facility project site is located at 12001 La Grange Road in Jamestown, California (See Figure 2-7, Project Location (Tuolumne)). The site is comprised of a single parcel (APN 063-190-056) of 58.56 acres. The previously developed site was formerly a wood processing mill, used by the former owner, Sierra Pacific Industries, for finished bark and colored mulch processing. Prior to Sierra Pacific Industries ownership, the facility was an operational sawmill run by Louisiana Pacific. The bark and mulch operation ceased in 2020.

### Project Site Land Uses

The site was previously developed with an existing bark and mulch processing facility on the east-central portion of the site equipped with buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with the historic use of the property as a wood processing facility. The project site also contains two aboveground storage tanks, a well within a pumphouse, a guard shack, a truck scale, and two ponds. The project site contains a variety of aquatic resources, including wetland and non-wetland waters (See Section 3.3, Biological Resources for additional information on aquatic resources). Most of the vegetation on the project site is comprised of annual grassland. The site is bordered by Sierra Northern Railroad to the west that travels along La Grange Road and intersects near the southwestern project site boundary.

### Surrounding Land Uses

The project site is surrounded by widely scattered rural development and open space generally composed of scattered oak woodland and annual grassland. The site is bounded to the north by vacant partially wooded land. Wooded land is located to the east of the Site. Grass covered land is located to the south of the site. American Wood Fibers is located adjacent to the southwest of the facility. A wood shaving plant owned by American Wood Fibers is located adjacent to the west side of the site, and two residences are located adjacent to the northwest corner of the site (former caretaker residences for the previous mill operation). The majority of adjacent lands are under Williamson Act (California Land Conversation Act) contracts, restricting them to agricultural or related uses.

### General Plan Designation and Zoning

The project site is designated Heavy Industrial by the Tuolumne County General Plan (County of Tuolumne 2018) and is zoned as M-2 (Heavy Industrial District). Surrounding uses include Agriculture lands, as designated by the General Plan, to the north, east, south, and west. Further southeast of the project site is land designated as Public by the General Plan and contains the CalFire Green Springs Station. Public land is also located across La Grange Road to the southwest of the project site. Rural Residential land uses exist to the southeast and west of the project site. Additional land designated as Estate Residential is located northwest if the site. The project site is not under a Williamson Act contract.

## 3.10.1.4 Port of Stockton

The proposed facility would be located at the Port of Stockton, within the City of Stockton (City), directly south of the San Joaquin River and west of Interstate 5 (I-5), as shown in Figure 2-10, Port Location. The proposed facility would be located at the Port's West Complex, also known as Rough and Ready Island (APN 162-030-07). Primary access to the Port is by Navy Drive Bridge, which connects the main Port ("East Complex") with the West Complex. Secondary access is provided by Daggett Road Bridge, on the southern side of the island. Rail access to the West Complex is provided by a railroad bridge north of the Navy Drive Bridge.

### Project Site Land Uses

The project site is located in the West Complex, which was previously a natural wetland known as Rough and Ready Island. The Island was first filled in in the 1850s and was later, in the 1940s, transformed into a Naval base. However, in 1996 the majority of the Island was transferred to the Port of Stockton (Port of Stockton 2023a) for civilian maritime uses. The Port of Stockton West Complex consists of Berths 14 through 20 with 6,000 lineal feet of docks, 630,000 square feet of transit sheds, and is truck, rail, and crane accessible. Additionally, all berthing facilities at the port offer fresh water at the berths, bunkering, and dockside phone connections (Port of Stockton 2023b).

The proposed GSNR facility would be located in the northeastern quarter of the West Complex, on a relatively undeveloped site bordered by Davis Ave., Boone Dr., Edwards Ave., and Lipes Dr. The project site include a concrete parking lot in the southeast corner.

### Surrounding Land Uses

There are a number of surrounding land uses within the project area. The West Complex Development Plan (WCDP), approved in 2004, identifies commercial and industrial parks, as well as other diversified land uses and

infrastructure to aid Port activities for the undeveloped areas of Rough and Ready Island. Approximately 75 facilities or businesses operate out of the West Complex as of 2020. The West Complex is characterized by maritime terminals, railroad facilities, large warehouse and storage buildings, and stockpiles of various commodities (Port of Stockton 2023b). All facilities are Port-dependent bulk, industrial, commercial, or warehousing operations, consistent with the WCDP. Immediately east of the site is additional land owned and operated by the Port of Stockton. To the south and west are farmlands. Immediately north is the San Joaquin River followed by residential areas.

### General Plan Designation and Zoning

The project site is designated as Institutional in the City's General Plan and is zoned as Port (PT). Land uses adjacent to the project site are also designated Institutional in the General Plan. However, farther east of the project site, there is land designated as Industrial. The land uses immediately to the east, south, and west are also zoned as PT. Across the San Joaquin River to the north there is land zoned for Public Facilities and Low Density Residential. Additional land zoned for Public Facilities is located southeast of the site. Farther west of the project site is agricultural land. The General Plan shows the project site is located within the Port and Mount Diablo Waterfront neighborhood (City of Stockton 2018).

## 3.10.2 Regulatory Setting

### 3.10.2.1 Federal

#### U.S. Forest Service

In 2019, the lead agency and the U.S. Forest Service signed a Master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes all of the 18 national forests located in California. Individual Sustainable Forest Management Projects to reduce fuel loads and increase resiliency will be implemented through Supplemental Project Agreements and similar stewardship contracting mechanisms (SPAs). (While the MSA applies to the entirety of Region 5, only Sustainable Forest Management Projects within the Working Area described in Section 3.10.1.1 are contemplated under the proposed project.) The Forest Service's strategic plan (USDA 2015) includes four outcome-oriented goals:

1. Sustain Our Nation's Forests and Grasslands.
2. Deliver Benefits to the Public.
3. Apply Knowledge Globally.
4. Excel as a High-Performing Agency

The plan further identifies three strategic objectives for the first goal:

- Foster resilient, adaptive, ecosystems to mitigate climate change.
- Mitigate wildfire risk.
- Conserve open space.

### 3.10.2.2 State

The State of California may have jurisdiction over two aspects of the feedstock operations: (1) Activities within state forests, or (2) activities on private timberlands that are subject to the following forestry regulations.

#### Z'berg-Nejedly Forest Practice Act (FPA)

The 1973 California Forest Practice Act is designed to protect, enhance, and restore California's timberlands. The purpose of this law is "to achieve maximum sustained production of high-quality timber products while giving consideration to values relating to recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment and aesthetic enjoyment" (Public Resources Code § 4513b). The regulations authorized by this law define the size and location of harvest areas, as well as matters such as protection of riparian corridors and archaeological sites, timing of harvest during wildlife nesting periods, locations of roads, and operations during certain seasons to protect wet soils.

#### California Forest Practice Rules (CFPR)

The FPA is implemented through a series of regulations called the California Forest Practice Rules (CFPR). These are lengthy in scope and detail and provide explicit instructions for permissible and prohibited actions that govern the conduct of timber operations in the field. For example, the FPRs define the contents of a timber harvesting plan (THP). A THP is the formal environmental review document that must be prepared by an RPF and approved by the California Department of Forestry and Fire Protection (CAL FIRE) prior to any commercial harvesting of timber in the state.

### 3.10.2.3 Local

#### Lassen County

##### Lassen County General Plan

The Lassen County General Plan (Lassen County 1999) contains an Energy Element (1993), Land Use Element (1999), Natural Resources Element (1999), Agriculture Element (1999), Wildlife Element (1999), Open Space Element (1999), Circulation Element (1999), Housing Element (2019) and Safety Element (2023).

The Land Use Element of the General Plan designates the proposed general distribution and intensity of uses of the land for housing, business, industry, open space, natural resources, public facilities, waste disposal sites, and other categories of public and private uses. The Land Use Element is intended to serve as the central framework for the entire General Plan, and to correlate all land use issues into a set of coherent development policies. The following goals, policies, and implementation measures are applicable to the proposed project.

Goal A-4. Compatibility between land use types by providing for complementary mixtures and patterns of land uses.

> Policy LU-6. The County recognizes general plan land use designations and consistent zoning as the appropriate and primary tools for attempting to achieve and maintain compatibility of land uses within the context of the County's land use authority and local control.

Goal L-4. Compatibility between land use types by providing for complementary mixtures and patterns of land uses.

Policy LU-6. The County recognizes general plan land use designations and consistent zoning as the appropriate and primary tools for attempting to achieve and maintain compatibility of land uses within the context of the County's land use authority and local control.

Goal L-13. Improvement, expansion and diversification of the County's industrial base and generation of related employment opportunities.

Policy LU32. The County encourages and will facilitate the development of new, environmentally responsible industrial projects for the economic benefit of the County.

Policy LU33. In considering proposals for new industrial sites, including amendments of the County General Plan and related rezoning, the County will address the compatibility of the site with established land use patterns, the adequacy of infrastructure and services, and the consistency of new sites with policies related to the protection of natural resources as addressed in relevant sections of the General Plan.

Implementation Measure:

Policy LU-S. The County shall continue to utilize the CEQA process, when applicable, to evaluate the potential impacts and land use issues related to proposed industrial development, and shall require appropriate mitigation measures when needed.

Policy LU34. The County supports the development of industrial land uses primarily in or adjacent to areas which have been designated and developed for such uses and which have or can develop the necessary infrastructure to serve such uses, while recognizing that some types of resource-related industrial uses and processing plants may require or otherwise warrant relatively remote sites which are removed from standard industrial areas.

Policy LU35. Subject to case-by-case review (including review for compatibility with surrounding agricultural uses), and in compliance with relevant area plan, zoning, permitting and environmental review requirements, the development and operation of the following land uses will typically be deemed to be consistent with the Extensive and Intensive Agriculture land use designations and will not require zoning to an “Industrial” zoning district, nor will they be interpreted by the County to constitute an "agricultural conversion" pursuant to this General Plan:

A. processing plants for the production of agricultural products
B. processing plants for the production of natural resource products where the location of the resource is fundamental to the location of processing and packaging facilities (e.g., water bottled at the source, etc.);
C. mines, the extraction of minerals, and the ancillary processing of mineral materials generated on-site, including the production of asphalt, ready-mix concrete and similar products;
D. saw mills and related timber processing operations;
E. geothermal and natural gas wells, hydroelectric projects, .and ancillary facilities for the production of energy; and
F. uses of similar character as may be determined by the Board of Supervisors.

Goal L-16. Conservation of productive agricultural lands and lands having substantial physical potential for productive agricultural use, and the protection of such lands from unwarranted intrusion of incompatible land uses and conversion to uses which may significantly obstruct or constrain agricultural use and-value.

Policy LU40. The County recognizes and has generally assigned General Plan land use designations for lands having high agricultural resource value as "Intensive Agriculture" or "Crop Land and Prime Grazing Land". It also recognizes the potentially important agricultural values of some of the areas designated "Extensive Agriculture" or "Grazing and Sagebrush Environment" for rangeland grazing and other agricultural purposes.

Implementation Measure:

Policy LU-X. Land designated "Intensive Agriculture" in the Land Use Element shall be zoned "E-A" Exclusive Agriculture District, "A-3" Agricultural District, "U-C". Upland Conservation District, or "U-C-2" Upland Conservation/Resource Management District.

Policy LU-Y. Land designated "Extensive Agriculture" in the Land Use Element shall be zoned "U-C", Upland Conservation District, "U-C-2", Upland Conservation/Resource Management District" or "A-3", Agricultural District.

Goal L-18. Healthy forest environments which will continue to provide resources for multiple uses and timber production in sustainable quantities which will benefit the local economy.

Policy LU-42. The County supports the conservation and management of timber production areas for the production of timber and other multiple uses compatible with timber production and shall, within the County's authority, protect these areas from land uses (e.g., residential development) and factors which would significantly restrict their capacity for production.

Goal O-1. To establish balanced policies to recognize, manage and, where warranted, preserve Lassen County's open space resources.

Policy OS-2. The County recognizes the following General Plan and area plan land use designations as predominately natural resource management designations having "open space" values which need to be considered in regard to land use and resource management decisions:

- General Forest Environment
- Grazing and Sagebrush Environment
- Rangeland
- Crop Land and Prime Grazing
- Extensive Agriculture
- Intensive Agriculture
- Lassen Volcanic National Park
- Open Space
- Wilderness Area

**Note:** The recognition and consideration of the open space character and values of these areas shall not be construed to be contrary to allowing limited levels of appropriate development (including the issuance of individual building permits), and resource production and management practices (including agriculture, livestock grazing, and timber management) which may be allowed by the County subject to the adopted zoning of those areas and the lawful exercise of the County's land use authority.

Policy OS-3. The County shall consider the open space values of an area when considering proposed changes in general plan land use designations, zoning, minimum parcel sizes, and development standards, and shall weigh the need to protect those open space values with the need or desire for development which would diminish those values.

### Lassen County Code

#### Chapter 18.16 A-1 General Agricultural District

The intent of the A-1 district is to include all the unincorporated territory of the county not indicated specifically to be used for precise districts of agriculture, residential, commercial, manufacturing, open space, institutional, conservation, timber production, floodplain or airport.

#### Chapter 18.66 E-A Exclusive Agricultural District

This district classification is intended to be applied to land areas which are used or are suitable for use for intensive agricultural production purposes and are designated in the general plan as land areas of fertile soils or other favorable agricultural production characteristics within which agricultural preserves may properly be created for purposes of utilizing provisions of law relating to agricultural zoning and agricultural preserves, and to preserve such areas and protect them from the encroachment of incompatible uses.

#### Chapter 18.82 A-P Agricultural Preserve Combining District

This district classification is intended to be applied in combination with other appropriate districts to establish the precise boundaries of agricultural preserves and to provide such additional restrictions upon the use of land as are necessary to comply with provisions of law which are applicable to agricultural preserves.

## Tuolumne County

### Tuolumne County General Plan Update

The Tuolumne County General Plan was adopted in 1996 and updated in 2019. The General Plan Update establishes the community's vision for the development of Tuolumne County through the year 2040 and serves as the fundamental land use policy document for the County. The Update consists of three components: the Countywide General Plan, Community Plans, and the Technical Background Report. The General Plan Elements and Community Plans contain statements of goals, policies, and implementation programs. The General Plan Update is intended to function as a policy document to guide land use decisions within Tuolumne County's planning area through the year 2040. County decision-makers will use the General Plan Update as a road map for: choices about the use of land, protection of environmental resources, conservation of existing, and development of new housing, provision of supporting infrastructure and public and human services, and protection of people and property from natural and human-made hazards. The General Plan is made up of 18 chapters: Community Development and Design, Housing Element, Utilities Element, Transportation Element, Noise Element, Economic Development

Element, Managed Resources Element, Agricultural Element, Public Safety Element, Healthy Communities Element, Parks and Recreation Element, Education and Libraries Element, Cultural Resources Element, Water Supply Element, Air Quality Element, Natural Resources Element, Natural Hazards Element, Climate Change Element.

Goal 1B. Minimize conflicts between incompatible land uses.

Policy 1.B.1. Protect existing land uses from the infringement of and impacts associated with incompatible land uses.

Policy 1.B.5. Preserve the existing nighttime environment by limiting the illumination of areas surrounding new development. New lighting that is part of residential, commercial, industrial, or recreational development shall be oriented away from off-site sensitive uses, and shall be hooded, shielded, and located to direct light downward and prevent glare.

Goal 1G. Promote the development of industrial uses to meet the present and future needs of Tuolumne County's residents and to provide jobs and promote economic vitality.

Policy 1.G.1. Designate adequate amounts of land in appropriate areas for industrial development that are suitable for accommodating a variety of industrial uses and uses to support industry.

Policy 1.G.2. Require industrial development to meet performance standards based on factors of noise, odor, traffic, air and water pollution, and underground resources in order to minimize its impacts on surrounding land uses.

Policy 1.G.3. Encourage industrial businesses which utilize the output of lumber and natural resource processors and other industries that can provide a broad economic base for Tuolumne County.

Goal 4D. Support and encourage the revitalization of the Sierra Railroad.

Policy 4.D.3. Encourage industrial and recreation land uses along the Sierra Railroad that may increase rail operations and which will not detract from use of the Railroad by the filming industry.

Goal 6D. Minimize conflicts between incompatible land uses.

Policy 1.D.1. Protect existing land uses from the infringement of and impacts associated with incompatible land uses.

Goal 6E. Encourage the retention and expansion of existing businesses, attraction of new business and industry and assist in entrepreneurial programs to generate local employment opportunities, reduce retail leakage out of the county trade area and diversify the local economy, while maintaining its environmental and cultural integrity.

Policy 6.E.6. Encourage the building of the local economy and its associated new commercial and industrial development in a manner which recognizes the importance to wisely conserve, utilize and promote the County's scenic beauty, natural and cultural resources, environmental setting and educational assets.

Goal 7A. Promote the stability and productivity of the County’s timberlands and timber related industries.

Policy 7.A.1. Encourage the conservation and management of timberlands through incentive programs while conforming with California forest practice law.

Policy 7.A.2. Minimize the potential for conflicts between timberland and non-timber related uses.

Policy 7.A.3. Encourage well planned timber related uses in commercial timberland areas.

Goal 16A. Balance property rights with the conservation of the environment and rural character of the County, which contributes to the quality of life of residents, encourages tourism and supports economic development.

Policy 16.A.1. Recognize that agricultural and timberlands have historically defined the rural character and scenic beauty of Tuolumne County.

Policy 16.A.5. Conserve scenic resources, landmarks and the natural landscape.

Policy 16.A.6. Encourage the protection of clusters of native trees and vegetation and outstanding individual native and non-native trees which help define the character of Tuolumne County.

Goal 16B. Support the diversity and quality of biological resources while balancing the needs of public use and private property rights.

Policy 16.B.8. Balance the conservation of biological resources with the need to reduce wildland fire hazards.

### Tuolumne County Code

#### Chapter 17.40 – Heavy Industrial District, or (M-2) District

*Section 17.40.010* – Purpose*:* The purpose of the heavy industrial (M-2) district is to provide an area for heavy industry. Permitted uses in the M-2 district include processing agricultural products, sawmills, and general manufacturing, processing and refining.

## City of Stockton

### City of Stockton General Plan

Adopted in December 2018, the City's 2040 General Plan provides a comprehensive plan for the growth and development of the City. The General Plan is built around a series of goals, policies, and actions that describe the community's vision for its future. The General Plan promotes topics of particular concern throughout the document, including Downtown, Public Health, Environmental Justice, Air Quality, and Climate Change. The plan is comprised of four (4) separate Elements: Land Use, Transportation, Safety, and Community Health. Goals and policies applicable to the proposed project are described below.

#### Land Use

The Land Use chapter encourages land use planning efforts to enhance and build upon neighborhood assets, address current challenges, and generally improve the quality of life in the City. The proposed project is located on

land designated by the General Plan as institutional; this land use designation and its associated goals and policies are summarized below (City of Stockton 2018):

**Institutional:** This land use designation allows for public and quasi-public land uses such as seaports, schools, colleges, water treatment facilities, airports, some governmental offices, federal installations, and other similar and compatible uses.

The following goals and policies of the Land Use Element of the General Plan area applicable to the project.

Goal LU-4. High-Quality Jobs. Attract and retain companies that offer high-quality jobs and wages that are competitive with the region and state.

Policy LU-4.1. Encourage large-scale development proposals in appropriate locations that include significant numbers of higher-wage jobs and local revenue generation. Such development may utilize the Economic and Education Enterprise land use designation if the proposal meets all of the criteria listed under the definition of the designation.

Policy LU-4.2. Attract employment- and tax-generating businesses that support the economic diversity of the City.

Goal LU-6 Effective Planning. Provide for orderly, well-planned, and balanced development.

Policy LU-6.1. Carefully plan for future development and proactively mitigate potential impacts.

Policy LU-6.2. Prioritize development of vacant, underutilized, and blighted infill areas.

Policy LU-6.3. Ensure that all neighborhoods have access to well-maintained public facilities and utilities that meet community service needs.

Policy LU-6.4. Ensure that land use decision balance travel origins and destination in as close proximity as possible, and reduce vehicle miles traveled (VMT).

Policy LU-6.6. Coordinate land use planning efforts among City departments and with regional agencies.

### Transportation

The Transportation Element is intended to strengthen physical transportation connections within the City and greater region, including road, bicycle, and trail networks. The following goals and policies are applicable to the proposed project.

Goal TR-2. Active Community. Offer active transportation opportunities for the entire community.

Policy TR-1.3. Facilitate expanded port and airport operations, service, and development as travel and goods movement assets to the community and sources of employment.

### Community Health

The Community Health chapter is focused on promoting personal health and enhancing the overall health and livability for the City. The following goals and policies are applicable to the proposed project.

Goal CH-2. Restored Communities. Restore disadvantaged communities to help them become more vibrant and cohesive neighborhoods with high-quality affordable housing, a range of employment options, enhanced social and health services, and active public spaces.

Policy CH-2.2. Stimulate investment through partnerships with private property owners, neighborhood groups, health and housing advocates, nongovernmental organizations, and other community supporters.

Goal CH-3. Skilled Workforce. Expand opportunities for local enterprise, entrepreneurship, and gainful employment.

Policy LU-3.3. Ensure that Stockton youth and adults have access to the services and resources they need to enhance their vocational and professional skills for job readiness and retention.

## City of Stockton Municipal Code

The Stockton Municipal Code contains all ordinances for the City, identifies land use categories, provides site development regulations, and other general provisions to ensure consistency between the General Plan and proposed development projects.

### Title 16. Development Code

Title 16 of the Stockton Municipal Code is the City's primary tool to regulate physical development within City boundaries. The Development Code classifies and regulates allowed land uses and physical development within the city. According to Section 16.04.020 of the Municipal Code, the purpose of the Development Code is to:

- Provide standards for orderly growth and development of the city;
- Implement the land uses of the General Plan;
- Maintain and protect the value of property;
- Conserve and protect the natural resources of the city, including its surrounding agricultural lands;
- Protect the character and social and economic stability of residential, commercial, and industrial areas;
- Assist in maintaining a high quality of life without causing unduly high public or private costs for development or unduly restricting private enterprise, initiative, or innovation in design; and
- Provide regulations for the subdivision of land in compliance with the Subdivision Map.

### Division 2. Zoning Districts, Allowable Land Uses, and Zone-Specific Standards

This section of the Development Code establishes zoning districts within the City that regulate land use in accordance with the General Plan. Division 2 establishes a Zoning Map which is used to specify allowable uses on a parcel-by-parcel level. This section also outlines the City's permit requirements for land uses and defines physical development standards for each of the City's zoning districts.

#### Zoning Map

The Zoning Map, which is established in Division 2 of the Development Code, identifies zoning districts within the City at the parcel level. As mentioned above, the project site has a zoning designation of PT; this zoning district is further described below:

**Port District (PT):** The PT zoning district is applied to areas of the City that are operated by "port districts" as formed under the Harbors and Navigation Code Section 6210 et seq., for the operation of port facilities, including wharves, dockage, warehousing, and related port facilities. The PT zoning district is consistent with the Industrial and Institutional land use designations of the General Plan and the Rough and Ready Island Development Plan for the Port of Stockton (as applicable).

### Port of Stockton

#### West Complex Development Plan

As part of long-term planning for the West Complex, the Port identified and considered the types of development and operations that could occur based on existing infrastructure, approved land uses, and future regional consumer demand. The West Complex Development Plan (WCDP) was approved in 2004, along with certification of WCDP EIR.

## 3.10.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to land use and planning are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to land use and planning would occur if the project would:

- Physically divide an established community?
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The three proposed facility sites (Lassen, Tuolumne, and Port of Stockton) are appropriately zoned sites, with a history of similar prior use. The facilities would not have the potential to divide an established community. Similarly, the feedstock operations would be temporary operations within forested lands. Feedstock operations would not have the potential to result in physical dividing an established community. Therefore, the impact analysis below focuses on the potential to conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect

## 3.10.4 Impact Analysis

### 3.10.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to land use and planning.

Section 15125(d) of the CEQA Guidelines, requires than an EIR shall discuss any inconsistencies with applicable general plans, specific plans, and regional plans as part of the environmental setting. Applicable land use plans and policies considered in this analysis is the Lassen County 2000 General Plan, Tuolumne County 2018 General Plan, and the Envision Stockton 2040 General Plan. The discussion in this chapter differs from the impact discussions of the other technical sections in Chapter 3 in that only general land use plan or policy consistency issues are discussed, as opposed to a discussion of the physical impacts on the environment that could occur with implementation of the proposed project. If an inconsistency is noted, the analysis then evaluates whether the inconsistency could result in an environmental effect that the policy or regulation is intended to avoid or mitigate. Ultimately, it is within the Counties' decision makers' purview to decide if the proposed project is consistent with the General Plan.

## 3.10.4.2 Project Impacts

Impact LU-1 The project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Sustainable Forest Management Projects providing feedstock from the proposed project will occur either on public forest lands (federal, state, and tribal), or private lands zoned for timber production. In both cases, such projects are fully consistent with the uses to which those properties are dedicated, and do not conflict with any applicable land use plan, policy, or regulation. Similarly, vegetation management projects, such as creating defensible space or mitigating risks to public infrastructure, are ancillary to and support the principal land uses, and do not conflict with any applicable land use plan, policy, or regulation. Further, as provided in the Project Design Features set forth in Section 2.4, each individual Sustainable Forest Management Project will be required to demonstrate compliance with all applicable all applicable land use plans, policies and regulations, including those identified in Section 3.10.2. Land use conflicts related to feedstock acquisition would be **less than significant**.

### Wood Pellet Production

#### Lassen Facility

The proposed project would result in the construction of a wood pellet production facility on a previously partially developed site. As described in the environmental setting above, the proposed project site is located on a portion of a larger property that included a mill site (which is not part of the proposed project site) and an area used by the mill operators to load rail cars.

The northern parcel of the project site is designated as Town Center by the County General Plan. Town Center designations are applied to central areas of small unincorporated areas in the County and generally serve as the commercial and social centers of the surrounding communities, containing a mixture of commercial and residential uses. The corresponding zoning of the northern parcel is A-1, General Agriculture. According to the County Municipal Code Chapter 18.16, the intent of A-1 is to be applied to unincorporated territory of the County where precise zoning is not required. The County determined that the general character of the county is agriculture, thus, A-1 is applied to areas not indicated specifically to be used for precise districts of agriculture, residential, commercial,

manufacturing, open space, institutional, conservation, timber production, floodplain, or airport. The zoning allows for a variety of agricultural industrial uses, with approval of a conditional use permit, including sawmills.

A portion of the southern parcels designated as Intensive Agriculture by the General Plan would be used for log decking. Intensive Agriculture identifies lands devoted to or having a high suitability potential for crop growing and/or the raising of livestock on improved or natural pastureland. The southerly "wood yard" parcels are zoned Exclusive Agricultural, Agricultural Preserve Combining District (E-A-A-P), consistent with the Intensive Agriculture planning designation. The E-A-A-P allows for storage of agricultural products, including timber. As the production facilities would not be located on this parcel, the "wood yard" log decking would be allowed under the zoning designation.

The proposed project would be consistent with several goals and policies of the County General Plan, including improvement of the industrial base (Goal L-13), development within areas designated and developed for such uses (Policy LU34), uses compatible with the Extensive Agriculture District (Policy LU35), and healthy forest environments which provide resources for multiple uses while benefiting the local economy (Goal L-18). The proposed facility is consistent with the applicable zoning districts, as discussed above.

Land use conflicts related to the Lassen facility would be **less than significant**.

### Tuolumne Facility

The proposed project would result in the construction of a wood pellet production facility on a previously developed site. As described in the environmental setting above, the proposed project site is located on property previously used as wood processing facility. The project site is designated as Heavy Industrial uses by the County General Plan. This designation allows for several uses including all types of manufacturing and processing activities. The proposed facility would not exceed a floor area ratio of 1.0 for the site, consistent with the General Plan land use designations.

The project site is also zoned as M-2, or Heavy Industrial by the County. According to Chapter 17.16.030 of the Tuolumne County Ordinance Code, this zoning allows for several uses including biomass, sawmills, general manufacturing, processing and refining as a permitted land use. As a biomass facility, the proposed facility is allowed under the existing zoning, and would require only a Site Development Permit approval, in accordance with Chapter 17.100.030 of the Tuolumne County Ordinance Code. Additionally, the proposed support tower for the conveyor system would be 112 feet tall, which is within the height regulation limit of 115 feet for biomass facilities as specified in Chapter 17.22.020 of the Tuolumne County Ordinance Code. The proposed facility is consistent with General Plan goals, including compatible development (Goal 1B) and development of industrial uses to promote economic vitality (Goal 1G). Furthermore, the proposed project is consistent with the existing M-2 zoning designation.

Land use conflicts related to the Tuolumne facility would be **less than significant**.

## Transport to Market

### Port of Stockton

The proposed project would result in the construction of project specific features and the use of an existing Port of Stockton Berth. The project site is located in the Port of Stockton West Complex, which has historically been used for port related activities, including warehousing. The project site is designated as Institutional use by the City's General Plan and zoned as Port district The proposed project would implement Policy TR-1.3: Facilitate expanded

port and airport operations, service, and development as travel and goods movement assets to the community and sources of employment. The proposed project would be consistent with the General Plan's maximum FAR of 0.5 for institutional uses.

The project site is zoned as a Port, which allows for the operation of port facilities including dockage, wharves, and warehousing. According to City Municipal Code Section 16.24.150, land uses within the port zoning district must be in compliance with the Rough and Ready Island development plan. The proposed project is also consistent with the WCDP and would further the redevelopment of the West Complex. The proposed storage domes would be located within an area designated for intermodal transfer (rail to ship).

Land use conflicts related to port operations would be **less than significant**.

### 3.10.4.3 Cumulative Impacts

The consistency analysis of applicable land use goals and policies, and compatibility with existing adjacent uses is not an additive effect. Therefore, cumulative impacts to land use policies are generally not a potential issue unless one or more cumulative projects would change applicable land use plans, which is not the case with the proposed project. Feedstock operations would rely on previously approved projects (such as removing forest slash from approved vegetation management or timber harvests) or would require subsequent approvals that must demonstrate consistency with applicable plans, policies and regulations. All three proposed project sites (Lassen Facility, Tuolumne Facility, and the Port of Stockton) have land use designations that would be consistent with the proposed use, and would not conflict with applicable land use policies. As described in Chapter 3.0, the identified cumulative projects would not require changes to land use plans, or introduce inconsistencies with policies and regulations. Therefore, there are no significant land use consistency impacts where the project, in combination with impacts from other projects, could contribute to a cumulative land use impact. Potential cumulative issues related to the proposed uses, industrial facilities, such as those related to noise, traffic, or air quality are addressed within the appropriate resource sections of this EIR.

## 3.10.5 References

City of Stockton. 2018. *Envision Stockton 2040 General Plan.* December 4, 2018. Accessed July 2023. https://cms3.revize.com/revize/stockton/Documents/Business/Planning%20&%20Engineering/General%20Plan/Adopted_Plan.pdf.

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# 3.11 Noise

This section of the Draft EIR evaluates potential impacts to/regarding noise and vibration associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing noise conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California (Port of Stockton), and evaluates the potential for project-related noise and vibration impacts, considering proposed project design features that could reduce or eliminate associated impacts. Some scoping comments were received regarding noise and vibration in response to the Notice of Preparation (NOP) (see Appendix A).

## 3.11.1 Setting

### 3.11.1.1 Noise Background, Terminology and Existing Conditions

#### Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represents the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound separate from sound level and is expressed in units of cycles per second or hertz. The normal frequency range of hearing for most people extends from about 20 to 20,000 hertz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system was developed to evaluate how loud a noise level is perceived by humans. The frequency weighting, called "A" weighting, is typically used for quieter noise levels, which de-emphasizes the low-frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the "noise level" and is referenced in units of A-weighted decibels (dBA). Table 3.11-1 presents typical noise levels for common outdoor and indoor activities.

Sound is measured on a logarithmic scale; a doubling of sound energy results in a 3-dBA increase in the noise level. However, changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (Caltrans 2020a). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5-dBA increase is readily noticeable (EPA 1974). The human ear perceives a 10-dBA increase in sound level as a doubling of the sound level (*e.g.*, 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual's noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually changes throughout a typical day, corresponding to distant noise sources such as traffic volume and changes in atmospheric conditions. The time-varying character of environmental noise is often described with use of statistical or percentile noise descriptors including $L_{10}$, $L_{50}$, and $L_{90}$. These are the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of the measured time interval. Sound levels associated with $L_{10}$ typically describe transient or short-term events, such as the noise from distinct passing cars and trucks, measured from a position near a low-traffic roadway. $L_{50}$ represents the median sound level during the measurement interval. Levels will be above and below this value exactly one-half of the accumulated measurement

time. $L_{90}$ is the sound level exceeded 90 percent of the time, and often is used to describe background noise conditions or sources that are continuous or "steady-state" in character.

## Table 3.11-1. Typical Noise Levels Associated with Common Activities

| Common Outdoor Activities | Noise Level (dBA) | Common Indoor Activities |
|---|---|---|
| | 110 | Rock Band |
| Jet Flyover at 1,000 feet | 105 | |
| | 100 | |
| Gas Lawn Mower at three feet | 95 | |
| | 90 | |
| Diesel Truck at 50 feet, 50 miles per hour | 85 | Food Blender at 3 feet |
| | 80 | Garbage Disposal at 3 feet |
| Noisy Urban Area, Daytime | 75 | |
| | 70 | Vacuum Cleaner at 10 feet |
| Commercial Area | 65 | Normal speech at 3 feet |
| Heavy Traffic at 300 feet | 60 | |
| | 55 | Large Business Office |
| Quiet Urban Daytime | 50 | Dishwasher (in next room) |
| | 45 | |
| Quiet Urban Nighttime | 40 | Theater, Large Conference Room (background) |
| Quiet Suburban Nighttime | 35 | |
| | 30 | Library |
| Quiet Rural Nighttime | 25 | Bedroom at Night, Concert Hall (background) |
| | 20 | |
| | 15 | Broadcast/Recording Studio |
| | 10 | |
| | 5 | |
| Lowest Threshold of Human Hearing (Healthy) | 0 | Lowest Threshold of Human Hearing (Healthy) |

**Source:** Caltrans 2020a.
**Notes:** dBA = A-weighted decibel; mph = miles per hour.

Noise levels are generally higher during the daytime and early evening when traffic (including aircraft), commercial, and industrial activity is the greatest. As such, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the perceiver. To evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "community noise equivalent level" (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level ($L_{eq}$), the minimum and maximum sound levels ($L_{min}$ and $L_{max}$, respectively),

percentile-exceeded sound level ($L_{xx}$), the day-night sound level ($L_{dn}$), and the CNEL. The following list provides brief definitions of noise terminology used in this section.

- **Decibel** (dB) is a unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-weighted decibel** (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent sound level** ($L_{eq}$) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the $L_{dn}$ and CNEL scales.
- **Maximum sound level** ($L_{max}$) is the maximum sound level measured during the measurement period.
- **Minimum sound level** ($L_{min}$) is the minimum sound level measured during the measurement period.
- **Percentile-exceeded sound level** ($L_{xx}$) is the sound level exceeded X% of a specific time period. $L_{10}$ is the sound level exceeded 10% of the time.
- **Day-Night Average Sound Level** ($L_{dn}$) is a 24-hour average A-weighted sound level with a 10 dB penalty added each of the hourly average noise levels occurring in the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours.
- **Community Noise Equivalent Level** (CNEL) is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.) by adding 5 dB to the recorded hourly average sound levels in the evening and 10 dB to the hourly average sound levels at night.

## Exterior Noise Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time; and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically "hard" sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically "soft" sites (Caltrans 2020a). Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively (Caltrans 2020a). Sound levels can also be attenuated by human-made or natural barriers. For the purpose of a sound attenuation discussion, a hard or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically soft or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Here is an example of this distance-attenuation relationship for exterior noise: a 60-dBA noise level measured at 50 feet from a tractor installing fenceposts within a packed earth feedlot site would diminish to 54 dBA at 100 feet from the source, and to 48 dBA at 200 feet from the source. This scenario is governed by the point source attenuation for a hard site (6 dBA with each doubling of the distance). For the scenario where soft-site conditions exist between the point source and receptor, represented by natural vegetation, planted row crops, or plowed furrows adjacent to the work area, an attenuation rate of 7.5 dBA per doubling of distance would apply; the tractor noise measured as 60 dBA at 50 feet would diminish to 52.5 dBA at 100 feet from the source and to 45 dBA at 200 feet from the source, where soft ground exists between the sound source and the receptor location.

### Structural Noise Attenuation

Sound levels can also be attenuated by human-made or natural barriers. Solid walls, berms, or elevation differences typically reduce noise levels in the range of approximately 5 to 15 dBA (Caltrans 2020a). Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical structures is approximately 10 dB with open windows, as shown in Table 3.11-2 (FHWA 2011).

**Table 3.11-2. Building Noise Reduction Factors**

| Building Type | Window Condition | Noise Reduction Due to Exterior of the Structure |
|---|---|---|
| All | Open | 10 dB |

**Source:** FHWA 2011.
**Notes:** dB = decibel.

### Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be experienced by building occupants as perceptible vibration. It is also common for groundborne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived vibration from such equipment operation can be bothersome to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

Peak particle velocity (PPV) describes particle movement over time (in terms of physical displacement of mass, expressed as inches/second or in/sec) and is generally employed for the discussion of vibration impacts on people and structures. Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities. Next to pile driving and soil compacting, grading activity has the greatest potential for vibration impacts when earthwork involves large bulldozers, large trucks, or other heavy equipment.

### Health Effects of Noise

Noise is known to have a number of different adverse effects on humans. Based upon these recognized adverse effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on effects of noise on people such as hearing loss (not generally associated with community noise), communication interference, sleep interference, physiological responses, and annoyance (EPA 1974).

## 3.11.1.2 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the proposed facilities.

### 3.11.1.3 Northern California (Lassen Facility) Site

#### Location

The proposed Lassen wood pellet processing site is located in Nubieber, California (Lassen County), approximately 3 miles southwest of the census-designated place of Bieber in northwestern Lassen County (see Figure 2-3, Project Location (Lassen)). The Lassen site is located at 653-800 Washington Avenue, Nubieber, California. The production facilities would be located on a parcel approximately 65 acres in size, Assessor's Parcel Number (APN) 001-270-086. Log decking (storage) would occur on approximately 51 acres of the ~225-acre property immediately south of the production site (APNs 001-270-26, 001-270-29, and 013-040-13) (the "woodyard"). The project site is situated in Township 38 North, Range 7 East, and Sections 28 and 33 of the U.S. Geological Survey Bieber, California 7.5-minute quadrangle. Elevation on the Lassen site is approximately 4,120 feet above mean sea level.

The Lassen location includes a northerly parcel, formerly part of a wood processing sawmill, and a southerly parcel vacant agricultural parcel. The buildings from the prior sawmill use are located north of the project site, and were separated from the main parcel through a lot line adjustment. The Burlington Northern Sante Fe (BNSF) Railroad forms the eastern boundary of the site. An agricultural chemical company (Helena Agri-Business) and scattered residences are located to the north and west of the site, and to the east of the woodyard property. Agricultural land is located to the east and south. Most of the lands adjacent to the site are under Williamson Act contracts. Primary access to the site is from Babcock Road, which connects to State Route 299.

#### Existing Conditions

The Lassen site is shown in Figure 2-4, Project Site (Lassen). The northerly parcel (APN 001-270-086) was previously part of a sawmill operation, and was also used to load logs and wood products onto railcars. The parcel includes railroad siding, a gravel pad, internal roadways, a well pump house and water tower. The water tower is 102 feet tall. A rail spur crosses the project site to provide rail access to the property to the west.

The majority of the undeveloped areas of the project site consist of non-native grassland with a mix of annual grasses and forbs.

The production facility parcel contains one seasonal wetland and one seasonal wetland swale located in the southeastern portion of the parcel. These features collect water seasonally and are discernible from the adjacent upland areas by a distinct change in vegetation. The five upland ditches located throughout the project site are unlined, earthen water conveyance systems that were constructed in upland habitat and exhibit a mild break in slope and change in vegetation. Ditches within the project site are generally 5 to 6 feet wide at the top of bank and have an ordinary high water mark width of 1 to 2 feet.

The majority of the project site, including the production facility, is located within a 100-year floodplain. Therefore, finished grade of structures would need to be above base flood elevation.

The northerly production facility parcel is zoned A-1 (General Agriculture District), which is described in Chapter 18.16 of the Lassen County Ordinance Code and is classified as Town Center by the Lassen County General Plan (Lassen County 1999). The southerly woodyard property is zoned E-A-A-P (Exclusive Agricultural District – Agricultural Preserve Combining District), described in Chapters 18.66 and 18.82 of the Lassen County Ordinance Code, and is classified as Intensive Agriculture by the General Plan.

### Measured Outdoor Ambient Sound

Field measurements of sound pressure level (SPL) were conducted near the Lassen site on June 22nd, 2023, to quantify and characterize the existing outdoor ambient sound levels. Table 3.11-3 provides the location, date, and time period at which these baseline noise level measurements were performed by an attending Dudek field investigator using a Soft dB-branded Piccolo II sound level meter (SLM) equipped with a 0.5-inch, pre-polarized condenser microphone with pre- amplifier. The SLM meets the current American National Standards Institute standard for a Type 2 sound level meter. The accuracy of the SLM was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

Three (3) short-term (ST) noise level measurement locations (ST6–ST8) that represent existing noise-sensitive receivers were selected on and near the proposed project site. The measured $L_{eq}$ and $L_{max}$ noise levels recorded at the ST locations are provided in Table 3.11-3 and ranged from approximately 40.6 dBA $L_{eq}$ at ST6 to 49.5 dBA $L_{eq}$ at ST8. Beyond the summarized information presented in Table 3.11-3, detailed noise measurement data is included in Appendix H1, Baseline Noise Measurement Field Data.

**Table 3.11-3. Lassen Facility – Measured Baseline Outdoor Ambient Noise Levels**

| Site | Location/Address | Date/Time | $L_{eq}$ (dBA) | $L_{max}$ (dBA) |
|---|---|---|---|---|
| ST6 | Northern property boundary | 2023-06-22, 1:03 PM to 1:28 PM | 40.6 | 41.7 |
| ST7 | Northwestern property boundary | 2023-06-22, 1:05 PM to 1:36 PM | 42.4 | 45.8 |
| ST8 | Northern property boundary | 2023-06-22, 1:32 PM to 1:57 PM | 49.5 | 50.2 |

**Source:** Appendix H1.

## 3.11.1.4 Central Sierra Nevada (Tuolumne Facility) Site

### Location

The proposed Tuolumne wood pellet processing site is located at 12001 La Grange Road approximately 9 miles southwest of the community of Jamestown, in Tuolumne County, California, and in the western foothills of the Sierra Nevada Mountain Range (see Figure 2-7, Project Location (Tuolumne)). The Tuolumne site is located immediately southeast of the junction of State Route 108 and La Grange Road. The site is situated in Township 1 South, Range 13 East, and Sections 14 and 23 of the U.S. Geological Survey Tuolumne, California 7.5-minute quadrangle. Elevations on the Tuolumne site range from approximately 1,070 feet above mean sea level in the northwest corner of the site to 1,140 feet above mean sea level in the eastern portion of the site. The Tuolumne site occurs within the Upper Stanislaus River watershed.

The Tuolumne location is a previously developed site that was formerly a wood processing mill, used by the former owner, Sierra Pacific Industries, for finished bark and colored mulch processing. Prior to Sierra Pacific Industries ownership, the facility was an operational sawmill run by Louisiana Pacific. A wood shaving plant owned by American Wood Fibers is located adjacent to the west side of the site, and two residences are located adjacent to the northwest corner of the site. Agricultural land is located to the north, east, and south. A majority of the adjacent lands are under Williamson Act (California Land Conversation Act) contracts, restricting them to agricultural or

related use. Primary access to the site is from La Grange Road, which connects to CA-120 northwest of the site. The site is bordered by Sierra Northern Railroad to the west that travels along La Grange Road and intersects near the southwestern project site boundary.

## Existing Conditions

The Tuolumne site is partially developed with existing structures and other features generally concentrated within the center of the site, as shown in Figure 2-8, Project Site (Tuolumne). This includes buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with the abandoned mill. Currently, 9.6 acres of the total 58.56 acres of the project site are paved. The site has two existing accessways: one for truck access at the southwest area of the site and one that would be improved and used for employee access at the northwest area of the site, both from La Grange Road.

The project site contains a variety of aquatic resources, including wetland and non-wetland waters. There are two freshwater emergent wetlands and two seasonal wetlands located in the northern and southern portions of the site. These features are discernible from the adjacent upland areas by a distinct change in vegetation. There is one vernal pool in the southeastern corner of the project site. An ephemeral drainage at the southern edge of the project site conveys overflow from a vernal pool and directs it through a culvert south of the project site. A freshwater pond in the northern portion of the project site is fed by two seasonal drainages originating east to northeast of the project site. Additionally, there are four humanmade detention basins constructed throughout the project site to collect and store run-off: one in the southern portion of the site, one in the northeastern portion of the site, and two located near the mid-west portion of the site. One perennial drainage is located near the southern portion of the project site, and one intermittent drainage occurs in the northeast corner of the project site.

Such geographic conditions suggest that for purposes of outdoor sound propagation modeling the vicinity topography is essentially flat (i.e., no obvious natural terrain barriers to interfere with project site sound sources and the nearest offsite surrounding noise-sensitive receptors. Additionally, the preceding description indicates that the ground cover of the project site would tend to be—on average but varying somewhat with the degree of surface water—fairly good with respect to acoustical absorption.

The current 58.56-acre site was once part of a larger mill site that included the 8.39-acre parcel to the southwest and two smaller (1.48-acre and 1.43-acre) parcels to the northwest. A wood shavings plant was constructed on the 8.39-acre parcel adjacent to the southwest under a Site Development Permit (307) granted in 1990. This wood shavings plant is now owned and operated by American Wood Fibers. The two smaller parcels each contain a single-family residence, built in 1969 as caretaker housing for the mill, and have since been sold for residential housing.

The site is zoned M-2 (Heavy Industrial), which is described in Section 17.40.020 of the Tuolumne County Ordinance Code and is classified as Heavy Industrial by the Tuolumne County General Plan (Tuolumne County 2018).

### Measured Outdoor Ambient Sound

Field measurements of sound pressure level (SPL) were conducted near the Tuolumne site on June 20th, 2023, to quantify and characterize the existing outdoor ambient sound levels. Table 3.11-4 provides the location, date, and time period at which these baseline noise level measurements were performed by an attending Dudek field investigator using a Soft dB-branded Piccolo II sound level meter (SLM) equipped with a 0.5-inch, pre-polarized condenser microphone with pre- amplifier. The SLM meets the current American National Standards Institute standard for a Type 2 sound level meter. The accuracy of the SLM was verified using a field calibrator before and after

the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

Two (2) short-term (ST) noise level measurement locations (ST1–ST2) that represent existing noise-sensitive receivers were selected on and near the proposed project site. The measured $L_{eq}$ and $L_{max}$ noise levels recorded at the ST locations are provided in Table 3.11-4 and ranged from approximately 59.9 dBA $L_{eq}$ at ST1 to 66.1 dBA $L_{eq}$ at ST2. Beyond the summarized information presented in Table 3.11-4, detailed noise measurement data is included in Appendix H1, Baseline Noise Measurement Field Data.

**Table 3.11-4. Tuolumne Facility – Measured Baseline Outdoor Ambient Noise Levels**

| Site | Location/Address | Date/Time | $L_{eq}$ (dBA) | $L_{max}$ (dBA) |
|---|---|---|---|---|
| ST1 | Northwestern property boundary | 2023-06-20, 10:26 AM to 10:36 AM | 59.9 | 66.9 |
| ST2 | CAL FIRE Green Springs Station | 2023-06-20, 10:54 AM to 11:09 AM | 66.1 | 77.1 |

**Source:** Appendix H1.

### 3.11.1.5 Port of Stockton

#### Location

Finished pellets would be transported by rail from both the Lassen and Tuolumne facilities to the Port of Stockton, California (see Figure 2-10, Port Location). The proposed GSNR facility would be located in the West Complex of the Port, formerly known as Rough and Ready Island.

#### Existing Conditions

The Port of Stockton is an active deep-water port. In 2019, Port activity included 234 ship calls and 4.4 million tons of import and export cargo. The West Complex, also known as Rough and Ready Island, is a former naval communication station (and previously, a naval supply annex). The property was approved for transfer to the Port of Stockton in 1966 for the benefit of maritime trade. The property was transferred in 2000.

The West Complex is 1,459 acres in size. It has 7 berths (labeled 14 through 20), with 6000 linear feet of docks, 630,000 square feet of transit sheds, and approximately 5 million square feet in warehouse space. Surface access to the West Complex is provided by Navy Drive Bridge and a parallel rail bridge on the west side, connecting to the main port, and the Port of Stockton Expressway Bridge to the south – the Expressway ultimately connects to Highway 4. The proposed GSNR facility would be located in the northwest quarter of the West Complex, on a relatively undeveloped site bordered by Davis Ave., Boone Dr., Edwards Ave., and Lipes Dr. The project site include a concrete parking lot in the southeast corner.

#### Measured Outdoor Ambient Sound

Field measurements of sound pressure level (SPL) were conducted near the Port of Stockton site on June 20th, 2023, to quantify and characterize the existing outdoor ambient sound levels. Table 3.11-5 provides the location, date, and time period at which these baseline noise level measurements were performed by an attending Dudek field investigator using a Soft dB-branded Piccolo II sound level meter (SLM) equipped with a 0.5-inch, pre-polarized condenser microphone with pre- amplifier. The SLM meets the current American National

Standards Institute standard for a Type 2 sound level meter. The accuracy of the SLM was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

Three (3) short-term (ST) noise level measurement locations (ST3–ST5) that represent existing noise-sensitive receivers were selected near the proposed project site. The measured $L_{eq}$ and $L_{max}$ noise levels recorded at the ST locations are provided in Table 3.11-5 and ranged from approximately 49.9 dBA $L_{eq}$ at ST5 to 60.9 dBA $L_{eq}$ at ST4. Beyond the summarized information presented in Table 3.11-5, detailed noise measurement data is included in Appendix H1, Baseline Noise Measurement Field Data.

**Table 3.11-5. Port of Stockton Facility – Measured Baseline Outdoor Ambient Noise Levels**

| Site | Location/Address | Date/Time | $L_{eq}$ (dBA) | $L_{max}$ (dBA) |
|---|---|---|---|---|
| ST3 | Southeast of property boundary | 2023-06-20, 12:33 PM to 12:53 PM | 58.7 | 63.8 |
| ST4 | East of property boundary | 2023-06-20, 1:13 PM to 1:28 PM | 60.9 | 67.2 |
| ST5 | Northeast of property boundary | 2023-06-20, 1:41 PM to 1:55 PM | 49.9 | 54.3 |

**Source:** Appendix H1.

## 3.11.2 Regulatory Setting

### 3.11.2.1 Federal

#### Department of Agriculture, U.S. Forest Service (USFS)

California contains land that is managed by the United States Forest Service (USFS), which is an agency within the United States Department of Agriculture (USDA). The USFS is subject to regulations established in Title 36 (Parks, Forests, and Public Property) of the CFR. 36 CFR 261 Subpart A contains a broad discussion of prohibitions applicable to acts and omissions occurring in the National Forest System or on a National Forest System road or trail, as well as property administered by the USFS. 36 CFR 261 Subpart B describes the process by which the Chief, each Regional Forester, each Experiment Station Director, the Administrator of the Lake Tahoe Basin Management Unit, and each Forest Supervisor may issue orders which close or restrict the use of described areas within the area over which they have jurisdiction. Lastly, 36 CFR 261 Subpart C provides for issuance of regulations by the Chief, and each Regional Forester to whom the Chief has delegated authority, prohibiting acts or omissions within all or any part of the area over which they have jurisdiction. The CFR criteria applicable to the project activities carried out on land administered by the USFS are provided below:

> 36 CFR 261.10 – Occupancy and use.
>
> The following are prohibited:
>
> (i) Operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical

instrument, motor or engine in such manner and at such a time so as to unreasonably disturb any person.

(k) Use or occupancy of National Forest System land or facilities without special-use authorization when such authorization is required.

(l) Violating any term or condition of a special-use authorization, contract or approved operating plan.

(p) Use or occupancy of National Forest System lands or facilities without an approved operating plan when such authorization is required.

### Federal Transit Administration (FTA)

In its Transit Noise and Vibration Impact Assessment guidance manual, the Federal Transit Administration (FTA) recommends a daytime construction noise level threshold of 80 dBA $L_{eq}$ over an 8-hour period (FTA 2018) when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such noise limits at the state and local jurisdictional levels.

With respect to vibration, Table 3.11-6 presents FTA guidance thresholds for assessing building damage risk and human annoyance. Akin to the aforementioned guidance for airborne noise from construction activities, the values in Table 3.11-6 represent recommended assessment guidance when local regulations lack such standards.

**Table 3.11-6. Federal Transit Administration Vibration Threshold Guidance**

| Vibration Receptor | Vibration Assessment Metric | |
|---|---|---|
| | Peak Particle Velocity (PPV, in/sec) | Approximate Root Mean Square VdB* |
| **Potential Damage to Structures by Building/Structural Category** | | |
| I. Reinforced-concrete, steel or timber (no plaster) | 0.5 | 102 |
| II. Engineered concrete and masonry (no plaster) | 0.3 | 98 |
| III. Non-engineered timber and masonry buildings | 0.2 | 94 |
| IV. Buildings extremely susceptible to vibration damage | 0.12 | 90 |
| **Residential Building Occupant Human Response** | | |
| Frequent events *(more than 70 events per day)* | | 72 |
| Occasional events *(30-70 events per day)* | | 75 |
| Infrequent events *(fewer than 30 events per day)* | | 80 |

**Source:** FTA 2018.
**Notes:**
* root mean square (rms) vibration level in decibels (VdB) is calculated from the PPV using a crest factor of 4 and is with respect to one (1) micro-inch per second.

## 3.11.2.2 State

### California Department of Transportation Vibration Standards

The California Department of Transportation (Caltrans) conducted extensive research on human annoyance and damage to structures caused by vibration from short term construction activities and from long term highway operations. The criteria established by Caltrans are commonly used to assess vibration impacts from all types of projects and activities; given the absence of locally adopted vibration standards for jurisdictions in which the project would conduct operations, criteria based on the Caltrans standards are employed. Caltrans uses a threshold of 0.2 in/sec PPV for annoyance to persons, where a continuous vibration source is involved; for transient sources (represented by construction activities), Caltrans uses a threshold of 0.24 in/sec PPV (which equates to a distinctly perceptible level). For commercial buildings constructed of concrete and steel, Caltrans identifies a damage threshold of 0.5 in/sec PPV. For residential structures employing concrete foundation and wood frame construction, Caltrans identifies a conservative damage threshold vibration level standard of 0.3 in/sec PPV (Caltrans 2020b).

### California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

## 3.11.2.3 Local

### Lassen County

#### Lassen County General Plan

Goal 1. A quiet and healthful environment with minimal noise intrusion.

Policy 1.1. Noise Generation Standards: Minimize the impact of noise generators by applying clear and appropriate standards during permit review and subsequent monitoring.

- **Action 1.1a:** Enforce Stationary Noise Source Levels. Enforce maximum and average noise level limits on permitted stationary sources based on their impact on the property line of the nearest noise-sensitive receptor as outlined in the Lassen County Noise Ordinance (Lassen County Code, Section 9.65.040). Where the noise-sensitive receptor involves a residence on a parcel with zoning or land use designation of "agriculture," the noise impact shall be evaluated at the boundary of the yard area or property line of the residence, whichever is closer to the residence.
- **Action 1.1c:** Noise monitoring may be required if determined to be necessary by the Director of Lassen County Department of Planning and Building Services or his/her designee, or if determined to be necessary by the Planning Commission or Board of Supervisors through the use permit process.

- **Action 1.1d:** Ensure Construction Occurs During Accepted Times of Day. Ensure that noise-generating construction work occurs during the accepted times of day, not between the hours of 7 p.m. and 7 a.m., pursuant to Standard N-4. Lassen County Noise Ordinance Section 9.65.070 (a)(9) exempts construction work from noise regulation between 7 a.m. and 7 p.m.

Policy 1.2. Noise Mitigation and Attenuation: Mitigate the effect of noise from new industrial or commercial uses, project-generated traffic, and short-term/temporary events on residential and other noise-sensitive land uses by applying feasible noise mitigation measures.

- **Action 1.2a:** Attenuate Project-Related Stationary Source Noise Impacts. As part of the environmental review process, the county shall work with project applicants to attenuate stationary-source noise impacts. Projects shall be designed to avoid long-term noise impacts or reduce those impacts to meet the applicable CNEL limits presented in Standard N-1.1. Noise impacts can be reduced using the following methods, or similar methods, as appropriate:
  - Create a distance buffer between stationary mechanical equipment and noise-sensitive receivers by placing parking lots, storm drain facilities, and landscaping between major stationary equipment and adjacent receivers.
  - Provide sound barriers or enclosures for equipment with significant sound-generation.
  - Where possible, place on-site buildings between major noise-generating equipment and the location of the closest adjacent noise-sensitive land use.
  - Where possible, locate/orient/direct/face/position noise-generating uses in such a way that minimizes noise for noise-sensitive receivers.
  - Use facility perimeter sound barriers (e.g., solid walls) or landscaped berms to reduce noise levels at immediately adjacent noise-sensitive uses.
- **Action 1.2b:** Require Noise Studies for Discretionary Projects. When a discretionary project has the potential to generate noise levels that exceed the standards presented in Standard N-11 (as identified through the California Environmental Quality Act [CEQA] process), a noise study and acceptable noise attenuation techniques to ensure compliance with Standard N-1 shall be required. For such discretionary projects, the environmental review process required by CEQA shall be employed to identify the required analysis and determine appropriate mitigation, as described in Standard N-2. The noise study shall be prepared in accordance with the requirements set forth in Standard N-3.
- **Action 1.2c:** Attenuate Project-Related Traffic Noise Impacts Near Sensitive Uses. Proposed discretionary developments that may result in an increase in traffic on roadways near existing noise-sensitive uses above levels allowed in the General Plan should include, as appropriate and feasible, traffic-calming design, low-noise pavement surfaces, sound barriers, or vegetated berms to minimize motor vehicle traffic noise.

Policy 1.3. Existing Land Use Incompatibilities. Help mitigate noise levels among existing incompatible land uses, as feasible, to enhance quality of life for noise-impacted residents and other sensitive receptors.

- **Action 1.3a:** Mitigate Stationary-Source Noise Impacts on Existing Residential and Other Sensitive Uses as Feasible. Upon receiving noise complaints, County Planning staff shall, in accordance with Departmental policy, investigate the noise source associated with the

complaint to determine if a violation of Ordinance-specified noise limits is occurring. Such investigation may include the direct measurement of sound levels using a sound-level meter or requiring the operator of the sound source to retain an acoustical professional to complete such measurements and analysis, as dictated in Standard N-4. Where sound levels exceed Noise Ordinance limits for stationary sound sources (Lassen County Code Section 9.65.040), the operator shall be required to install controls or alter operations in order to achieve compliance with the Noise Ordinance limits. Where sound levels investigated as the result of a complaint are in compliance, County Planning staff or the retained acoustical consultant may provide recommendations for reducing sound-level annoyance in exterior or interior areas of the property for which the complaint has been submitted. The recommendations may be followed on a voluntary basis, but cannot be used to compel the noise generator into reducing sound levels to less than those required in the Noise Ordinance.

- **Action 1.3b:** Support Attenuation of Highway Noise. The County should support efforts to reduce traffic noise levels on Highway 395, Highway 299, Highway 139, Highway 70, Highway 44, and Highway 36, along sections in proximity to concentrated residential development through prioritized roadway surface maintenance; use of noise-reducing surface treatments; traffic-safe tree or shrub plantings; or, in cases of significant noise exposure, use of lower speed limits and construction of sound walls. The County should also encourage enforcement of California Vehicle Code sections relating to adequate mufflers and modified exhaust systems.

Goal 2. A pattern of land uses that protects residents and other sensitive receptors from excessive noise.

Policy 2.1. Land Use Planning. Create General Plan land use and zoning patterns that prevent or buffer community residents and other sensitive receptors from incompatible land uses.

- **Action 2.1b:** Prohibit or Attenuate New Sensitive Uses in Noise-Impacted Areas. Prohibit new development of residential or other sensitive land uses in noise-impacted areas, as generally depicted by the limit of the 65 dBA CNEL contours illustrated in the Master Noise Exhibit (Lassen County Community Noise Levels, http://www.lassencounty.org/dept/planning-and-building-services/noise-element-and-data) unless the project design includes effective noise-attenuation measures that reduce exterior noise to 65 dBA $L_{dn}$/CNEL or less in exterior activity areas, and 45 dBA $L_{dn}$/CNEL or less in interior spaces with windows and doors closed by using the best available noise-reduction technology, which may include the following techniques:
  - Increase the distance between noise generators and noise-sensitive uses through the use of increased building setbacks and/or the dedication of noise easements.
  - Place noise-tolerant land elements of the site plan, such as parking lots, maintenance facilities, and utility areas, between vicinity noise generators and on-site receivers.
  - Use noise-tolerant structures, such as garages or carports, to shield noise-sensitive areas.
  - Orient buildings so that the noise-sensitive portions of a project, including outdoor areas, are shielded from noise sources.
  - Use berms and heavy landscaping to reduce noise levels.
  - Use sound-attenuating architectural design and building features, such as the following:
- Courtyards,
- Oriented openings and windows away from roadways

- Double- and triple-paned windows
- Additional layer of plywood and drywall in the exterior building and shell construction

With regard to building construction to achieve adequate noise attenuation, the County shall enforce the State Noise Insulation Standards (California Code of Regulations, Title 24).

Policy 2.2. Airport Noise and Highway Noise. Minimize vehicular and aircraft noise exposure for residents and occupants of noise-sensitive uses by planning land uses compatible with transportation corridors and airports, and applying noise attenuation designs and construction standards.

- **Action 2.2a:** Consult Airport Noise Contours. Noise contour lines illustrate the boundary or extent of an area subject to a given CNEL noise exposure and are generally provided in 5 dBA increments. For example, a receiver located between a 60 dBA CNEL and 65 dBA CNEL contour could be exposed to noise levels in the 60–65 dBA CNEL range. The 20-year projected airport noise contours in the Master Noise Exhibit (Lassen County Community Noise Levels, http://www.lassencounty.org/dept/planningand-building-services/noise-element-and-data) (or any Airport Land Use Compatibility Plan adopted more recently than this Noise Element) shall be used to indicate where special sound insulation measures may apply, consistent with Standard N-1. To avoid noise-related land use incompatibility, proposed noise-sensitive land uses should not be located within the 65 dBA CNEL contour associated with any of the airports in Lassen County.
- **Action 2.2b:** Consult Highway Noise Contours The 20-year projected highway noise contours in the Master Noise Exhibit (Lassen County Community Noise Levels, http://www.lassencounty.org/dept/planning-and-building-services/noise-element-and-data) shall be used to identify the location of the 65 dBA CNEL contour relative to a given highway segment. To avoid noise-related land use incompatibility, proposed noise-sensitive land uses should not be located within the 65 dBA CNEL contour associated with any highway within Lassen County. For new noise-sensitive uses proposed within the 65 dBA contour (where noise levels up to 70 dBA CNEL could exist), site design may need to include placement of exterior use areas behind proposed structures or the construction of a sound wall along the perimeter of the exterior use area.

**Standards.** Standards are the effective noise regulations that enforce this Noise Element consistent with the Lassen County Noise Ordinance (Lassen County Code, Chapter 9.65).

### Standard N-1. CNEL Standards by Land Use Category

New noise-generating land uses may not exceed the following standards at the property line for the parcel containing said noise-generating use. For noise-sensitive uses in a project's vicinity, exterior noise standards shall be measured at the property line of the receiving noise-sensitive use (or at the yard boundary for residences on agriculture land), and interior noise standards shall be measured with all doors and windows closed.

**Table 3.11-7. Community Noise Equivalent Level Standards for Receiving Land Uses**

| Land Use Category | Interior Noise Standard (dBA) | Exterior Noise Standard (dBA)* |
|---|---|---|
| Residential | 45 | 65 |
| Recreational/Open Space | N/A | 65 |

**Table 3.11-7. Community Noise Equivalent Level Standards for Receiving Land Uses**

| Land Use Category | Interior Noise Standard (dBA) | Exterior Noise Standard (dBA)* |
|---|---|---|
| Institutional | 45 | 65 |
| Commercial/Retail | 50 | 75[b] |
| Industrial | N/A | 90[b] |
| Agriculture | N/A | 90 |
| Resource Extraction | N/A | 90[b] |
| Public Right-of-Way | N/A | 90 |

[a] These noise generation limits are translated into hourly average ($L_{eq}$) limits in Lassen County Code, Section 9.65.040. Proposed new stationary noise sources must comply with both Standard N-1 and Section 9.65.040

[b] Noise levels generated from these sources are also subject to the land use noise standard of the receiving properties, where such a standard imposes a lower noise limit. For instance, while commercial noise levels of up to 75 dBA CNEL are allowed within a commercially zoned property, this commercial noise source must not exceed 65 dBA CNEL at any residential property boundary in the vicinity. The limit is applied at the receiving land use property line or (for residences in agriculture zones) at the boundary of the yard area.

### Standard N-2. Environmental/Development Review Process

When noise-sensitive or noise-generating land uses, as defined in the Noise Ordinance (Lassen County Code, Chapter 9.65), are proposed and require a discretionary permit, the environmental review process required by CEQA shall be used to generate the required analysis and determine the appropriate mitigation per General Plan and state standards. For the purpose of completing CEQA review, future noise levels shall be predicted for mitigation required to address significant noise impacts (as identified in the CEQA review document) shall be ensured via incorporation of mitigation measures in a required Mitigation Monitoring and Reporting Program (MMRP), to be adopted concurrent with approval of discretionary permits for the project. Adherence to mitigation shall also be ensured through conditions of approval.

### Standard N-3. Noise Study Requirements

When a discretionary project has the potential to generate noise levels in excess of N-1 standards, a noise study and acceptable plans to ensure compliance with the standards shall be required. The noise study shall measure or model the following, as appropriate: CNEL, Leq, and Lmax levels at property lines and, if feasible, receptor locations. Noise studies shall be prepared by qualified individuals using calibrated equipment under currently accepted professional standards, and include an analysis of the characteristics of the project in relation to noise levels, all feasible mitigations, and projected noise impacts. Noise studies shall do the following:

- Be the responsibility of the applicant, but accepted by the Department of Planning and Building Services.
- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
- Estimate existing and projected (10 years) noise levels in terms of CNEL standards in Table 3.11-7 or the standards found in Lassen County Noise Ordinance Section 96.040, and compare predicted noise levels against such standards.
- Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element and Noise Ordinance.
- Predict noise exposure at the property line after the prescribed mitigation measures have been implemented (quantify the noise reduction achieved by the mitigations). If the project does not comply with

the adopted standards of the Noise Element and Noise Ordinance, the analysis must provide acoustical information for a statement of overriding considerations for the project.

### Standard N-4. Noise Complaint Investigation

When a noise complaint is submitted, authorized County personnel shall investigate the noise source associated with the complaint to determine if a violation of Noise Ordinance limits is occurring. If the noise level from the offending source is clearly audible over the background noise levels at the property line of the complainant, an investigation would assume to be warranted. Such investigation may include the direct measurement of sound levels by County staff using a sound-level meter or requiring the operator of the sound source to retain an acoustical professional to complete such measurements and analysis. The investigation shall include the following:

- Completion of sound level measurements using a sound-level meter meeting American National Standards Institute (ANSI) Type 1 or Type 2 specifications.
- A measurement location at the property line of the receiving property located closest to the noise source associated with the complaint.
- For residences located on agriculture parcels (agriculture zoning or land use designation, the measurement shall be located at the boundary of the yard area (presumed to extend not more than 50 feet from the residence) or the parcel boundary, whichever is closest to the noise source.
- Measurements for an appropriate duration to assess compliance with the applicable standard (for $L_{eq}$ based standard, the measurement shall be no less than 1 hour while the noise source is operating; for the CNEL standard, the sound measurement shall be not less than 24 hours in duration). Periodic measurements for temporary events or non-standard operating circumstances may be warranted to ensure compliance.
- Recommendations for the operator of the noise source to achieve compliance (if a violation is occurring), or guidance for the receiving property to reduce noise exposure (if the noise is within allowable limits). The County can provide good neighbor policies to the noise-generating properties, but if the noise is within allowable limits, these suggestions shall not be enforceable.

## Lassen County Code

### Section 9.65.040

Lassen County Code Section 9.65.040 sets forth policies and guidelines regarding sound level limits, including:

(a) It shall be deemed a public nuisance (Lassen County Code Chapter 1.18) for any person to cause or allow the creation of any noise, which exceeds the one hour average sound level limits in Table 3.11-8, when the one-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise.

**Table 3.11-8. Sound Level Limits in Decibels (dBA)**

| Zone | Time | One-Hour Average Sound Level Limits (dBA) |
|---|---|---|
| (1) Single-Family Residential, Limited Multiple-Family Residential, Multiple Family Residential, Planned Unit Development, Planned Community, Resort, Public Campground/Boating/Beach, Primitive Area, Historical Site, Exclusive Agricultural, Open Space, General Agricultural, Agricultural-Residential, Agricultural, Upland Conservation, Upland Conservation/Resource Management, & Agricultural Forest Districts.[1,2] | 7 a.m. to 7 p.m. | 65 |
| | 7 p.m. to 7 a.m. | 60 |
| | 10 p.m. to 7 a.m. | 55 |
| (2) Business Park, Highway Commercial, Local Convenience, General Commercial, Town Service, Retail Business, Airport Commercial & Underground Utility Districts.<br><br>Also any future established commercial zones. | 7 a.m. to 7 p.m. | 75 |
| | 7 p.m. to 7 a.m. | 70 |
| | 10 p.m. to 7 a.m. | 65 |
| (3) Limited Industrial, Light Industrial, Heavy Industrial, Industrial, Hydro-Electric & Timber Production Zone Districts.<br><br>Also any future established industrial zones. | 7 a.m. to 7 p.m. | 90 |
| | 7 p.m. to 7 a.m. | 80 |

1 Within agriculture zones, noise exposure limit is applicable only to residences, at the residential yard boundary.
2 These limits also govern the noise exposure level for a legal residence in any zone, applied at the residential yard boundary.

(b) Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a use permit, which authorizes the noise-generating use or activity and the decision-making body approving the use permit determined that those mitigation measures reduce potential noise impacts to a level below significance, implementation and compliance with those noise mitigation measures shall constitute compliance with subsection (a) above.

(c) If the measured ambient noise level exceeds the applicable limit in Table 3.11-8, the allowable one-hour average sound level shall be the one-hour average ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(d) The sound level limit at a location on a boundary between two zones is the lower of the respective limits for the two zones.

(e) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section measured at or beyond six feet from the boundary of the easement upon which the facility is located, subject to the jurisdictional authority of the county. (Ord. 2021-04, § 2)

### Section 9.65.040

In addition to the general limitations on sound levels in Section 040, the Lassen County Code sets forth the following additional prohibitions:

(a) It shall be deemed a public nuisance (Lassen County Code Chapter 1.18) for a person to make, continue or cause to be made or continued a disturbing, excessive or offensive noise, as defined in Section 9.65.020(9).

(b) The following acts, among others as determined by the noise officer or sheriff, are declared to be disturbing, excessive and offensive noises that violate this chapter and are a public nuisance (Lassen County Code Chapter 1.18).

(1) Unnecessarily using or operating or allowing another person to use or operate a vehicle horn, signaling device or other similar device, other than as regulated by the Vehicle Code.

### Lassen County Draft Initial Study & Negative Declaration – Noise Element Update and Noise Ordinance (July 2021)

Lassen County's 2021 Noise Element Update and Noise Ordinance provides measured existing highway noise levels of 65 dBA CNEL for Highway 299 (SR-299) in Bieber and Nubieber in Lassen County (Lassen County 2021). The Draft Initial Study and Negative Declaration states (Lassen County 2021):

> Lassen County does not have the authority to regulate transportation activity, and noise from these well-established transportation facilities is not anticipated to decrease substantially in the future. Hence, an increase in the allowable exterior noise exposure for residences from 60 dBA CNEL to 65 dBA CNEL would actually provide a closer match to the existing ambient noise levels in close proximity to transportation facilities, and should not itself result in an increase to ambient noise levels.

## Tuolumne County

### Tuolumne County General Plan

The Noise Element in Chapter 5 of the Tuolumne County General Plan provides objectives, policies, and programs regarding noise, including the following:

Noise-sensitive uses identified by the Government Code and by Tuolumne County include residential development, schools, hospitals, convalescent homes, churches and libraries.

Goal 5.A. Protect the economic base of Tuolumne County and preserve the tranquility of residential areas by minimizing potential conflicts between transportation and stationary noise sources and noise sensitive land uses.

Policy 5.A.1. Advocate the design and site layout of new development of noise-sensitive land uses proposed adjacent to existing transportation noise sources incorporate noise reduction techniques so that the new development will not be affected by noise that exceeds the exposure threshold standards shown in Table 3.11-10.

Policy 5.A.2. Encourage new development of transportation noise sources be located and designed so that existing noise-sensitive land uses will not be exposed to noise levels that exceed the standards shown in Table 3.11-10 or Table 3.11-12.

Policy 5.A.3. Require new development of noise-sensitive land uses adjacent to existing stationary noise sources or land designated on the General Plan maps as HI, LI, BP or MPZ to be designed so that it will not be affected by noise levels exceeding the standards of Table 3.11-11.

Policy 5.A.4. Consider the effects of the development of new stationary noise sources or modifications of existing stationary noise sources on noise-sensitive land uses. Determine that new development or changes to existing development which requires a discretionary entitlement will not create new or exacerbate existing noise levels which exceed the standards shown on Table 3.11-12. This policy does not apply to noise levels associated with agricultural operations.

Policy 5.A.5. Consider methods of regulating noise within the County which exceeds the standards found in Table 3.11-11 from existing and future land uses where not preempted by Federal or State laws.

Policy 5.A.6. Consider providing a notification to property owners adjoining existing stationary and transportation noise sources of the know noise impacts to their properties.

### Implementation Programs

Policy 5.A.a. Project Review. Review new public and private development proposals to determine conformance with the policies and programs of this Noise Element and determine that noise levels from new development will not exceed the noise level standards of Tables, 3.11-10, 3.11-11, or 3.11-12 on lands designated for noise-sensitive uses. For modifications or expansions of existing stationary noise sources that already exceed the standards of Table 3.11-11 on lands designated for noise-sensitive uses, Tuolumne County will determine that the new development will not increase the noise level received at the noise-sensitive land uses and the cumulative noise generated from the entire development site is equal to or less than the pre-modification or pre-expansion ambient noise level.

Policy 5.A.b. Analyze Potential Conflicts. Require an acoustical analysis where activities associated with proposed development are likely to produce noise levels exceeding those specified in Figures Tables, 3.11-10, 3.11-11, or 3.11-12 of this Element. The acoustical analysis shall be conducted early in the review process so that the possible effects of noise and noise mitigation can be considered in the project design. The requirements of an acoustical analysis are listed in Table 3.11-9.

Policy 5.A.c. Enforce Noise Reduction Measures. Institute procedures to enforce noise reduction measures required pursuant to an acoustical analysis during the building permit and construction processes and to monitor compliance with noise reduction measures during operation of the development.

Policy 5.A.d. Consider a Noise Ordinance. Consider implementing a noise ordinance to be used in defining acceptable noise levels received at various land uses and in enforcement when excessive noise levels have been reported and documented.

Policy 5.A.e. Consider Notification of Existing Noise Impacts. Consider implementing a notification procedure to all property owners within the impacted areas surrounding existing stationary and transportation noise sources of the present and potential future noise impacts that are likely to be experienced by development of those properties.

## Table 3.11-9. Requirements for an Acoustical Analysis

| An acoustical analysis prepared pursuant to the Noise Element will: |
|---|
| 1) Be the financial responsibility of the applicant. |
| 2) Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics. |
| 3) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and significant noise sources. Where actual field measurements cannot be conducted, all sources of information used for calculation purposes shall be fully described. |
| 4) Estimate existing and projected (20 years) noise levels and compare those levels to the adopted policies of the Noise Element. Projected future noise levels shall take into account noise from planned streets, highways and road connections. |
| 5) Recommend appropriate mitigation to achieve compliance with the adopted policies of the Noise Element, giving preference to proper site planning and design over mitigation measures which require the construction of noise barriers or structural modifications to buildings which contain noise-sensitive land uses. |
| 6) Estimate noise exposure after the prescribed mitigation measures have been implemented. |

## Table 3.11-10. Maximum Allowable Noise Exposure-Transportation Noise Sources Excluding Aviation Related Noise

| Land Use | Outdoor Activity Areas | Interior Spaces |
|---|---|---|
| | $L_{dn}$/CNEL, dB | $L_{dn}$/CNEL, dB |
| Urban Residential | 60 | 45 |
| Transient Lodging | 60 | 45 |
| Hospitals, Nursing Homes | 60 | 45 |
| Churches, Meeting Halls, Office Buildings, Mortuaries | — | 45 |
| Schools, Libraries, Museums | — | 45 |

1 An outdoor activity area is a location outside of the immediate structure where formal or informal activities are likely to happen. For example, anywhere on an urban residential property could be an outdoor activity area, while the outdoor activity area for a school would be the playground or sporting fields, and for a hospital would be an exterior patio or exercise area. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land uses.

2 For typical construction methods, the reduction in the noise level from the outside of the structure to the inside is approximately 15dB. In a high noise environment, special construction techniques may be necessary to reduce the interior noise level to the standard.

**Table 3.11-11. Maximum Allowable Noise Exposure-Stationary Noise Sources[1]**

| | Daytime (7 a.m. to 10 p.m.) | Nighttime (10 p.m. to 7 a.m.) |
|---|---|---|
| Hourly Leq, dB[2] | 50 | 45 |
| Maximum level, dB[3] | 70 | 65 |

1 This table applies to noise exposure as a result of stationary noise sources. For a development project or land use change involving a noise-sensitive land use, the noise from nearby noise sources will be considered during design and approval of the project, or in determining whether the land use change is appropriate. For development projects which may produce noise, land use changes and project review will consider the effects of the noise on possible noise-sensitive land uses. When considering modification or expansion at a site that already produces noise levels which exceed these standards at noise-sensitive land uses, the modification or expansion shall be reviewed to consider if the proposed action will further raise the existing noise levels received at the noise-sensitive land use(s). Noise-sensitive land uses include urban residential land uses, libraries, churches, and hospitals, in addition to nursing homes or schools which have over 6 beds or students, respectively. Transient lodging establishments which are considered noise sensitive land uses include hotels, motels, or homeless shelters, but not bed and breakfast establishments located in rural areas, campgrounds, or guest ranches.

2 The sound equivalent level as measured or modeled for a one-hour sample period. The daytime or nighttime value should not be exceeded as determined at the property line of the noise-sensitive land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.

3 Similar to the hourly $L_{eq}$, except this level should not be exceeded for any length of time.

**Table 3.11-12. Significance of Changes in Cumulative Noise Exposure[1]**

| Ambient Noise Level Without Project[2] ($L_{dn}$ or CNEL) | Significant Impact if Cumulative Level Increases By: |
|---|---|
| <60 dB | + 5.0 dB or more |
| 60-65 dB | + 3.0 dB or more |
| >65 dB | + 1.5 dB or more |

**Source:** Federal Interagency Committee on Noise (FICON), Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.

1 These standards shall be applied when considering the noise impacts from projects that could cause a significant increase in the cumulative noise exposure of existing noise-sensitive land uses. If it is likely that existing noise-sensitive land uses could experience these increases in cumulative noise exposure, as measured in CNEL or Ldn, then an acoustical analysis that meets the requirements of Figure 5.1 shall be accomplished and the results considered in project design.

2 Ambient Noise is defined as the composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

### Tuolumne County Code

The County of Tuolumne does not explicitly provide policies or guidelines regarding noise in its County Ordinance Code.

## City of Stockton

### City of Stockton General Plan

Chapter 5 – Safety of the City of Stockton General Plan provides policies and guidelines regarding noise, including the following (City of Stockton 2018):

> Policy SAF-2.5. Protect the community from health hazards and annoyance associated with excessive noise levels.

Action SAF 2.5A. Prohibit new commercial, industrial, or other noise-generating land uses adjacent to existing sensitive noise receptors such as residential uses, schools, health care facilities, libraries, and churches if noise levels are expected to exceed 70 dBA Community Noise Equivalent (CNEL) (decibels on A-weighted scale CNEL) when measured at the property line of the noise sensitive land use.

Action SAF 2.5B. Require projects that would locate noise sensitive land uses where the projected ambient noise level is greater than the "normally acceptable" noise level indicated on Table 3.11-13 to provide an acoustical analysis that shall:

- Be the responsibility of the applicant;
- Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics;
- Include representative noise level measurements with sufficient sampling periods and locations adequately describe local conditions;
- Estimate existing and projected (20-year) noise levels in terms of $L_{dn}$/CNEL and compare the levels to the adopted noise policies and actions in this General Plan;
- Recommend appropriate mitigation to achieve compatibility with the adopted noise policies and standards;
- Where the noise source in question consists of intermittent single events, address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance;
- Estimate noise exposure after the prescribed mitigation measures have been implemented;
- If the project does not comply with the adopted standards and policies of this General Plan, provide acoustical information for a statement of overriding considerations for the project; and
- Describe a post-project assessment program, which could be used to evaluate the effectiveness of the proposed mitigation measures.

Action SAF 2.5C. Require noise produced by commercial uses to not exceed 75 dB $L_{dn}$/CNEL at the nearest property line.

Action SAF 2.5D. Grant exceptions to the noise standards for commercial and industrial uses only if a recorded noise easement is conveyed by the affected property owners.

## Table 3.11-13. Maximum Allowable Noise Exposure by Land Use

| Land Use Type | Noise Level, $L_{dn}$ (dBA) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0-55 | 56-60 | 61-65 | 66-70 | 71-75 | 75-80 | >81 |
| Residential | | | | | | | |
| Urban Residential Infill | | | | | | | |
| Hotels, Motels | | | | | | | |
| Schools, Libraries, Churches, Hospitals, Extended Care Facilities | | | | | | | |

## Table 3.11-13. Maximum Allowable Noise Exposure by Land Use

| Land Use Type | Noise Level, $L_{dn}$ (dBA) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0-55 | 56-60 | 61-65 | 66-70 | 71-75 | 75-80 | >81 |
| Auditoriums, Concert Halls, Amphitheaters | | | | | | | |
| Sports Arenas, Outdoor Spectator Sports | | | | | | | |
| Playgrounds, Neighborhood Parks | | | | | | | |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | | | | | | | |
| Office Buildings, Business Commercial and Professional | | | | | | | |
| Mining, Industrial, Manufacturing, Utilities, Agriculture | | | | | | | |

| | |
|---|---|
| | **Normally Acceptable.** Specified land use is satisfactory based on the assumption that any buildings involved are of normal, conventional construction, without any special noise insulation requirements. |
| | **Conditionally Acceptable.** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed insulation features have been included in the design. |
| | **Unacceptable**. New construction or development should not be undertaken. |

### City of Stockton Municipal Code

Chapter 8.20 – Noise Regulations of the City of Stockton Municipal Code sets forth policies regarding, including the following:

#### Section 8.20.030. Public Nuisance Noise

General Noise Regulations.

1. Notwithstanding any other provisions of this chapter, and in addition thereto, it is unlawful for any person to willfully make or continue or permit or cause to be made or continued, any loud, unnecessary, or unusual noise which unreasonably disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.
2. The standards which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:
    a. The volume of the noise;
    b. The intensity of the noise;
    c. Whether the nature of the noise is unusual or unnatural,
    d. Whether the origin of the noise is natural or unnatural;
    e. The volume and intensity of the background noise, if any;
    f. The proximity of the noise to residential sleeping facilities;
    g. The nature and zoning of the area within which the noise emanates;

h. The density of the inhabitation of the area within which the noise emanates;
i. The time of the day or night the noise occurs;
j. The duration of the noise;
k. Whether the noise is produced by a commercial or noncommercial activity.

## 3.11.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to noise are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to noise would occur if the project would:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- Generation of excessive groundborne vibration or groundborne noise levels?
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Quantitative thresholds of significance have been established for the purposes of this analysis based on the polices and regulations described in Section 3.11.3 and are listed below.

- Construction Noise – Lassen County exempts construction activities from County noise thresholds, as long as construction takes place during allowable operating hours, and Tuolumne County and the City of Stockton do not explicitly set forth construction noise standards in their respective codes. For purposes of this analysis, therefore, construction noise levels that would exceed the FTA's recommended daytime construction noise level threshold of 80 dBA $L_{eq}$ over an 8-hour period would be considered a significant impact.
- Construction Vibration – Guidance from the FTA establishes a building occupant annoyance threshold of 75 VdB for "occasional events" and a building damage risk threshold of 0.3 in/sec PPV, per Table 3.11-6. Caltrans identifies a similar damage threshold vibration level standard of 0.3 in/sec PPV for older residential structures employing concrete foundation and wood frame construction.
- Off-site Project-attributed transportation noise – For purposes of this analysis, a direct roadway noise impact from the Tuolumne Facility would be considered significant if increases in roadway traffic noise levels attributed to the Proposed Project were greater than 3 dBA CNEL at an existing noise-sensitive land use. Per Lassen County's 2021 Noise Element Update and Noise Ordinance, a direct roadway noise impact from the Lassen Facility would be considered significant if project-attributed traffic noise levels were to exceed 65 dBA CNEL, as the existing measured ambient noise levels in close proximity to Highway 299 (SR-299) are 65 dBA CNEL (Lassen County 2021). Additionally, Table 3.11-10 establishes a 60 dBA $L_{dn}$ threshold for non-aviation related transportation noise, as found in Tuolumne County's General Plan Noise Element. This 60 dBA Ldn limit would also apply to onsite transportation noise, such as low-speed rail operations during wood pellet loading.
- Project-attributed Stationary Source Noise Emission to the Community – Per Table 3.11-8, Lassen County's Code of Ordinances establishes daytime and evening thresholds of 65 and 60 dBA hourly $L_{eq}$, respectively, and 55 dBA hourly $L_{eq}$ for nighttime stationary operational noise. As appearing in Table 3.11-11, Tuolumne

County's General Plan Noise Element sets forth a daytime threshold of 50 dBA hourly $L_{eq}$ and a nighttime threshold of 45 dBA hourly $L_{eq}$. The City of Stockton's General Plan Noise Element establishes a 60 dBA $L_{dn}$ noise threshold, as appearing in Table 3.11-13.

## 3.11.4 Impact Analysis

### 3.11.4.1 Methodology

#### Short-Term Construction

Construction noise and vibration are temporary phenomena, with emission levels varying from hour to hour and day to day, depending on the equipment in use, the operations performed, and the distance between the source and receptor. Equipment that would be in use during construction would include, in part, graders, backhoes, rubber-tired dozers, loaders, cranes, forklifts, pavers, rollers, and air compressors. The typical maximum noise levels at a distance of 50 feet from various pieces of construction equipment and activities anticipated for use on the proposed project site are presented in Table 3.11-14. Note that the equipment noise levels presented in Table 3.11-14 are maximum noise levels. Usually, construction equipment operates in alternating cycles of full power and low power, producing average noise levels over time that are less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time.

**Table 3.11-14. Typical Construction Equipment Maximum Noise Levels**

| Equipment Type | Typical Equipment ($L_{max}$ dBA at 50 Feet) |
|---|---|
| All other equipment > 5 HP | 85 |
| Backhoe | 78 |
| Compressor (air) | 78 |
| Concrete saw | 90 |
| Crane | 81 |
| Dozer | 82 |
| Excavator | 81 |
| Flatbed truck | 74 |
| Front-end loader | 79 |
| Generator | 72 |
| Grader | 85 |
| Man lift | 75 |
| Paver | 77 |
| Roller | 80 |
| Welder/torch | 73 |

**Source:** DOT 2006.
**Note:** $L_{max}$ = maximum sound level; dBA = A-weighted decibels.

Aggregate noise emissions from proposed project construction activities, broken down by sequential phase, were predicted at two evaluation distances to the nearest existing noise-sensitive receptor: (1) from the position nearest to the construction site boundary and (2) from the geographic center of the construction site, which serves as the time-averaged location or geographic *acoustical centroid* of active construction equipment for the phase under study. The intent of the former distance is to help evaluate anticipated construction noise from a limited quantity

of equipment or vehicle activity expected to be at the boundary for some period of time, which would be most appropriate for phases such as site preparation, grading, and paving. The latter distance is used in a manner similar to the general assessment technique as described in the FTA guidance for construction noise assessment, when the location of individual equipment for a given construction phase is uncertain over some extent (or the entirety) of the construction site area. In this studied scenario, because of the equipment location uncertainty, all the equipment for a construction phase is assumed to operate—on average—from the acoustical centroid position. These two distances to the apparent closest noise-sensitive receptor for each of the seven sequential construction phases at each respective facility are summarized in section 3.11.5.2. At the site boundary, this analysis assumes that only the two loudest pieces of equipment for the listed phase would be involved in construction activity for the 1-hour period. In other words, at such proximity, the operating equipment cannot "stack" or crowd the vicinity and still operate. For the acoustical centroid case, which intends to be a geographic average position for all equipment during the indicated phase, this analysis assumes that all equipment for the indicated activity would be operating in a given hour over the 8-hour assessment period.

A Microsoft Excel-based noise prediction model emulating and using reference data from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) (DOT 2008) was used to estimate construction noise levels at the nearest occupied noise-sensitive land use. (Although the FHWA RCNM was funded and promulgated by FHWA, it is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are often used for other types of construction.) Input variables for the predictive modeling consist of the equipment type and number of each (e.g., two graders, a loader, and a tractor), the duty cycle for each piece of equipment (e.g., percentage of time within a specific time period, such as an hour, when the equipment is expected to operate at full power or capacity and thus make noise at a level comparable to what is presented in Table 3.11-14), and the distance from the noise-sensitive receiver. The predictive model also considers how many hours that equipment may be on site and operating (or idling) during the course of an established work shift. Conservatively, no topographical or structural shielding was assumed in the modeling. The FHWA RCNM has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty-cycle values were used for this noise analysis, which is detailed in Appendix H2, Construction Noise Modeling Input and Output to this Draft EIR, and produce the predicted results displayed below in section 3.11.5.2 of this Draft EIR.

### Vibration

Groundborne vibration attenuates rapidly, even over short distances. The attenuation of groundborne vibration as it propagates from source to receptor through intervening soils and rock strata can be estimated with expressions found in FTA and Caltrans guidance. To examine potential building damage risk and thus use PPV as the evaluation metric, vibration velocity level can be estimated with the following expression (FTA 2018):

$$PPV_{rcvr} = PPV_{ref} * (25/D)^{n}$$

where $PPV_{rcvr}$ is the predicted vibration velocity at the receiver position, $PPV_{ref}$ is the reference value at 25 feet from the vibration source, D is the actual horizontal distance to the receiver, and "n" is the Wiss exponent that FTA defines as 1.5 to generally characterize the propagation of vibration through soil/strata between the source and the receptor position.

For evaluating potential annoyance of a building occupant, FTA guidance provides an additional expression using the VdB metric (FTA 2018):

$$VdB_{rcvr} = VdB_{ref} - 30*LOG(D/25)$$

where $VdB_{rcvr}$ is the predicted RMS vibration velocity at the receiver position, $VdB_{ref}$ is the reference value at 25 feet from the vibration source, and D is the actual horizontal distance to the receiver.

## Off-Site Traffic Noise Exposure

The proposed project would result in the creation of additional vehicle trips on local arterial roadways at the Lassen Facility and Tuolumne Facility sites, which could result in increased traffic noise levels at adjacent noise-sensitive land uses. Appendix H3, Traffic Noise Modeling Input and Output contains a spreadsheet with traffic volume data for each site.

The FHWA's Highway Traffic Noise Prediction Model RD-77-108 was used to estimate potential noise impacts at adjacent noise-sensitive uses. Information used in the model included Average Daily Traffic (ADT; from Caltrans Traffic Census Program volumes in 2022), posted traffic speeds, day/evening/night mix percentage, and truck mix percentage. Consistent with Caltrans guidance (Caltrans 2013), this analysis assumes 80% of the ADT occurs during daytime hours (7:00 a.m. to 7:00 p.m.), 5% during the evening (7:00 p.m. to 10:00 p.m.), and 15% during the nighttime (10:00 p.m. to 7:00 a.m.) for existing conditions. The day/night ADT distribution data from Dudek's Transportation Impact Analysis were used to calculate the time-of-day distributions for existing plus project conditions (see Appendix H3 for more details). The truck percentages used in the noise model for existing arterials varied between the existing and existing plus project conditions at both the Lassen and Tuolumne sites, as appearing in Appendix H3. The change in roadway noise levels was predicted for both the Lassen Facility and Tuolumne Facility in an existing and existing plus project scenario.

## Stationary Noise Sources

The proposed project would consist of three primary activities: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary activity groupings as related to noise.

The proposed project would add a variety of noise-producing feedstock, wood processing and transport equipment that include those presented in Table 3.11-15 below. Most of these noise-producing equipment or sound sources would be considered stationary, or exhibit limited mobility within a defined area—and were modeled as such. Using Datakustik CadnaA that has algorithms based on the International Organization of Standardization (ISO) Standard 9613-2, "Attenuation of Sound During Propagation Outdoors, Part 2: General Method of Calculation" (ISO 1996), sound propagation prediction of project on-site noise sources was assumed to reflect the following conditions and parameters:

- Acoustical ground absorption coefficient estimated to be one (1), which represents absorptive ground cover (e.g., highly porous soils and/or vegetative natural terrain surfaces).
- Acoustical reflection order is set at zero (0), which precludes sound path reflections when contact is made with a modeled building surface, but is still appropriate when source-to-receptor distances are relatively large and would diminish the acoustical contribution of reflected paths owing to the attenuation with greater distance travelled.

- Climate conditions are 50° degrees Fahrenheit, 70% relative humidity. While these temperature and humidity settings may vary with the seasons, their influence on the predicted aggregate sound levels for the nearest potentially impacted offsite receptors would tend to be no greater than a decibel.
- For each of the Lassen and Tuolumne sites, six (6) total scenarios representing the one-hour $L_{eq}$ of project operations over various time periods: a 12-hour period, a 24-hour period during a daytime hour, and a 24-hour period during a nighttime hour. Each modeled operational time period includes two scenarios, one including site-adjoining rail operations, and one without.

In addition to these predicted conditions and parameters, the reference sound power ($L_w$) levels listed below in Table 3.11-15 were used to define area sources of sound emission in the CadnaA computer model space with respect to an arrangement of rendered line, area, and point sources that depict the various equipment structures shown on the project site plan. Please see Appendix H4 for quantitative details of the inputs and outputs that form the basis of the following assessment presentations.

## Table 3.11-15. Sound Power Levels for the Modeled Individual Sources of Outdoor Noise Emission

| Source | A-weighted Sound Level per Octave Band Center Frequency (OBCF in Hertz [Hz]) | | | | | | | | | Overall Sound Level (dBA) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 31.5 | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| Log Crane | n/a | 82 | 99 | 92 | 76 | 70 | 63 | 57 | 51 | 106 |
| Debarking Drum | 54 | 61 | 72 | 78 | 83 | 83 | 81 | 1 | -1.1 | 87.8 |
| Log Chipper | 51 | 62 | 76 | 93 | 99 | 103 | 104 | 96 | 90 | 107.9 |
| Stacker/Reclaimer | 71 | 85 | 91 | 95 | 102 | 101 | 98 | 97 | 86 | 106.5 |
| Dryer System (Chip Dryer) | 119 | 103 | 92 | 81 | 70 | 65 | 60 | 56 | 51 | 83.1 |
| Dryer System (Chip Dryer Exhaust) | 121 | 110 | 102 | 94 | 87 | 84 | 79 | 75 | 80 | 92.6 |
| Green Hammer Mill Tower, Dry Hammer Mill Building | N/A | N/A | 106 | 104 | 102 | 99 | 97 | 95 | N/A | 109.9 |
| Log Infeed Deck | N/A | N/A | N/A | N/A | N/A | N/A | 95 | N/A | N/A | 95 |
| Truck Dumps | 89.6 | 88.8 | 84.9 | 81.4 | 76.8 | 75 | 73.2 | 73 | 72.9 | 93.5 |
| Fuel Screening & Hog Tower, Residuals Screening Tower | 76.6 | 89.8 | 99.9 | 105.4 | 108.8 | 111 | 110.2 | 104 | 94.9 | 115.8 |
| Pellet Mill Building | 0 | 0 | 109 | 100 | 92 | 86 | 83 | 81 | 0 | 96.9 |
| Truck Scales (Idling Trucks) | 126 | 109 | 105 | 94 | 80 | 73 | 66 | 56 | 50 | 92.7 |
| Conveyor Path A-weighted per each meter of length | 40 | 52 | 66 | 73 | 77 | 77 | 73 | 61 | 51 | 81.6 |
| Train - "4036" at 50 feet | 31.6 | 133.6 | 128.6 | 124.6 | 128.6 | 128.6 | 127.6 | 127.6 | 123.6 | 139 |

**Notes:** OBCF = Octave Band Center Frequency; dBA = A-weighted decibels

* Reference sound power level data shown in Appendix H4.

### 3.11.4.2 Project Impacts

Impact NOI-1 The project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

The Final Program EIR for the California Vegetation Treatment Program, prepared for the California Board of Forestry and Fire Protection by Ascent Environmental, analyzes potential noise impacts related to sustainable forest management projects, which are discussed below (2019).

###### Short-Term Treatment Activities

Noise-intensive vegetation treatment activities related to sustainable forest management projects include prescribed burning, mechanical vegetation treatment, and manual vegetation treatment. The typical equipment used for each respective noise-intensive activity is shown in Table 3.11-16.

**Table 3.11-16. Sustainable Forest Management Projects – Equipment by Treatment Activity**

| Treatment Activity | Equipment Types |
|---|---|
| Mechanical Vegetation Treatment | Dozers<br>Excavators<br>Masticators<br>Chippers<br>Skid Steer<br>Fire Engines (at least 1) |
| Manual Vegetation Treatment | Chainsaws (4 to 8)<br>Masticators<br>Chippers (only used occasionally)<br>Fire Engine |

**Source:** CalVTP EIR - Ascent Environmental 2019.

Reference noise levels for the individual equipment used in treatment activities (as appearing in Table 3.11-16) are summarized in Table 3.11-17.

**Table 3.11-17. Sustainable Forest Management Projects – Noise Levels from Treatment Equipment Types**

| Equipment Type | Typical Noise Level (dB) at 50 feet[1] |
|---|---|
| Chainsaw | 85 |
| Dozer | 85 |
| Shears (on Backhoe) | 85 |
| Excavator | 85 |

## Table 3.11-17. Sustainable Forest Management Projects – Noise Levels from Treatment Equipment Types

| Equipment Type | Typical Noise Level (dB) at 50 feet[1] |
|---|---|
| Flat Bed Trucks | 84 |
| Wood Chipper | 75[2] |

**Sources**:
1 reference noise levels from FTA 2018 except where indicated otherwise
2 Berger et al. 2016.
3 CalVTP EIR - Ascent Environmental 2019.
**Notes:** Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacture-specified noise levels for each piece of equipment.

As appearing in Table 3.11-17, noise levels generated by equipment used in treatment activities ranges from 75 to 87.9 dB at 50 feet. Additionally, it is likely that during treatment activities, individual equipment would be spread out rather than operating close together, considering some of the equipment listed are heavy-duty and/or off-road (Ascent Environmental 2019). Table 3.11-18 summarizes the combined noise levels at 50 feet for each respective noise-intensive treatment activity.

## Table 3.11-18. Sustainable Forest Management Projects – Noise Levels from Treatment Activities

| Treatment Activity | Noise Level ($L_{eq}$ dB) at 50 feet | Noise Level ($L_{max}$ dB) at 50 feet |
|---|---|---|
| Mechanical Vegetation Treatment | 87.0 | 91.0 |
| Manual Vegetation Treatment | 87.0 | 91.0 |

**Sources:** FTA 2018; CalVTP EIR - Ascent Environmental 2019.
**Notes:** dB = decibels; $L_{eq}$ = equivalent continuous sound level; $L_{max}$ = maximum sound level

As shown in Table 3.11-18, the combined noise levels from each respective treatment activity are similar, ranging from 86.8 to 89.9 dB $L_{eq}$, or 90.8 to 91.8 dB $L_{max}$.

As noted (and further discussed in Ascent Environmental 2019), it is unlikely that noise from multiple pieces of equipment would combine to affect any noise-sensitive receptor for an extended period. Further, while no specific treatment locations have yet been identified in this program-level analysis, and thus the specific location of noise-sensitive receptors in relation to any particular treatment activities is unknown at this time, due to the nature of Sustainable Forest Management Project activities, it is likely that many of these activities will occur in remote areas not proximate to sensitive receptors. Moreover, increased noise levels related to treatment activities would be temporary. Nonetheless, this analysis conservatively assumes that in developed areas the likelihood is high that noise-sensitive receptors could be located in close proximity to vegetation treatments. Additionally, although less likely, noise-sensitive receptors could be located in close proximity to vegetation treatments in undeveloped areas as well. It is further assumed that noise-sensitive receptors near treatment activity sites could experience elevated noise levels.

Vegetation treatment activities undertaken as to implement Sustainable Forest Management Projects would adhere to the PDFs that require consistency with local noise policies and ordinances to the extent the project is subject to them, limit vegetation treatment activities to daytime hours, ensure proper notification of nearby sensitive receptors, and locate treatment activities and staging areas away from sensitive receptors to minimize noise exposure (as further described in Section 2.4). Further, as noted, any increase in ambient noise levels exposure at nearby receptors would be temporary and periodic. Therefore, implementation of Sustainable Forest Management

Project activities would not result in the exposure of noise-sensitive receptors to a substantial temporary increase in ambient noise levels. This impact would be **less than significant.**

#### Off-Site Traffic Noise Exposure

Treatment activities related to sustainable forest management projects would involve increased haul truck trips (i.e., transportation of heavy equipment, crews, livestock, etc., to treatment sites), which could generate increased noise levels for noise-sensitive receptors whom haul trucks would pass by (Ascent Environmental 2019).

Because vegetation treatment activities would be required to adhere to PDF NOI-1, which limits vegetation treatment activities to daytime hours (see Section 2.4), this haul truck traffic would not have the potential to result in sleep disturbance during noise-sensitive evening and nighttime hours. Also, the increase in noise-generating haul truck passbys associated with treatment activity at any particulate treatment site would be temporary. As a result, increased off-site traffic noise exposure during sustainable forest management project treatment activities would be. **less than significant.**

## Wood Pellet Production

### Lassen Facility

#### Short-Term Construction

Table 3.11-19 summarizes the distance of the apparent closest noise-sensitive receptor from the position nearest to the construction site boundary and from the geographic center of the construction site, which serves as the time-averaged location or geographic *acoustical centroid* of active construction equipment for the phase under study for each of the seven sequential construction phases at the Lassen Facility. At the site boundary, this analysis assumes that only the two loudest pieces of equipment for the listed phase would be involved in construction activity for the 1-hour period. In other words, at such proximity, the operating equipment cannot "stack" or crowd the vicinity and still operate. For the acoustical centroid case, which intends to be a geographic average position for all equipment during the indicated phase, this analysis assumes that all equipment for the indicated activity would be operating in a given hour over the 8-hour assessment period.

**Table 3.11-19. Estimated Distances between Construction Activities and the Nearest Noise-Sensitive Receptors – Lassen Facility**

| Construction Phase (and Equipment Types Involved) | Distance from Nearest Noise-Sensitive Receptor to Construction Site Boundary (Feet) | Distance from Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (Feet) |
|---|---|---|
| Demolition (concrete saw, excavator, tractor) | 620 | 1560 |
| Site preparation (dozer, backhoe, tractor) | 620 | 1560 |
| Grading (excavator, grader, dozer, tractor) | 620 | 1560 |
| Building/Vertical Construction (crane, man-lift, generator, backhoe, welder) | 620 | 1560 |

### Table 3.11-19. Estimated Distances between Construction Activities and the Nearest Noise-Sensitive Receptors – Lassen Facility

| Construction Phase (and Equipment Types Involved) | Distance from Nearest Noise-Sensitive Receptor to Construction Site Boundary (Feet) | Distance from Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (Feet) |
|---|---|---|
| Paving (paver, roller, concrete mixer truck) | 620 | 1560 |
| Architectural coating (compressor) | 620 | 1560 |
| Rail Spurs Construction | 620 | 1560 |

Based on these two distances, a Microsoft Excel-based RCNM emulator was used to estimate construction noise levels at the nearest occupied noise-sensitive land use, for which the results are shown in Table 3.11-20.

### Table 3.11-20. Predicted Construction Noise Levels per Activity Phase – Lassen Facility

| Construction Phase (and Equipment Types Involved) | 8-Hour $L_{eq}$ at Nearest Noise-Sensitive Receptor to Construction Site Boundary (dBA) | 8-Hour $L_{eq}$ at Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (dBA) |
|---|---|---|
| Demolition (concrete saw, excavator, tractor) | 58.8 | 50.9 |
| Site preparation (dozer, backhoe, tractor) | 56.4 | 50.3 |
| Grading (excavator, grader, dozer, tractor) | 58.7 | 49.9 |
| Building/Vertical Construction (crane, man-lift, generator, backhoe, welder) | 50.9 | 44.6 |
| Paving (paver, roller, concrete mixer truck) | 53.0 | 45.5 |
| Architectural coating (compressor) | 45.7 | 36.6 |
| Rail Spurs Construction | n/a | n/a |

As presented in Table 3.11-20, the estimated construction noise levels are predicted to reach up to 58.8 dBA 8-hour $L_{eq}$ at the nearest existing residences (as close as 620 feet away) when the construction of the Lassen Facility's pellet operations takes place near the western project boundaries. Note that these estimated noise levels would occur when noted pieces of heavy equipment would each operate for a full 8-hour period at a source-to-receiver distance of 620 feet. On an average construction workday, heavy equipment will be operating sporadically throughout the project site and more frequently be located away from the southern edge. Hence, at more typical distances closer to the center of the project site (approximately 1560 feet from the nearest existing residence), hourly construction noise exposure levels are estimated to range from approximately 36.6 dBA $L_{eq}$ to 50.9 dBA $L_{eq}$ at the nearest existing residence. This latter range of predicted construction noise levels is comparable to the 41-49 dBA range of

sampled daytime $L_{eq}$ values in the vicinity of the Lassen site as indicated in Table 3.11-3, which means these temporary construction noise exposures at the nearest offsite receivers are expected to be either lower than existing outdoor ambient sound levels or cause an increase of up to 4 dB. On occasions where the onsite construction activities are closer to the boundary, the predicted 58.8 dBA 8-hour $L_{eq}$ value from Table 3.11-20 suggests that audible double-digit decibel increases to the existing outdoor sound environment could occur.

Lassen County exempts construction activities from County noise thresholds, as long as construction takes place during allowable operating hours. In summary, while temporary construction noise exposure levels during allowable daytime hours may cause an audible increase to the existing sound environment, they will not exceed the FTA's recommended 80 dBA $L_{eq}$ 8-hour threshold at the nearest residential receiver. Therefore, temporary construction-related noise impacts would be considered **less than significant.**

### Off-Site Traffic Noise Exposure

Table 3.11-21 provides a summary of the results for the analysis of roadway noise based on existing ADT volumes for each studied roadway segment. The traffic noise levels in Table 3.11-21 are based upon Caltrans ADT traffic volumes and non-passenger car equivalent (PCE) volumes found in Dudek's Transportation Analysis.

**Table 3.11-21. Lassen Facility Traffic Noise Levels With and Without Project**

| Street Name | From | To | Noise Level Without Project (CNEL dBA) | Noise Level With Project (CNEL dBA) | Project Increase (CNEL dBA) |
|---|---|---|---|---|---|
| SR-299 East of Project Site | SR-299 | Bieber Lookout Rd/Susanville Rd | 60.3 | 63.9 | 3.6 |
| SR-299 West of Project Site | SR-89 | SR-299 | 60.1 | 63.9 | 3.8 |

**Source:** Appendix H3.

The inclusion of project operational traffic in the project results in a maximum traffic noise rise of 3.8 dBA along SR-299 to the west of the project site. The anticipated combined traffic noise level, encompassing both existing and project-related traffic, would not exceed 65 dBA CNEL; hence, there would not be an increase in the existing traffic noise levels at SR-299 in both Bieber and Nubieber, which were measured to be 65 dBA CNEL. In the context of community noise (i.e., outside of a controlled environment), the predicted project-attributed roadway traffic noise would be less than the measured existing ambient noise levels, and therefore, project-attributed traffic noise levels would be **less than significant**.

### Stationary Noise Sources

Predicted noise exposure levels attributed to concurrent operation of the Lassen Facility's onsite stationary sources (i.e., conveyor belts, log collection/transport, debarking, drying, idling haul trucks) as modeled appear in Tables 3.11-22 to 3.11-24.

### Table 3.11-22. Lassen Facility Operation Noise Prediction Model Results (12-Hour Scenario)

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – With Rail Operations | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – Without Rail Operations |
|---|---|---|---|
| NSR1 | 3300 ft Northeast | 37.3 | 36.6 |
| NSR2 | 620 ft West | 50.3 | 50.0 |
| NSR3 | 1300 ft West | 50.1 | 50.0 |
| NSR4 | 1500 ft West | 48.1 | 47.9 |
| NSR5 | 1400 ft West | 52.9 | 52.8 |
| NSR6 | 300 ft Southeast | 56.0 | 55.5 |
| NSR7 | 300 ft Southeast | 59.0 | 58.9 |
| NSR8 | 250 feet East | 54.2 | 54.0 |

* NSR = noise-sensitive receptors; dBA = A-weighted decibels; Leq = energy-averaged noise level

### Table 3.11-23. Lassen Facility Operation Noise Prediction Model Results Summary (24-Hour Daytime Hour Scenario)

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – With Rail Operations | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – Without Rail Operations |
|---|---|---|---|
| NSR1 | 3300 ft Northeast | 37.2 | 36.4 |
| NSR2 | 620 ft West | 49.5 | 49.2 |
| NSR3 | 1300 ft West | 48.6 | 48.3 |
| NSR4 | 1500 ft West | 46.5 | 46.2 |
| NSR5 | 1400 ft West | 50.6 | 50.5 |
| NSR6 | 300 ft Southeast | 56.0 | 55.5 |
| NSR7 | 300 ft Southeast | 59.0 | 58.9 |
| NSR8 | 250 feet East | 54.2 | 53.9 |

* NSR = noise-sensitive receptors; dBA = A-weighted decibels; Leq = energy-averaged noise level

### Table 3.11-24. Lassen Facility Operation Noise Prediction Model Results Summary (24-Hour Nighttime Hour Scenario)

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – With Rail Operations | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – Without Rail Operations |
|---|---|---|---|
| NSR1 | 3300 ft Northeast | 37.2 | 36.4 |
| NSR2 | 620 ft West | 48.5 | 48.1 |
| NSR3 | 1300 ft West | 47.0 | 46.7 |
| NSR4 | 1500 ft West | 45.1 | 44.7 |
| NSR5 | 1400 ft West | 48.5 | 48.3 |
| NSR6 | 300 ft Southeast | 51.4 | 50.1 |

## Table 3.11-24. Lassen Facility Operation Noise Prediction Model Results Summary (24-Hour Nighttime Hour Scenario)

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – With Rail Operations | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – Without Rail Operations |
|---|---|---|---|
| NSR7 | 300 ft Southeast | 50.9 | 50.1 |
| NSR8 | 250 feet East | 48.0 | 46.9 |

* NSR = noise-sensitive receptors; dBA = A-weighted decibels; Leq = energy-averaged noise level

The predicted levels at the studied noise-sensitive receptor locations during each operational time period, 12-hours and 24-hours (daytime and nighttime hour), both including and not including rail operations, do not exceed Lassen County's 55 dBA hourly $L_{eq}$ nighttime noise threshold as appearing in Table 3.11-24 (when the facility would be operating during nighttime hours, nor its daytime and evening thresholds of 65 and 60 dBA hourly $L_{eq}$, as appearing in Tables 3.11-22 and 3.11-23 (when the facility would be operating during daytime and evening hours); therefore, potential noise impact associated with project operation would be considered **less than significant**.

Figures 3.11-1 to 3.11-6 correspondingly illustrate (for these same modeled varying operation scenarios) predicted Lassen Facility stationary equipment operation sound levels across a horizontal plane approximately five feet above grade (i.e., a first-floor or pedestrian listening elevation) over the Lassen Facility site and beyond into the surrounding vicinity.

### Tuolumne Facility

#### Short-Term Construction

Table 3.11-25 summarizes the distance of the apparent closest noise-sensitive receptor from the position nearest to the construction site boundary and from the geographic center of the construction site, which serves as the time-averaged location or geographic *acoustical centroid* of active construction equipment for the phase under study for each of the seven sequential construction phases at the Tuolumne Facility. At the site boundary, this analysis assumes that only the two loudest pieces of equipment for the listed phase would be involved in construction activity for the 1-hour period. In other words, at such proximity, the operating equipment cannot "stack" or crowd the vicinity and still operate. For the acoustical centroid case, which intends to be a geographic average position for all equipment during the indicated phase, this analysis assumes that all equipment for the indicated activity would be operating in a given hour over the 8-hour assessment period.

## Table 3.11-25. Estimated Distances between Construction Activities and the Nearest Noise-Sensitive Receptors – Tuolumne Facility

| Construction Phase (and Equipment Types Involved) | Distance from Nearest Noise-Sensitive Receptor to Construction Site Boundary (Feet) | Distance from Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (Feet) |
|---|---|---|
| Demolition (concrete saw, excavator, tractor) | 120 | 800 |
| Site preparation (dozer, backhoe, tractor) | 120 | 800 |

### Table 3.11-25. Estimated Distances between Construction Activities and the Nearest Noise-Sensitive Receptors – Tuolumne Facility

| Construction Phase (and Equipment Types Involved) | Distance from Nearest Noise-Sensitive Receptor to Construction Site Boundary (Feet) | Distance from Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (Feet) |
|---|---|---|
| Grading (excavator, grader, dozer, tractor) | 120 | 800 |
| Building/Vertical Construction (crane, man-lift, generator, backhoe, welder) | 120 | 800 |
| Paving (paver, roller, concrete mixer truck) | 120 | 800 |
| Architectural coating (compressor) | 120 | 800 |
| Rail Spurs Construction | 120 | 800 |

Based on these two distances, a Microsoft Excel-based FHWA RCNM emulator was used to estimate construction noise levels at the nearest occupied noise-sensitive land use, for which the results are shown in Table 3.11-26.

### Table 3.11-26. Predicted Construction Noise Levels per Activity Phase – Tuolumne Facility

| Construction Phase (and Equipment Types Involved) | 8-Hour $L_{eq}$ at Nearest Noise-Sensitive Receptor to Construction Site Boundary (dBA) | 8-Hour $L_{eq}$ at Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (dBA) |
|---|---|---|
| Demolition (concrete saw, excavator, tractor) | 75.3 | 57.5 |
| Site preparation (dozer, backhoe, tractor) | 73.0 | 56.9 |
| Grading (excavator, grader, dozer, tractor) | 75.2 | 56.5 |
| Building/Vertical Construction (crane, man-lift, generator, backhoe, welder) | 67.4 | 51.2 |
| Paving (paver, roller, concrete mixer truck) | 69.6 | 52.1 |
| Architectural coating (compressor) | 62.3 | 43.2 |
| Rail Spurs Construction | n/a | n/a |

As presented in Table 3.11-26, the estimated construction noise levels are predicted to reach up to 75.3 dBA 8-hour $L_{eq}$ at the nearest existing residences (as close as 120 feet away) when the construction of the Tuolumne Facility's pellet operations takes place near the northwestern project boundaries. Note that these estimated noise levels would occur when noted pieces of heavy equipment would each operate for a full hour at a source-to-receiver

distance of 120 feet. On an average construction workday, heavy equipment will be operating sporadically throughout the project site and more frequently be located away from the southern edge. Hence, at more typical distances closer to the center of the project site (approximately 800 feet from the nearest existing residence), hourly construction noise exposure levels are estimated to range from approximately 43.2 dBA $L_{eq}$ to 57.5 dBA $L_{eq}$ at the nearest existing residence. This latter range of predicted construction noise levels is less than the 61-66 dBA range of sampled daytime $L_{eq}$ values in the vicinity of the Lassen site as indicated in Table 3.11-4, which means these temporary construction noise exposures at the nearest offsite receivers are expected to be less than existing outdoor ambient sound levels and cause an imperceptible increase (i.e., less than a decibel due to logarithmic addition). On occasions where the onsite construction activities are closer to the boundary, the predicted 75.3 dBA 8-hour $L_{eq}$ value from Table 3.11-26 suggests that audible double-digit decibel increases to the existing outdoor sound environment could occur.

While construction activity at the Tuolumne site may therefore cause temporary audible increases to the outdoor sound environment at the nearest offsite receptors, Tuolumne County does not explicitly set forth construction noise standards, and construction noise at the Tuolumne Facility will not exceed the FTA's recommended 80 dBA $L_{eq}$ 8-hour threshold at the nearest residential receiver. Therefore, temporary construction-related noise impacts would be considered **less than significant.**

### Off-Site Traffic Noise Exposure

Table 3.11-27 provides a summary of the results for the analysis of roadway noise based on existing ADT volumes for each studied roadway segment. The traffic noise levels in Table 3.11-27 are based upon Caltrans ADT traffic volumes and non-passenger car equivalent (PCE) volumes found in Dudek's Transportation Analysis.

**Table 3.11-27. Tuolumne Facility Traffic Noise Levels With and Without Project**

| Street Name | From | To | Noise Level Without Project (CNEL dBA) | Noise Level With Project (CNEL dBA) | Project Increase (CNEL dBA) |
|---|---|---|---|---|---|
| Road CR59 | SR-120/SR-108 | SR-132 | 62.9 | 65.2 | 2.3 |
| SR-120/SR-108 | SR-120 /SR-108 | Road CR59 | 74.0 | 74.0 | 0.0 |

**Source:** Appendix H3.

The inclusion of project operational traffic in the project results in a maximum traffic noise rise of 2.3 dBA along Road CR59 to the west and south of the project site. The anticipated combined traffic noise level, encompassing both existing and project-related traffic, remains below a 3 dBA increase in existing traffic noise levels. Although the predicted traffic noise levels shown in Table 3.11-27 are higher than the 60 dB $L_{dn}$/CNEL threshold for non-aviation related transportation noise found in Table 3.11-10, a change in noise levels of less than 3 dBA is not perceptible to the average human listener in the context of community noise (i.e., outside of a controlled environment), and existing traffic noise levels are already higher than 60 dB $L_{dn}$/CNEL based on samples of $L_{eq}$ values appearing in Table 3.11-4. Therefore, project-attributed traffic noise levels would be **less than significant**.

### Stationary Noise Sources

Predicted noise exposure levels attributed to concurrent operation of the Tuolumne Facility's onsite stationary sources (i.e., conveyor belts, log collection/transport, debarking, drying, idling haul trucks) as modeled appear in Tables 3.11-28 to 3.11-30. The predicted levels at the studied noise-sensitive receptor locations would not exceed

Tuolumne County's noise threshold as related to stationary noise sources (as shown in Table 3.11-11) when the noise emission of site-adjoining rail operations is not included with onsite project operational noise emission. Additionally, the predicted levels at the studied noise-sensitive receptor locations would not exceed Tuolumne County's transportation-noise threshold (as shown in Table 3.11-10) when the noise emission of site-adjoining rail operations is included with onsite project operational noise emission, as appearing in Tables 3.11-28 to 3.11-30.

### Table 3.11-28. Tuolumne Facility – Operation Noise Prediction Model Results (12-Hour Scenario)

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – With Rail Operations | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – Without Rail Operations |
|---|---|---|---|
| NSR1 | 1450 ft West | 42.3 | 40.1 |
| NSR2 | 690 ft East/Southeast | 44.6 | 44.6 |
| NSR3 | 520 ft East/Southeast | 44.9 | 44.8 |
| NSR4 | 1750 ft Southeast | 40.2 | 40.1 |
| NSR5 | 120 ft North | 59.7 | 44.8 |
| NSR6 | 200ft North | 54.7 | 44.8 |

* NSR = noise-sensitive receptors; dBA = A-weighted decibels; Leq = energy-averaged noise level

### Table 3.11-29. Tuolumne Facility – Operation Noise Prediction Model Results (24-Hour Daytime Hour Scenario)

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – With Rail Operations | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – Without Rail Operations |
|---|---|---|---|
| NSR1 | 1450 ft West | 42 | 39.5 |
| NSR2 | 690 ft East/Southeast | 44.1 | 44 |
| NSR3 | 520 ft East/Southeast | 44.2 | 44.2 |
| NSR4 | 1750 ft Southeast | 39.6 | 39.5 |
| NSR5 | 120 ft North | 58.1 | 44.7 |
| NSR6 | 200ft North | 55.3 | 44.4 |

* NSR = noise-sensitive receptors; dBA = A-weighted decibels; Leq = energy-averaged noise level

### Table 3.11-30. Tuolumne Facility – Operation Noise Prediction Model Results (24-Hour Nighttime Hour Scenario)

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – With Rail Operations | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – Without Rail Operations |
|---|---|---|---|
| NSR1 | 1450 ft West | 41.6 | 38.7 |
| NSR2 | 690 ft East/Southeast | 42.1 | 42 |
| NSR3 | 520 ft East/Southeast | 42.3 | 42.2 |
| NSR4 | 1750 ft Southeast | 37.5 | 37.4 |
| NSR5 | 120 ft North | 55.6 | 44.5 |

**Table 3.11-30. Tuolumne Facility – Operation Noise Prediction Model Results (24-Hour Nighttime Hour Scenario)**

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – With Rail Operations | Predicted Operation Noise (dBA hourly $L_{eq}$) at Indicated Modeled Receptor – Without Rail Operations |
|---|---|---|---|
| NSR6 | 200ft North | 53.8 | 44.5 |

* NSR = noise-sensitive receptors; dBA = A-weighted decibels; Leq = energy-averaged noise level

As appearing in Tables 3.11-28 to 3.11-30, project stationary operational noise levels would be below Tuolumne County's daytime threshold of 50 dBA hourly $L_{eq}$ and the nighttime threshold of 45 dBA hourly $L_{eq}$, in each time-scenario where rail operations are not concurrent with project operations. Therefore, potential noise impacts associated with the Tuolumne Facility's operation without rail operations would be considered **less than significant.**

When project-related rail operations occur and add this transportation-type noise source to the without-rail aggregate of stationary noise source emission, the predicted hourly levels appearing in Tables 3.11-28, 3.11-29, and 3.11-30 are less than 60 dBA in magnitude and thus over the course of a 24-hour period would be expected to result in a day-night sound level for the rail operations contribution that is not greater than 60 dBA $L_{dn}$. Consequently, potential noise impacts associated with the Tuolumne facility's rail operations would be considered **less than significant.**

According to the thresholds established in Table 3.11-12, there would be a significant impact if project operational noise levels would increase outdoor ambient noise levels by 1.5 dBA $L_{dn}$ if existing outdoor ambient noise levels are greater than 65 dBA $L_{dn}$. When comparing the predicted project operational noise levels to the existing measured outdoor ambient noise levels shown in Table 3.11-4 for Tuolumne County, there would not be an increase in ambient noise levels greater than 1.5 dBA $L_{dn}$. The measured outdoor ambient noise level at measurement location ST1 is 59.9 dBA $L_{eq}$ or 66.3 dBA $L_{dn}$, whereas the highest predicted project operational noise level over a 24-hour period is 55.6 dBA $L_{eq}$ or 62.0 dBA $L_{dn}$ (as shown in Table 3.11-30), and therefore lower than the existing measured outdoor ambient noise level at ST1. Additionally, the measured outdoor ambient noise level at measurement location ST2 is 66.1 dBA $L_{eq}$ or 72.5 dBA $L_{dn}$, which is also lower than the highest predicted project operational noise level over a 24-hour period of 55.6 dBA $L_{eq}$ or 62.0 dBA $L_{dn}$. Therefore, there would not be a significant increase in the outdoor ambient noise levels according to the Tuolumne County standards as appearing in Table 3.11-12, and this impact would be considered **less than significant**.

Figures 3.11-7 to 3.11-12 correspondingly illustrate (for these same modeled varying operation scenarios) predicted Tuolumne Facility stationary equipment operation sound levels across a horizontal plane approximately five feet above grade (i.e., a first-floor or pedestrian listening elevation) over the Tuolumne Facility site and beyond into the surrounding vicinity.

## Transport to Market

### Port of Stockton

#### Short-Term Construction

Table 3.11-31 summarizes the distance of the apparent closest noise-sensitive receptor from the position nearest to the construction site boundary and from the geographic center of the construction site, which serves as the time-

averaged location or geographic *acoustical centroid* of active construction equipment for the phase under study for each of the seven sequential construction phases at the Port of Stockton. At the site boundary, this analysis assumes that only the two loudest pieces of equipment for the listed phase would be involved in construction activity for the 1-hour period. In other words, at such proximity, the operating equipment cannot "stack" or crowd the vicinity and still operate. For the acoustical centroid case, which intends to be a geographic average position for all equipment during the indicated phase, this analysis assumes that all equipment for the indicated activity would be operating in a given hour over the 8-hour assessment period.

### Table 3.11-31. Estimated Distances between Construction Activities and the Nearest Noise-Sensitive Receptors – Port of Stockton

| Construction Phase (and Equipment Types Involved) | Distance from Nearest Noise-Sensitive Receptor to Construction Site Boundary (Feet) | Distance from Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (Feet) |
|---|---|---|
| Demolition (concrete saw, excavator, tractor) | 1240 | 2500 |
| Site preparation (dozer, backhoe, tractor) | 1240 | 2500 |
| Grading (excavator, grader, dozer, tractor) | 1240 | 2500 |
| Building/Vertical Construction (crane, man-lift, generator, backhoe, welder) | 1240 | 2500 |
| Paving (paver, roller, concrete mixer truck) | 1240 | 2500 |
| Architectural coating (compressor) | 1240 | 2500 |
| Rail Spurs Construction | 1240 | 2500 |

Based on these two distances, a Microsoft Excel-based noise prediction model emulating and using reference data from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (DOT 2008) was used to estimate construction noise levels at the nearest occupied noise-sensitive land use, for which the results are shown in Table 3.11-32.

### Table 3.11-32. Predicted Construction Noise Levels per Activity Phase – Port of Stockton Facility

| Construction Phase (and Equipment Types Involved) | 8-Hour $L_{eq}$ at Nearest Noise-Sensitive Receptor to Construction Site Boundary (dBA) | 8-Hour $L_{eq}$ at Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (dBA) |
|---|---|---|
| Demolition (concrete saw, excavator, tractor) | 52.0 | 45.8 |
| Site preparation (dozer, backhoe, tractor) | 49.6 | 45.2 |
| Grading (excavator, grader, dozer, tractor) | 51.9 | 44.8 |

## Table 3.11-32. Predicted Construction Noise Levels per Activity Phase – Port of Stockton Facility

| Construction Phase (and Equipment Types Involved) | 8-Hour $L_{eq}$ at Nearest Noise-Sensitive Receptor to Construction Site Boundary (dBA) | 8-Hour $L_{eq}$ at Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (dBA) |
|---|---|---|
| Building/Vertical Construction (crane, man-lift, generator, backhoe, welder) | 44.1 | 39.5 |
| Paving (paver, roller, concrete mixer truck) | 46.2 | 40.4 |
| Architectural coating (compressor) | 38.9 | 31.5 |
| Rail Spurs Construction | n/a | n/a |

As presented in Table 3.11-32, the estimated construction noise levels are predicted to reach up to 52.0 dBA 8-hour $L_{eq}$ at the nearest existing residences (as close as 1240 feet away) when the construction of the Port of Stockton's receiving, storage, and loadout facilities takes place near the western project boundaries. Note that these estimated noise levels would occur when noted pieces of heavy equipment would each operate for a full hour at a source-to-receiver distance of 1240 feet. On an average construction workday, heavy equipment will be operating sporadically throughout the project site and more frequently be located away from the southern edge. Hence, at more typical distances closer to the center of the project site (approximately 2500 feet from the nearest existing residence), hourly construction noise exposure levels are estimated to range from approximately 31.5 dBA $L_{eq}$ to 45.8 dBA $L_{eq}$ at the nearest existing residence.

The City of Stockton does not explicitly set forth construction noise standards, and construction noise at the Port of Stockton Facility will not exceed the FTA's recommended 80 dBA $L_{eq}$ 8-hour threshold at the nearest residential receiver. Therefore, temporary construction-related noise impacts would be considered **less than significant.**

### Stationary Noise Sources

Predicted noise exposure levels attributed to concurrent operation of the Port of Stockton's onsite stationary sources (i.e., railcar unloading, material transfer facilities, conveyors, and ship loading)) as modeled appear in Table 3.11-33.

## Table 3.11-33. Port of Stockton – Operation Noise Prediction Model Results Summary

| Modeled Receptor | Modeled Receptor Distance from Project Boundary | Predicted Operation Day/Night Noise level (dBA $L_{dn}$) at Indicated Modeled Receptor |
|---|---|---|
| NSR1 | 1300 ft North | 55.6 |
| NSR2 | 1100 ft North | 55.7 |
| NSR3 | 1100 ft Northeast | 55.0 |
| NSR4 | 2700 ft East | 45.7 |

* NSR = noise-sensitive receptors; dBA = A-weighted decibels; Leq = energy-averaged noise level

Table 3.11-33 shows that the predicted levels at the studied noise-sensitive receptor locations do not exceed the City of Stockton's 60 dBA $L_{dn}$ noise threshold range as appearing in Table 3.11-13; therefore, potential noise impact associated with project operation would be considered **less than significant.**

Figure 3.11-13 correspondingly illustrates (for this same modeled full operation scenario) predicted Port of Stockton stationary equipment operation sound levels across a horizontal plane approximately five feet above grade (i.e., a first-floor or pedestrian listening elevation) over the Port of Stockton site and beyond into the surrounding vicinity.

Impact NOI-2 The project would not result in generation of excessive groundborne vibration or groundborne noise levels.

Feedstock Acquisition

### Sustainable Forest Management Projects

No specific treatment locations have yet been identified in this program-level analysis, and thus the specific location of existing residences or buildings in relation to any particular treatment activities is unknown at this time. Due to the nature of Sustainable Forest Management Project activities, it is likely that many of these activities will occur in remote areas not proximate to sensitive receptors. By way of example, the FTA provides reference groundborne PPV of 0.21 ips for a vibratory roller (a conservative approximation for a masticator) and 0.089 ips for a dozer at distances of 25 feet. Using methods outlined in Section 3.11.5.1, for predicted groundborne vibration velocity levels to be below the Caltrans guidance-based 0.3 ips PPV threshold for avoiding building damage to older residential structures and the 75 VdB guidance limit for annoying building occupant, a vibratory roller would have to operate at a distance of 65 feet or further from a nearby existing residence or building, or 120 feet or further for a dozer. Consequently, because the specific location of existing residences or buildings in relation to Sustainable Forest Management Project activities have not yet been identified and would likely occur in remote areas, impacts associated with such activities are expected to be **less than significant.**

## Wood Pellet Production

### Lassen Facility

Using the expressions described in Section 3.11.5.1, groundborne vibration velocity levels at the nearest existing residence from the likely most vibratory equipment expected for construction of the Lassen Facility appear in Table 3.11-34. All predicted vibration levels are lower than the occupant annoyance threshold of 75 VdB for "occasional events," per Table 3.11-6, and lower than the building damage risk threshold of 0.3 inches per second PPV.

By way of example, grading at the project site boundary would appear to occur as close as 620 feet to the eastern façade of a western Nubieber residence. At this distance, and using a reference groundborne PPV of 0.21 ips for the roller at a distance of 25 feet, the estimated PPV at the receiving building façade can be estimated as follows:

$$PPV_{rcvr} = 0.21*(25/620)^{1.5} = 0.002 \text{ ips}$$

$$VdB_{rcvr} = 20*LOG(0.002/(4*0.000001)) = 53$$

The predicted groundborne vibration velocity level is below the Caltrans guidance-based 0.3 ips PPV threshold for avoiding building damage to older residential structures, and the corresponding 53 VdB is less than the 75 VdB guidance limit for annoying building occupants.

Subsequent onsite construction activities would involve greater quantities of equipment but would be less vibratory than a roller and/or their distances would be much greater than this six hundred twenty horizontal foot distance between the project site and the nearest residential building façade. Hence, groundborne vibration propagating from these more distant sources of onsite vibration would be substantially less than the preceding estimates and the Caltrans guidance-based vibration exposure thresholds. Therefore, on the basis of compliance with these FTA vibration standards, impacts associated with construction vibration are expected to be **less than significant.**

### Table 3.11-34. Predicted Onsite Construction Vibration at Nearest Sensitive Receptor (Lassen Facility)

| Studied Receptor (Description) | Anticipated Vibration Source Closest Distance (feet) | Predicted PPV (inches per second) and VdB (rms) for Indicated Equipment Type | | | | | |
|---|---|---|---|---|---|---|---|
| | | Dozer | | Loader | | Roller | |
| | | PPV | VdB | PPV | VdB | PPV | VdB |
| Nubieber Residence to the West | 620 | 0.0007 | 45 | 0.0006 | 44 | 0.002 | 53 |

**Source:** FTA 2018.
**Notes:** VdB = vibration velocity decibels, rms = root mean square, PPV = peak particle velocity.

#### Tuolumne Facility

The groundborne vibration velocity levels at the nearest existing residence from the likely most vibratory equipment expected for construction of the Tuolumne Facility appear in Table 3.11-35. All predicted vibration levels are lower than the occupant annoyance threshold of 75 VdB for "occasional events," per Table 3.11-6, and lower than the building damage risk threshold of 0.3 inches per second PPV.

By way of example, grading at the project site boundary would appear to occur as close as 120 feet to the southern façade of residence north of the project site. At this distance, and using a reference groundborne PPV of 0.21 ips for the roller at a distance of 25 feet, the estimated PPV at the receiving building façade can be estimated as follows:

$$PPV_{rcvr} = 0.21*(25/120)^{1.5} = 0.02 \text{ ips}$$

$$VdB_{rcvr} = 20*LOG(0.02/(4*0.000001)) = 74$$

The predicted groundborne vibration velocity level is below the Caltrans guidance-based 0.3 ips PPV threshold for avoiding building damage to older residential structures, and the corresponding 74 VdB is less than the 75 VdB guidance limit for annoying building occupants.

Subsequent onsite construction activities would involve greater quantities of equipment but would be less vibratory than a roller and/or their distances would be much greater than this one hundred twenty horizontal foot distance between the project site and the nearest residential building façade. Hence, groundborne vibration propagating from these more distant sources of onsite vibration would be substantially less than the preceding estimates and

the Caltrans guidance-based vibration exposure thresholds. Therefore, on the basis of compliance with these FTA vibration standards, impacts associated with construction vibration are expected to be **less than significant.**

### Table 3.11-35. Predicted Onsite Construction Vibration at Nearest Sensitive Receptor (Tuolumne Facility)

| Studied Receptor (Description) | Anticipated Vibration Source Closest Distance (feet) | Predicted PPV (inches per second) and VdB (rms) for Indicated Equipment Type | | | | | |
|---|---|---|---|---|---|---|---|
| | | Dozer | | Loader | | Roller | |
| | | PPV | VdB | PPV | VdB | PPV | VdB |
| Residence to the North | 120 | 0.008 | 67 | 0.02 | 74 | 0.007 | 65 |

**Source:** FTA 2018.
**Notes:** VdB = vibration velocity decibels, rms = root mean square, PPV = peak particle velocity.

## Transport to Market

### Port of Stockton

The groundborne vibration velocity levels at the nearest existing residence from the likely most vibratory equipment expected for construction of the Port of Stockton Facility appear in Table 3.11-36. All predicted vibration levels are lower than the occupant annoyance threshold of 75 VdB for "occasional events," per Table 3.11-6, and lower than the building damage risk threshold of 0.3 inches per second PPV.

By way of example, grading at the project site boundary would appear to occur as close as 1240 feet to the southeastern façade of northeastern residences near Louis Park. At this distance, and using a reference groundborne PPV of 0.21 ips for the roller at a distance of 25 feet, the estimated PPV at the receiving building façade can be estimated as follows:

$$PPV_{rcvr} = 0.21*(25/1240)^{1.5} = 0.0006 \text{ ips}$$

$$VdB_{rcvr} = 20*LOG(0.0006/(4*0.000001)) = 44$$

The predicted groundborne vibration velocity level is below the Caltrans guidance-based 0.3 ips PPV threshold for avoiding building damage to older residential structures, and the corresponding 44 VdB is less than the 75 VdB guidance limit for annoying building occupants.

Subsequent onsite construction activities would involve greater quantities of equipment but would be less vibratory than a roller and/or their distances would be much greater than this one hundred twenty horizontal foot distance between the project site and the nearest residential building façade. Hence, groundborne vibration propagating from these more distant sources of onsite vibration would be substantially less than the preceding estimates and the Caltrans guidance-based vibration exposure thresholds. Therefore, on the basis of compliance with these FTA vibration standards, impacts associated with construction vibration are expected to be **less than significant.**

**Table 3.11-36. Predicted Onsite Construction Vibration at Nearest Sensitive Receptor (Port of Stockton Facility)**

| Studied Receptor (Description) | Anticipated Vibration Source Closest Distance (feet) | Predicted PPV (inches per second) and VdB (rms) for Indicated Equipment Type | | | | | |
|---|---|---|---|---|---|---|---|
| | | Dozer | | Loader | | Roller | |
| | | PPV | VdB | PPV | VdB | PPV | VdB |
| Residences to the North/Northeast | 1240 | 0.0003 | 36 | 0.0006 | 44 | 0.0002 | 35 |

**Source:** FTA 2018.
**Notes:** VdB = vibration velocity decibels, rms = root mean square, PPV = peak particle velocity.

Impact NOI-3 The project is not one that is located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, that would expose people residing or working in the project area to excessive noise levels.

### Wood Pellet Production

#### Lassen Facility

There are no private airstrips within the vicinity of the project site. The closest airport to the project site is Southard Field, approximately 3.8 miles northeast of the site. Therefore, aviation overflight noise exposure would be a **less than significant impact**.

#### Tuolumne Facility

There are no private airstrips within the vicinity of the project site. The closest airport to the project site is the Oakdale Airport, approximately 17 miles southwest of the site. Therefore, aviation overflight noise exposure would be a **less than significant impact**.

### Transport to Market

#### Port of Stockton

There are no private airstrips within the vicinity of the project site. The closest airport to the project site is the Stockton Metropolitan Airport, approximately 6.25 miles southeast of the site. Therefore, aviation overflight noise exposure would be a **less than significant impact**.

## 3.11.4.3 Cumulative Impacts

The project would not contribute to cumulative impacts resulting in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

## Feedstock Acquisition

### Sustainable Forest Management Projects

The exact locations, timing, and extent of individual sustainable forest management projects is not feasible to identify at this time, but these projects are anticipated to be geographically disbursed and temporary, and therefore the number of other cumulative projects that would interact with the proposed activities is expected to be limited. Sustainable forest management projects (including, but not limited to, timber harvesting or vegetation management and treatment projects) may necessitate the use of heavy-duty and/or off-road construction or stationary equipment (such as those presented in Tables 3.11-14 and 3.11-16), or may increase off-site traffic (e.g., trucks to haul equipment or crew), thereby potentially increasing ambient noise levels in the vicinity of a respective project. However, such projects are temporary, and occur in a wide geographic area over multiple years; therefore, the cumulative impact of a substantial temporary or permanent increase in ambient noise levels would not be cumulatively considerable.

## Wood Pellet Production

### Lassen Facility

No cumulative projects were identified relative to the proposed Lassen Facility. The County has no active development applications within Big Valley. No similar projects (such as biomass energy) are proposed within the County (see Chapter 3.0, Section 3.2).

### Tuolumne Facility

As discussed in Chapter 3.0, Section 3.2, while there are five (5) projects located near the Tuolumne Facility, noise emission attributed to the Tuolumne Facility's construction propagating towards the surrounding community is predicted to attenuate to sound exposure levels that are compliant with County and FTA standards. Because operations noise from other projects in the studied vicinity would similarly diminish with distance and other environmental effects (e.g., intervening terrain and/or structures, as well as acoustical absorption from porous ground surfaces and the atmosphere), the opportunity for a "cumulatively considerable" effect would be very unlikely.

Additionally, the construction of the projects on the cumulative list would exhibit a low likelihood of a cumulatively considerable effect at a noise-sensitive receiving land use near the Tuolumne Facility. Additionally, such construction activities for these other projects in the vicinity, if and when they occur, would be held to the same applicable standards with respect to construction noise thresholds; and, like operation noise emanating from an active land use, such construction noise attenuates rapidly with distance and due to intervening natural or artificial topography and related effects.

Because operations noise from other projects would similarly diminish with distance and other environmental effects (e.g., intervening terrain and/or structures, as well as acoustical absorption from porous ground surfaces and the atmosphere), as received by a noise-sensitive land use common to one or more of these projects and the Project would be very unlikely.

For the above reasons, the cumulative impact of a substantial temporary or permanent increase in ambient noise levels for the Tuolumne Facility would not be cumulatively considerable.

## Transport to Market

### Port of Stockton

As discussed in Chapter 3.0, Section 3.2, while there are five (5) projects located near the Port of Stockton Facility, potential construction noise associated with one or more of these other projects would be temporary and, on that basis, correspondingly exhibit a low likelihood of a cumulatively considerable effect at a noise-sensitive receiving land use near the Port of Stockton Facility. Additionally, such construction activities for these other projects in the vicinity, if and when they occur, would be held to the same applicable County and/or City standards with respect to construction noise thresholds; and, like operation noise emanating from an active land use, such construction noise attenuates rapidly with distance and due to intervening natural or artificial topography and related effects.

Additionally, aggregate noise from operating the Port of Stockton Facility propagating towards the surrounding community is predicted to attenuate to a sound level that is compliant with County and City standards. Because operations noise from other projects would similarly diminish with distance and other environmental effects (e.g., intervening terrain and/or structures, as well as acoustical absorption from porous ground surfaces and the atmosphere), the opportunity for a "cumulatively considerable" effect would be very unlikely.

For the above reasons, the cumulative impact of a substantial temporary or permanent increase in ambient noise levels for the Port of Stockton Facility would not be cumulatively considerable.

The project would not contribute to cumulative impacts resulting in generation of excessive groundborne vibration or groundborne noise levels.

## Feedstock Acquisition

### Sustainable Forest Management Projects

As described for cumulative impact NOI-1, the exact locations, timing, and extent of individual sustainable forest management projects is not feasible to identify at this time, but these projects are anticipated to be geographically disbursed and temporary, and therefore the number of other cumulative projects that would interact with the proposed activities is expected to be limited.. The potential use of heavy-duty and/or off-road construction equipment required for sustainable forest management projects, while potentially causing temporary increases in groundborne vibration or noise levels, would likely take place in a wide range of geographic locations over multiple years. Therefore, the cumulative impact of the generation of excessive groundborne vibration or noise levels would not be cumulatively considerable.

## Wood Pellet Production

### Lassen Facility

No cumulative projects were identified relative to the proposed Lassen Facility. The County has no active development applications within Big Valley. No similar projects (such as biomass energy) are proposed within the County (see Chapter 3.0, Section 3.2).

#### Tuolumne Facility

As described for cumulative impact NOI-1, potential groundborne vibration associated with the construction of one or more of the other projects on the cumulative list would be temporary and exhibit a low likelihood of a cumulatively considerable effect at a noise-sensitive receiving land use near the Tuolumne Facility. Additionally, such construction activities for these other projects in the vicinity, if and when they occur, would be held to the same applicable Caltrans and FTA standards with respect to construction vibration thresholds; and, such construction-related groundborne vibration attenuates with distance and due to intervening natural or artificial topography and related effects.

For this reason, the cumulative impact of the generation of excessive groundborne vibration or noise levels at the Tuolumne Facility would not be cumulatively considerable.

### Transport to Market

#### Port of Stockton

As described for cumulative impact NOI-1, potential groundborne vibration associated with the construction of one or more of the other projects on the cumulative list would be temporary and exhibit a low likelihood of a cumulatively considerable effect at a noise-sensitive receiving land use near the Port of Stockton Facility. Additionally, such construction activities for these other projects in the vicinity, if and when they occur, would be held to the same applicable Caltrans and FTA standards with respect to construction vibration thresholds; and, such construction-related groundborne vibration attenuates with distance and due to intervening natural or artificial topography and related effects.

For this reason, the cumulative impact of the generation of excessive groundborne vibration or noise levels at the Port of Stockton Facility would not be cumulatively considerable.

## 3.11.4.4 Mitigation Measures

### Feedstock Acquisition

#### Sustainable Forest Management Projects

No mitigation measures are required as impacts would be less than significant.

### Wood Pellet Production

#### Lassen Facility

No mitigation measures are required as impacts would be less than significant.

#### Tuolumne Facility

No mitigation measures are required as impacts would be less than significant.

#### Transport to Market

##### Port of Stockton

No mitigation measures are required as impacts would be less than significant.

### 3.11.4.5 Significance After Mitigation

Potential environmental impacts from the proposed project as studied herein were found to be **less than significant** and not requiring implementation of mitigation measures.

## 3.11.5 References

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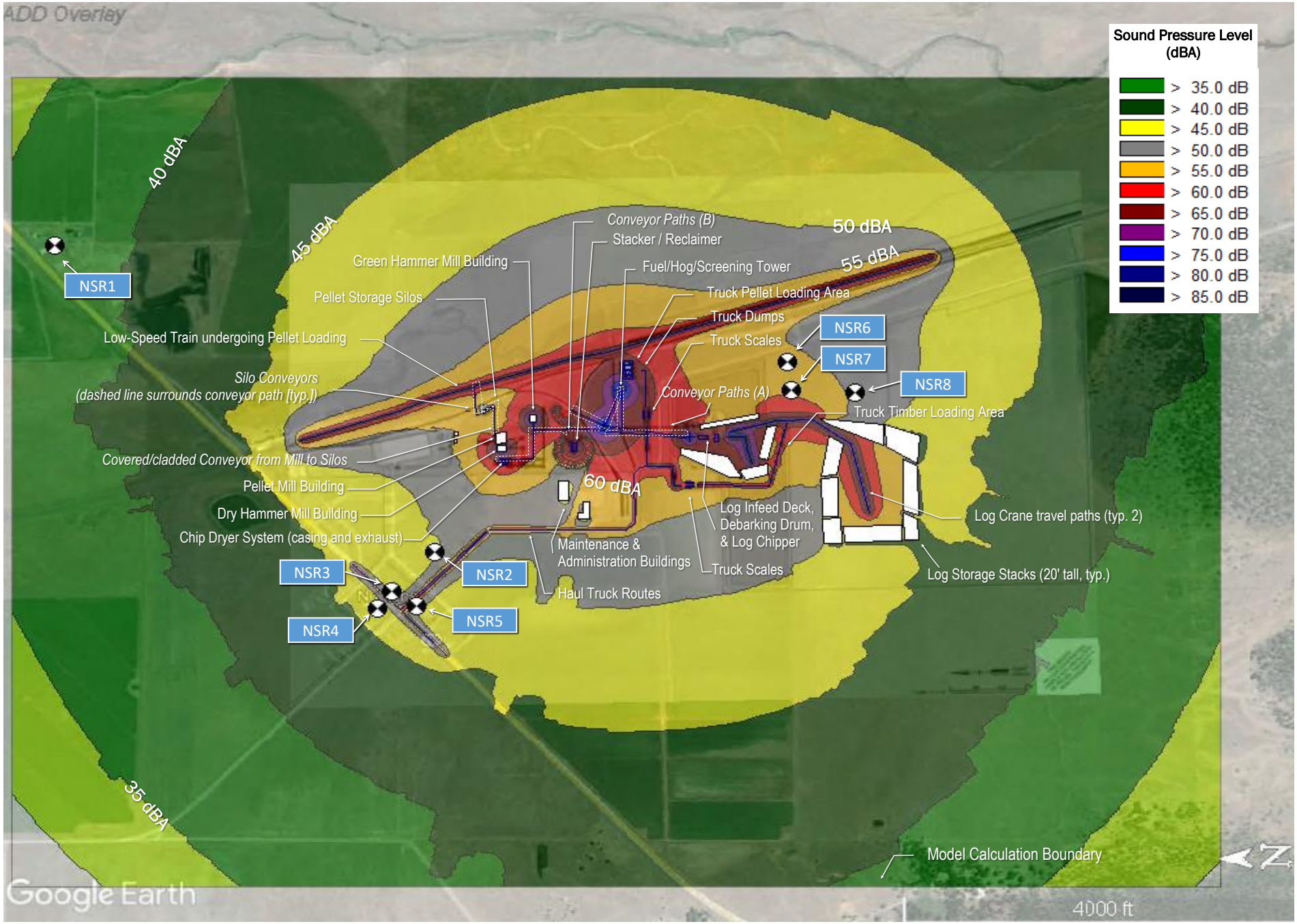


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-1**

**Predicted Overall Operation Noise Levels - 12 hr with Rail Pellet Loading - Lassen**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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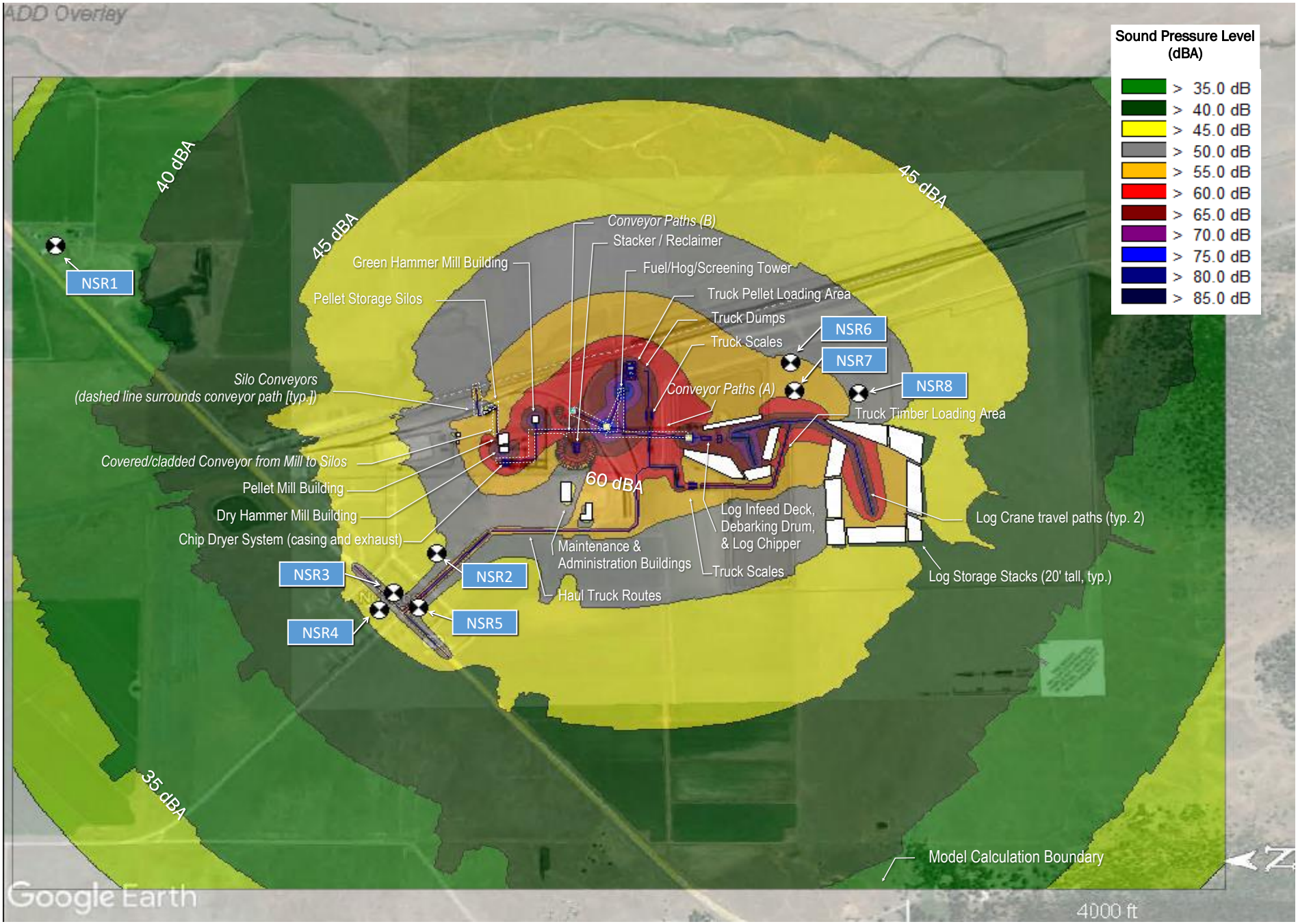


SOURCE: GSNR 2023; Dudek 2023

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**FIGURE 3.11-2**

**Predicted Overall Operation Noise Levels - 12 hr without Rail Pellet Loading - Lassen**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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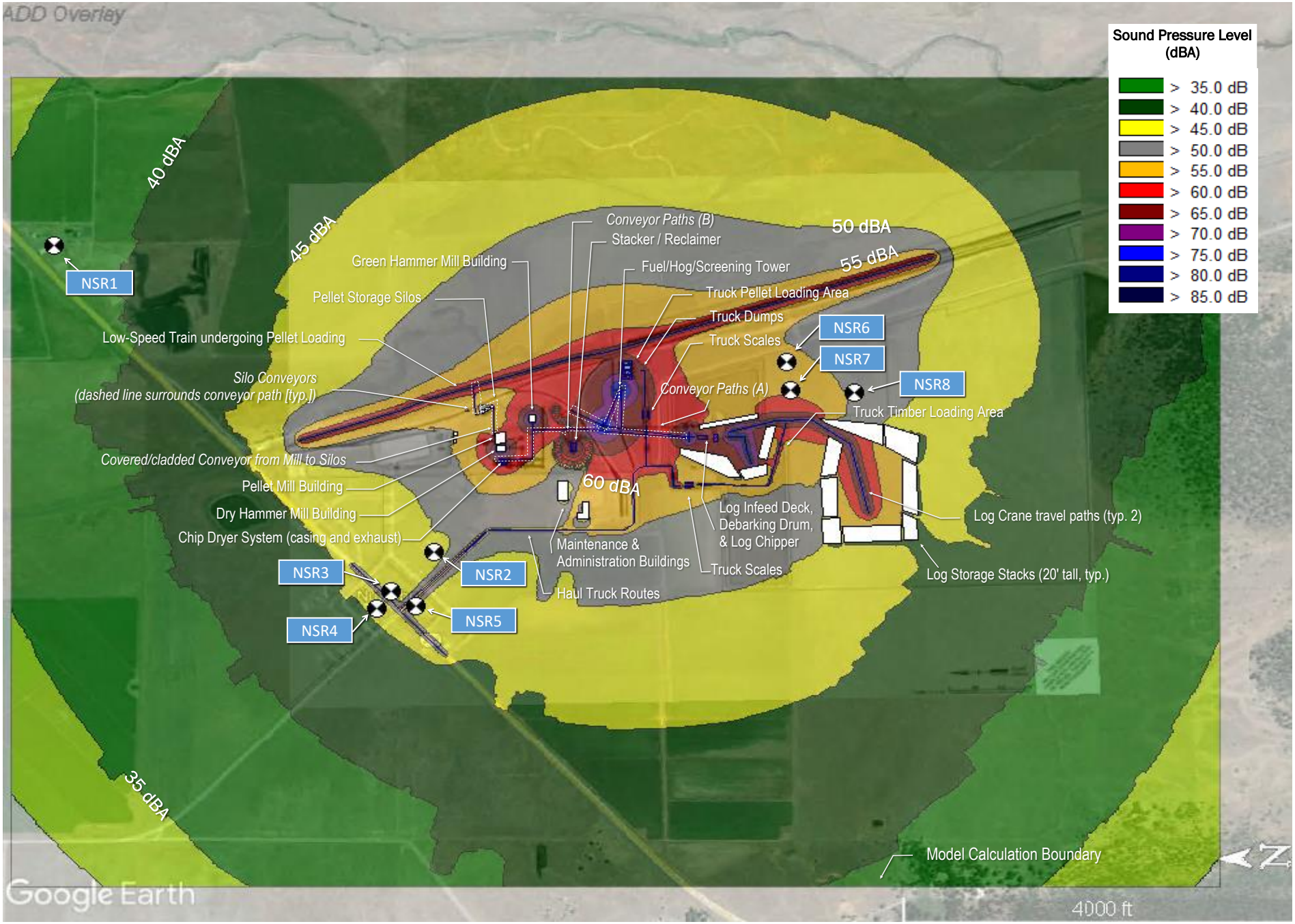


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-3**

**Predicted Overall Operation Noise Levels - 24 hr Daytime with Rail Pellet Loading - Lassen**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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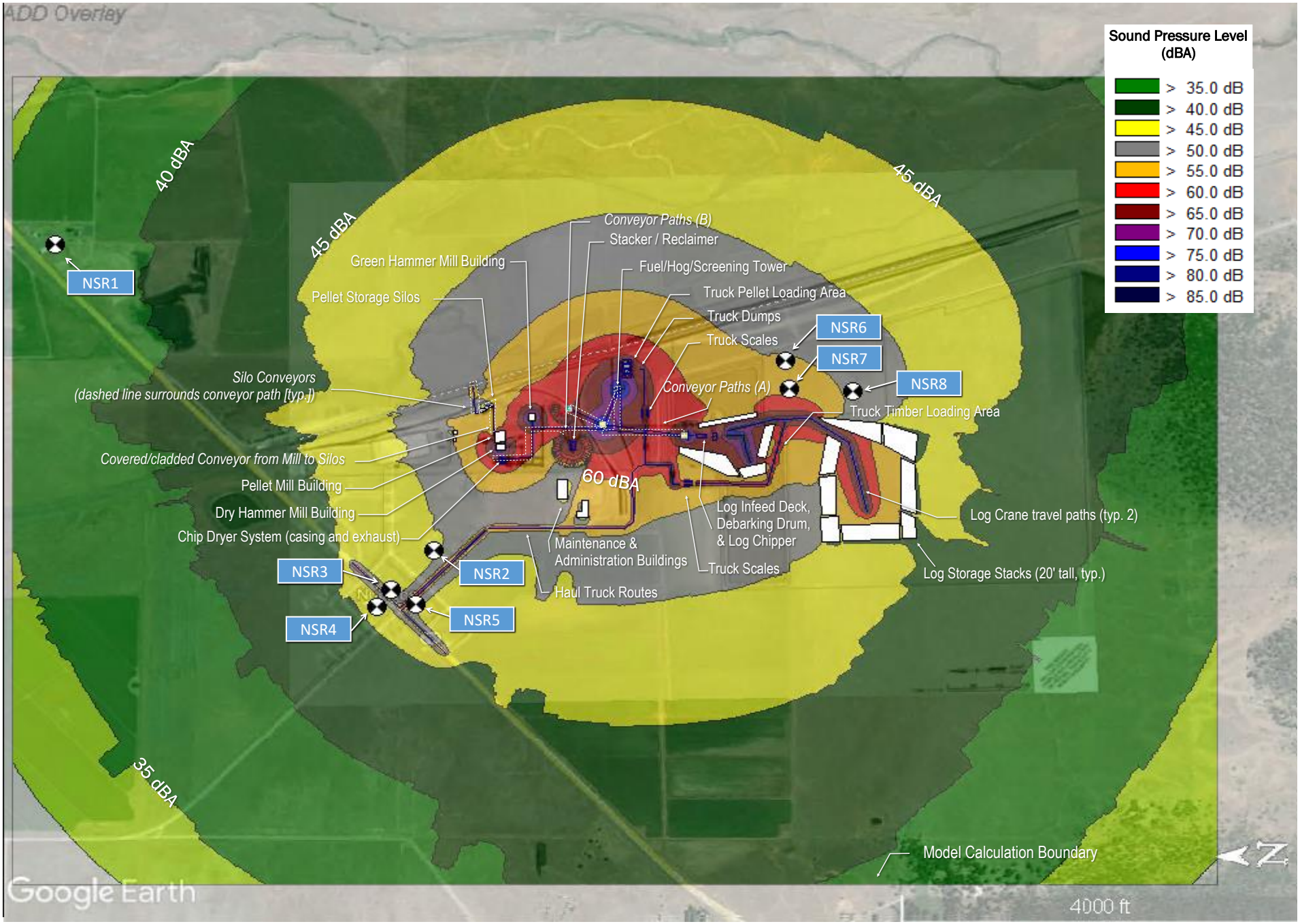


SOURCE: GSNR 2023; Dudek 2023

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**FIGURE 3.11-4**

**Predicted Overall Operation Noise Levels - 24 hr Daytime without Rail Pellet Loading - Lassen**

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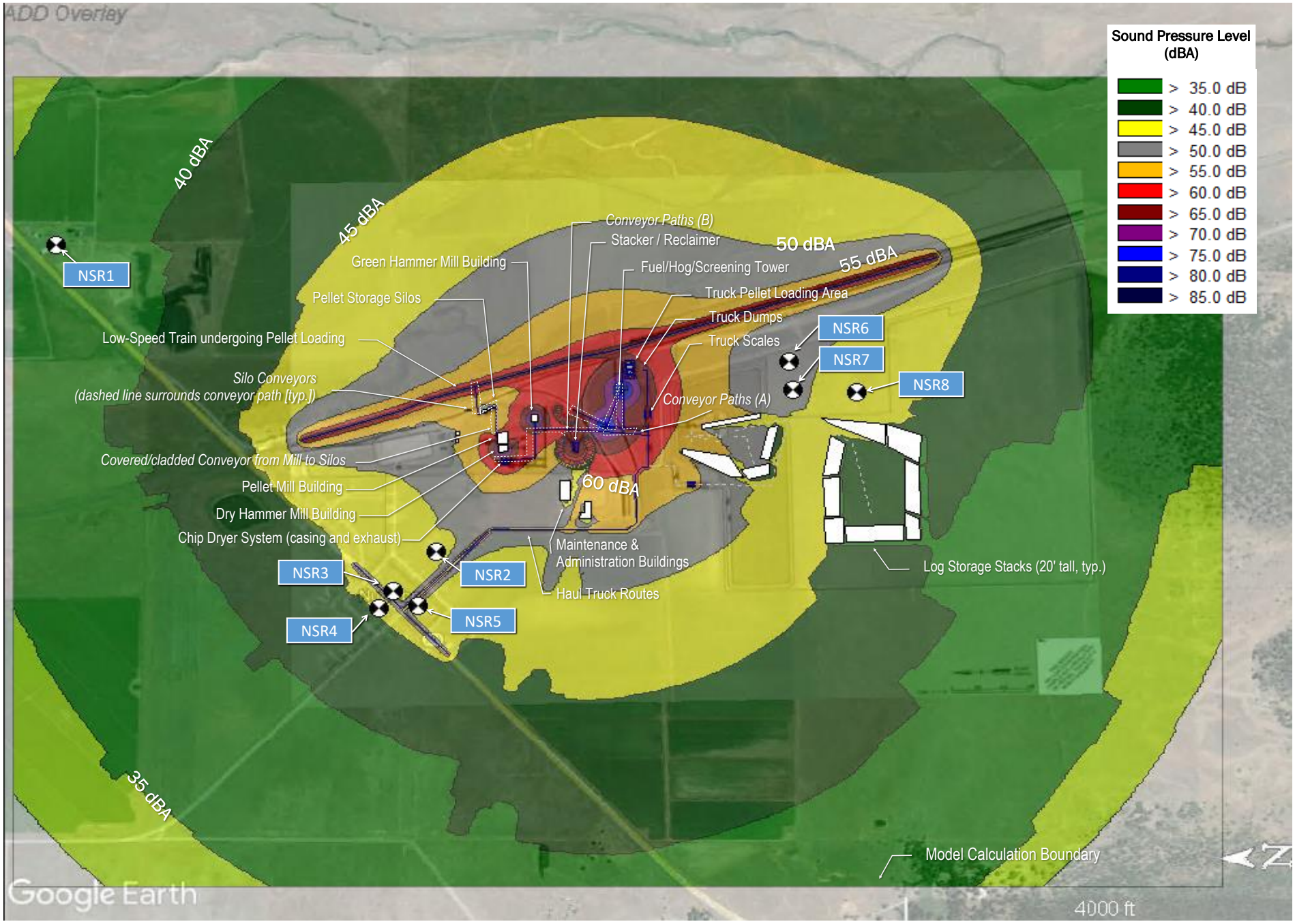


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-5**

**Predicted Overall Operation Noise Levels - 24 hr Nighttime with Rail Pellet Loading - Lassen**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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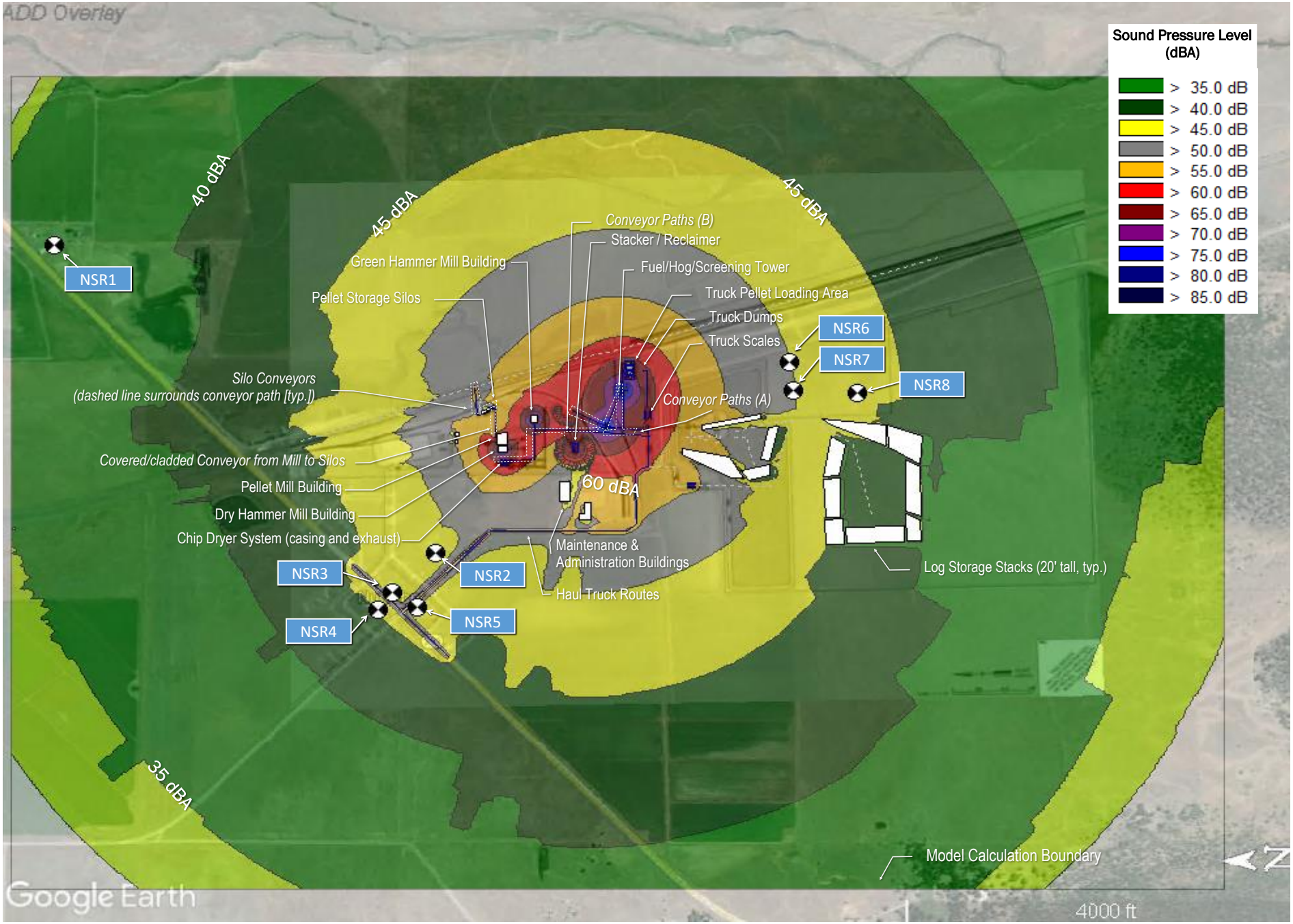


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-6**

**Predicted Overall Operation Noise Levels - 24 hr Nighttime without Rail Pellet Loading - Lassen**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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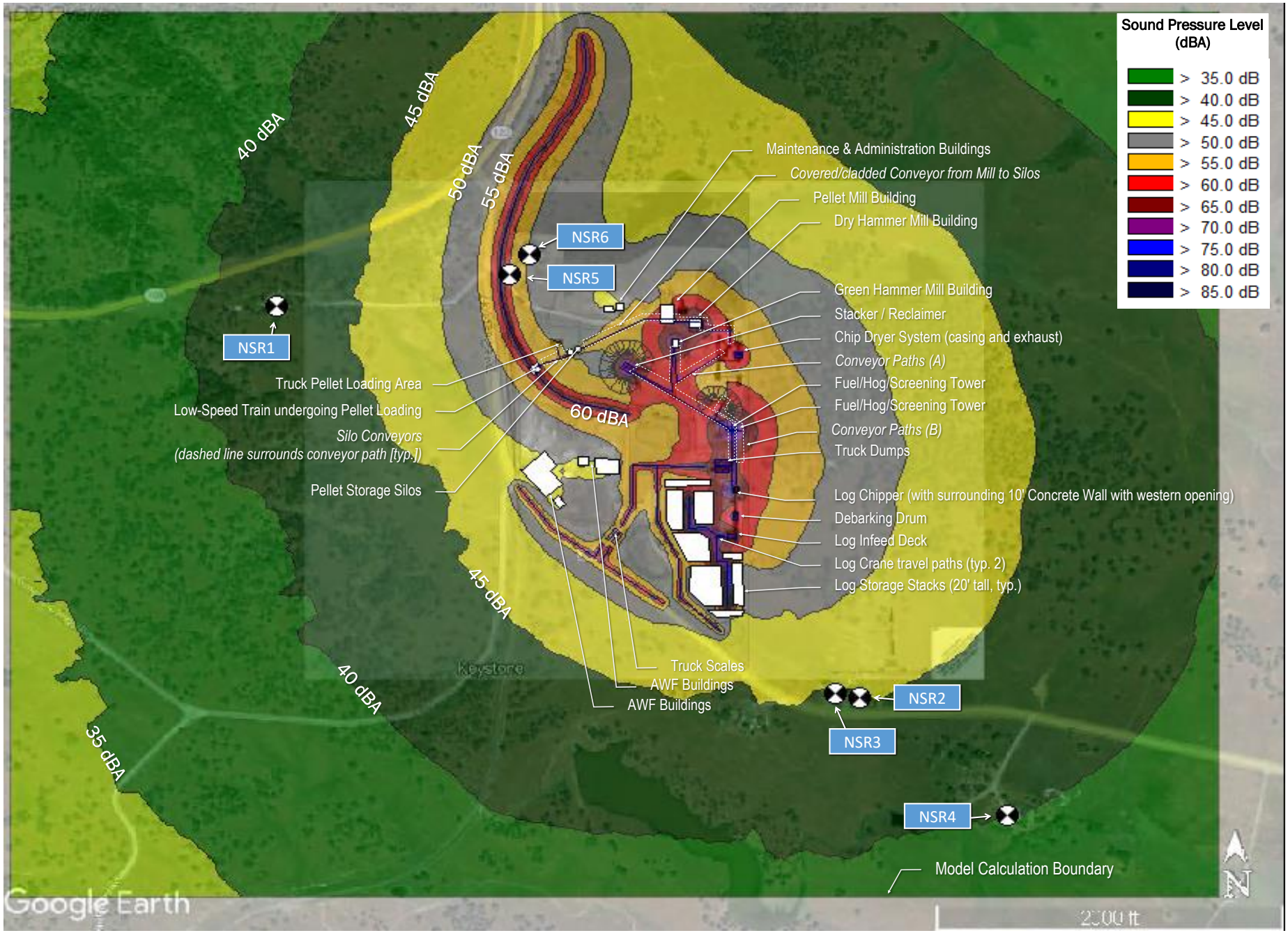


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-7**

**Predicted Overall Operation Noise Levels - 12 hr with Rail Pellet Loading - Tuolumne**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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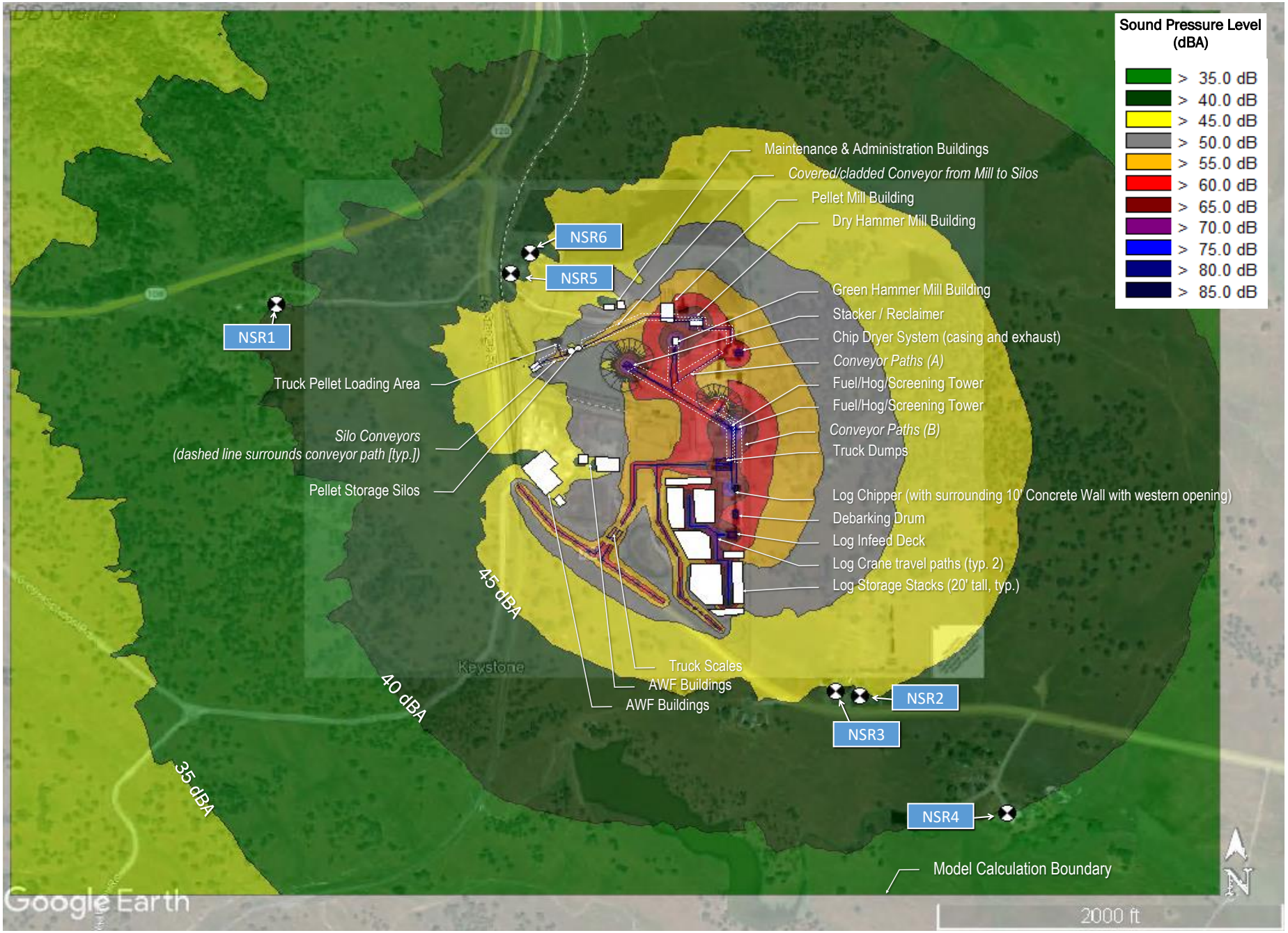


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-8**

**Predicted Overall Operation Noise Levels - 12 hr without Rail Pellet Loading - Tuolumne**

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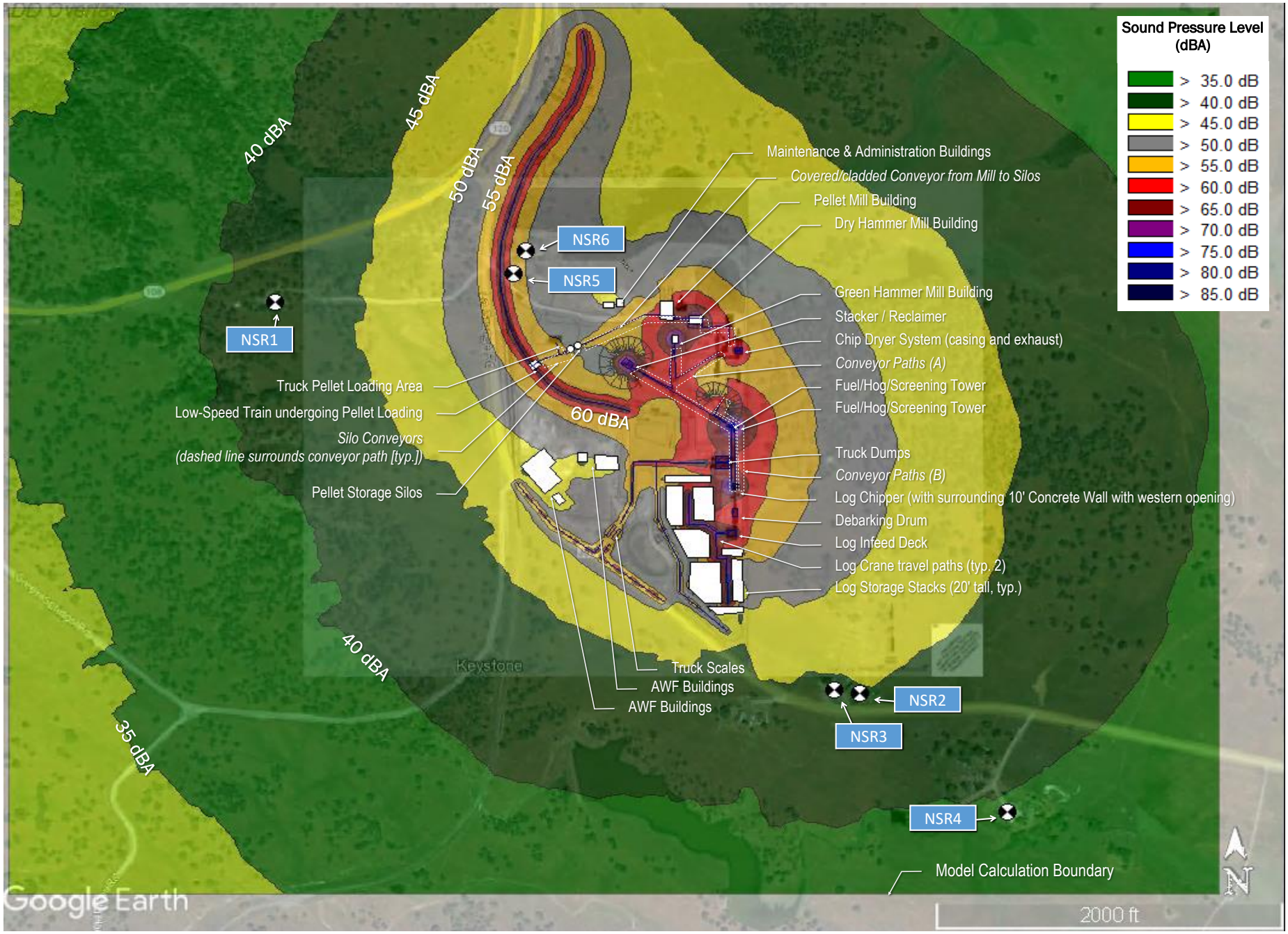


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-9**

**Predicted Overall Operation Noise Levels - 24 hr Daytime with Rail Pellet Loading - Tuolumne**

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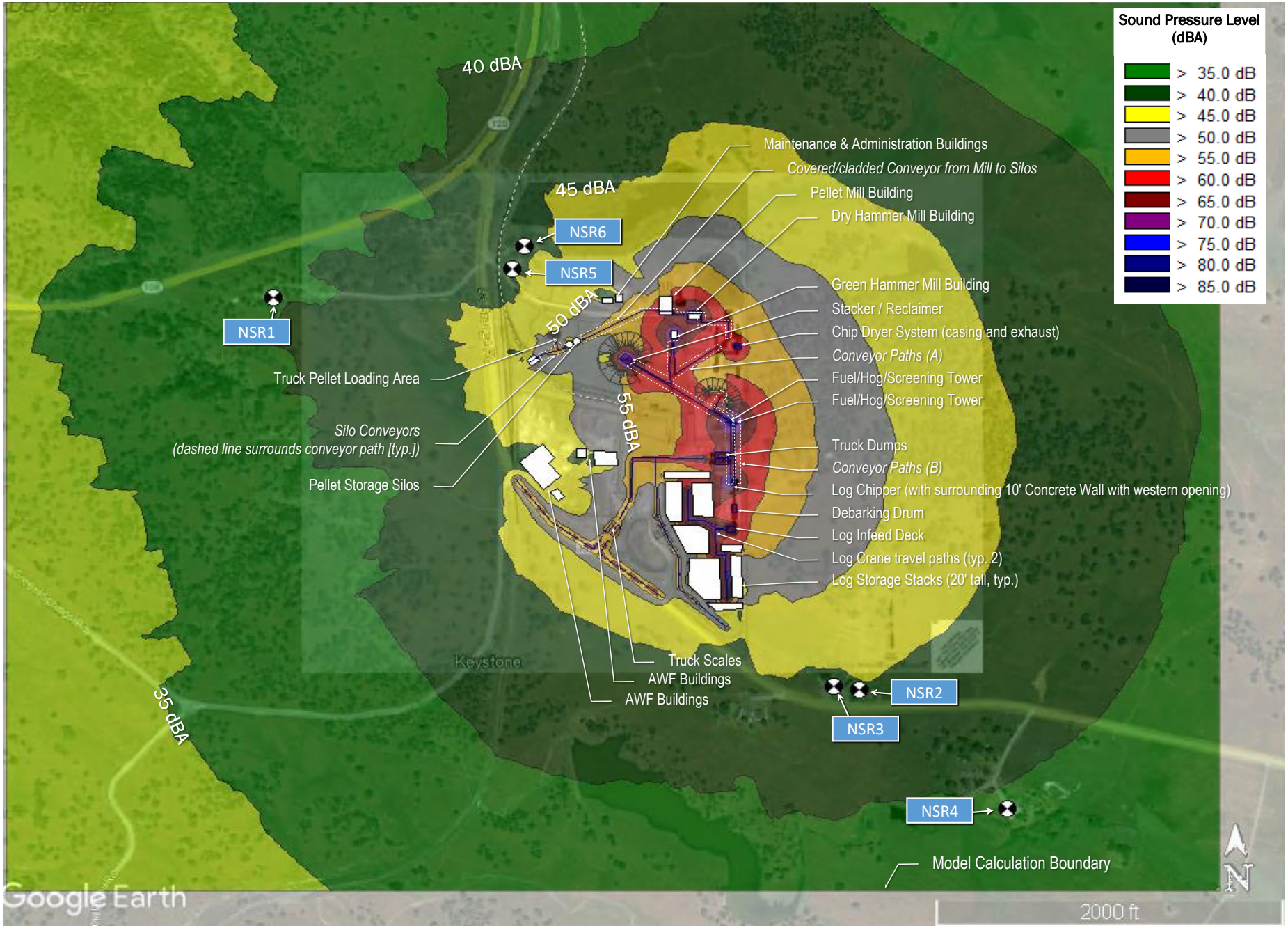


SOURCE: GSNR 2023; Dudek 2023

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**FIGURE 3.11-10**

**Predicted Overall Operation Noise Levels - 24 hr Daytime without Rail Pellet Loading - Tuolumne**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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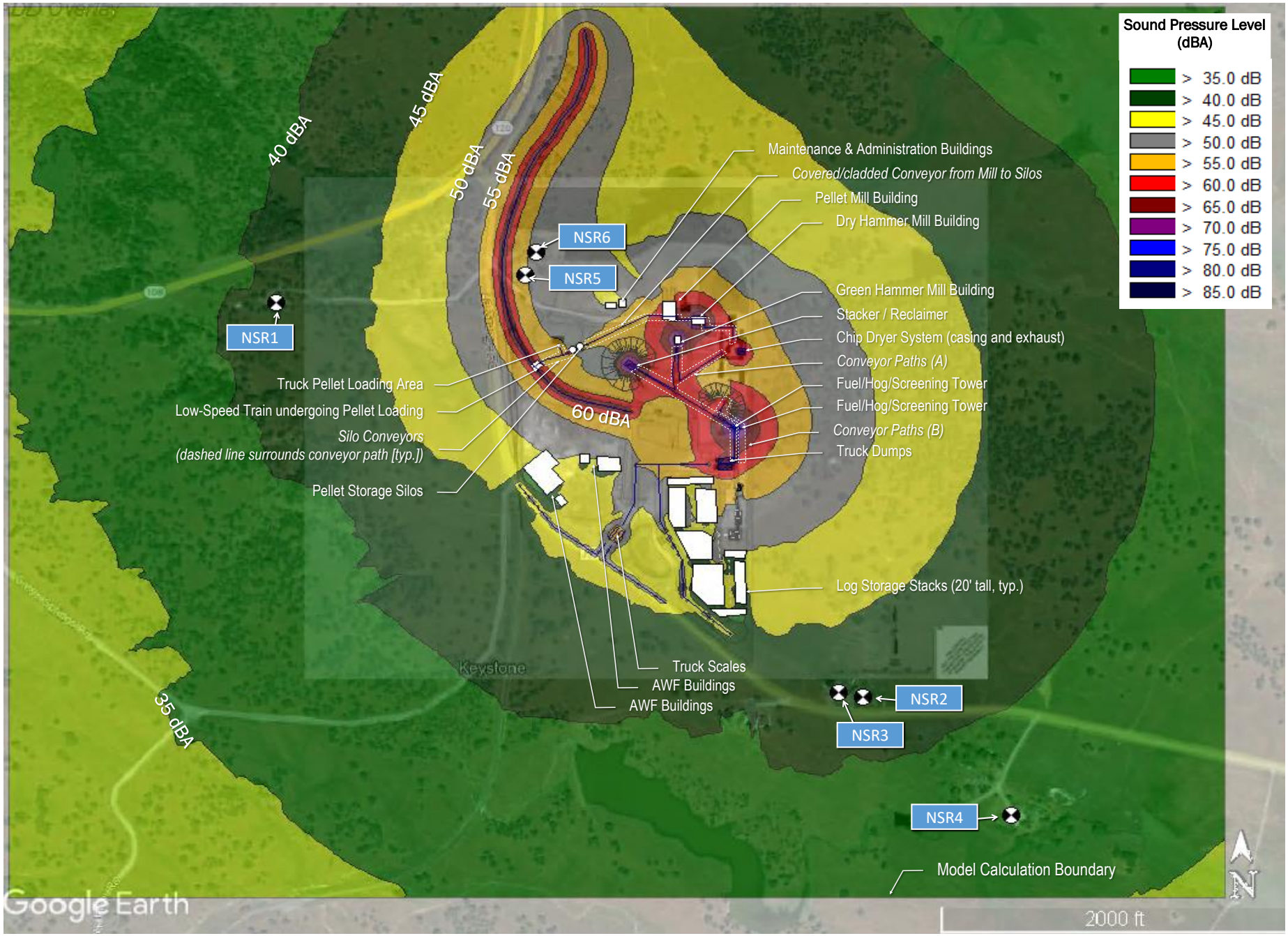


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-11**

**Predicted Overall Operation Noise Levels - 24 hr Nighttime with Rail Pellet Loading - Tuolumne**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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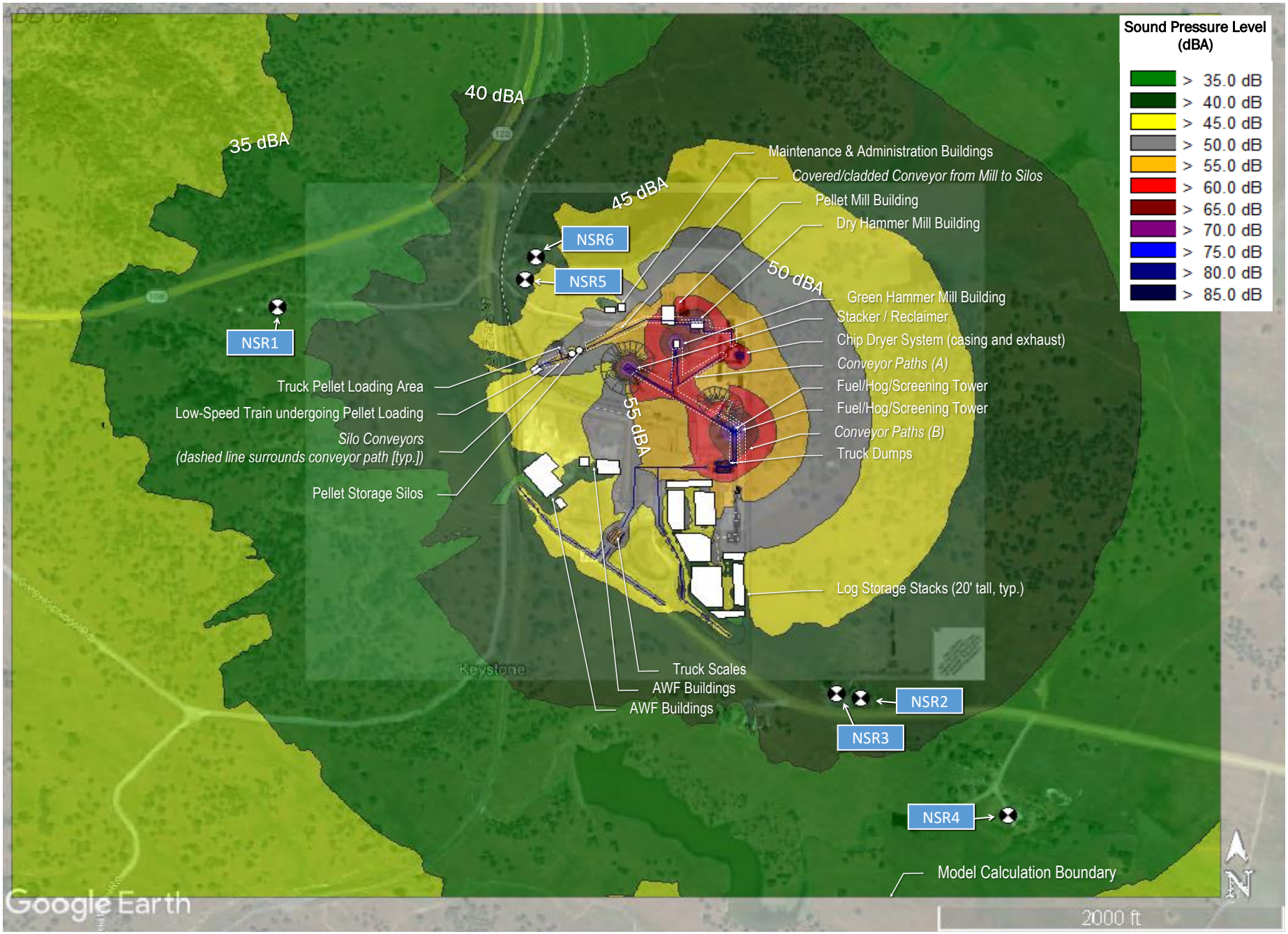


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-12**

**Predicted Overall Operation Noise Levels - 24 hr Nighttime without Rail Pellet Loading - Tuolumne**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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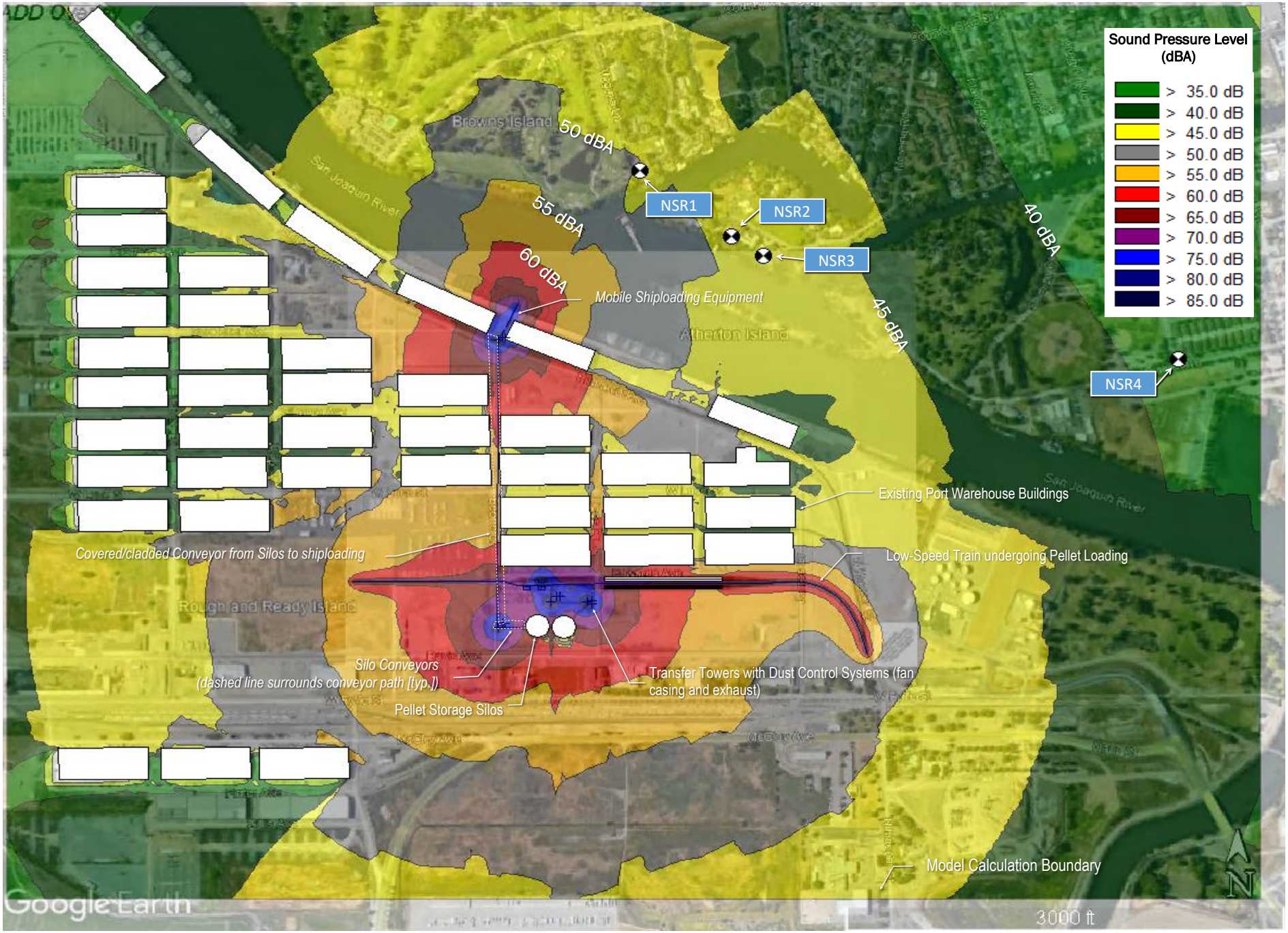


SOURCE: GSNR 2023; Dudek 2023

DUDEK

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**FIGURE 3.11-13**

**Predicted Overall Operation Noise Levels - Port of Stockton**

Golden State Natural Resources - Forest Resiliency Program Project (Dudek No. 12335)

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# 3.12 Population and Housing

This section of the Draft EIR evaluates potential impacts to population, housing, and employment associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing population, housing, and employment conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California (Port of Stockton), and evaluates the potential for project-related population and housing impacts, considering proposed project design features that could reduce or eliminate associated impacts. Several scoping comments were received regarding employment and housing in response to the Notice of Preparation (NOP), primarily addressing the need for job opportunities.

## 3.12.1 Environmental Setting

### 3.12.1.1 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities in Lassen and Tuolumne County.

### 3.12.1.2 Northern California (Lassen Facility) Site

#### 3.12.1.2.1 Regional Setting

##### Population and Population Growth

The Lassen Facility site is located in the northwest corner of Lassen County (County), in the town of Nubieber. The town of Nubieber is a Census Designated Place (CDP) and, as of 2021, had a total population of 38 (U.S. Census Bureau 2021a). The County includes the city of Susanville along with several unincorporated communities such as Westwood, Little Valley, Janesville, Johnstonville, Litchfield, Doyle, Clear Creek, Milford, Herlong, Bieber, and Leaveitt Lake. Susanville, the only incorporated city within the County, is located in the central southern portion of the County, approximately 55 miles from the project site. According to the State of California Department of Finance (DOF), as of January 1, 2023, Lassen County was estimated to have a total population of 28,376 with Susanville contributing 11,790 persons (DOF 2024a).

Between 1990 and 2000, the unincorporated portion of the County had a significant decrease in population whereas the years between 2000 to 2018 only had slight fluctuations in population change. The notable population change was a result of the annexation of the California Correctional Center by the city of Susanville that transferred approximately 4,000 inmates from the unincorporated area into the city in the early 1990s (Lassen County 2019). Population projections from the California DOF for the County are recorded in Table 3.12-1 below, indicating an overall decline in population.

### Table 3.12-1. Population Projections for Lassen County

| Year | 2030 | 2040 | 2050 | 2060 |
|---|---|---|---|---|
| DOF Population (includes Susanville) | 25,708 | 21,772 | 17,983 | 15,428 |
| Unincorporated County Population | 15,702 | 15,160 | 14,548 | N/A |

**Source:** DOF 2024b; Lassen County 2019.
**Note:** Unincorporated County Population sourced from Lassen County 2019-2024 Housing Element.

## Employment

The unincorporated areas of the County have a large workforce in the public administration sector. Within the private sector, agriculture, forestry, fishing and hunting, and mining make up the largest employment groups. In the past decade, the County has seen a shift from basic industries to a more services-based economy. Susanville acts as one of the major employers in the County and represents a range of industries, although the public sector remains more heavily represented (Lassen County 2019). Table 3.12-2 below, depicts the Average Annual Unemployment Rates in the County, the city of Susanville, and the State. Further, Table 3.12-3 represents the available labor force for the County and city of Susanville.

### Table 3.12-2. Average Annual Unemployment Rate (2018-2023)

| Year | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| Susanville | 3.9% | 3.8% | 6.0% | 5.0% | 3.8% | 4.2% |
| Lassen County | 4.8% | 4.7% | 7.4% | 6.1% | 4.6% | 5.2% |
| California | 4.2% | 4.1% | 10.1% | 7.3% | 4.3% | 4.8% |

**Source:** EDD 2024a–f.
**Note:** Data has not been seasonally adjusted.

### Table 3.12-3. Labor Force (2023 Average Annual)

| Area | Labor Force |
|---|---|
| Susanville | 3,210 |
| Lassen County | 8,620 |

**Source:** EDD 2024f.

## Housing

As of 2016, the unincorporated portion of the County had a total of 6,266 households. The number of households and population in the County have been decreasing. However, decrease in the number of households is progressing at a slower rate compared to the rate of population (Lassen County 2019). Table 3.12-4 below, shows estimated household growth projections for unincorporated areas of the County. Table 3.12-5 further displays the current housing estimates for the County according to the Department of Finance.

### Table 3.12-4. Unincorporated Household Growth Predictions

| Year | 2030 | 2040 | 2050 |
|---|---|---|---|
| Households | 6,797 | 6,563 | 6,298 |

**Source:** Lassen County 2019
**Note:** Estimated based on projected population.

**Table 3.12-5. D.O.F Housing Estimates for Lassen County (Jan. 2023)**

| | Total Housing Units | Occupied Units | Vacancy Rate |
|---|---|---|---|
| Susanville | 4,288 | 3,840 | 10.4% |
| Unincorporated Lassen County | 7,950 | 6,052 | 23.9% |
| Lassen County Total | 12,238 | 9,892 | 19.2% |

**Source:** DOF 2024c.

## 3.12.1.3 Central Sierra Nevada (Tuolumne Facility) Site

### 3.12.1.3.1 Regional Setting

#### Population and Population Growth

The Tuolumne Facility site is located in the southwest corner of Tuolumne County (County), approximately 10 miles southwest of the community of Jamestown. The County includes one incorporated City, Sonora, as well as several towns and communities such as Cedar Ridge community, Columbia, Chinese Camp, Pinecrest, Tuolumne, and Jamestown. Sonora is the only incorporated city in the County and serves as the County seat. The nearest community to the project site is Chinese Camp, and as of 2021, has a population of 108 (U.S. Census Bureau 2021b). The second closest community to the project site is Jamestown. Jamestown, with a population of 3,543, is one of the largest defined communities within the County next to Sonora.

As of July 2022, the United States Census Bureau recorded a total population of 54,531 in Tuolumne County (U.S. Census Bureau 2022). The unincorporated areas in Tuolumne County have experienced a steady growth rate since the 1930s. However, between 2000 and 2010, population growth slowed to 0.8%. Over the ten-year period, the County experienced a net gain of 384 people. The County's latest housing element, focused on the years of 2014 through 2018, determined that the population in the unincorporated areas decreased an average of -0.1% annually. However, the County's General Plan projects that the population will be 63,243 by the year of 2040 (County of Tuolumne County Community Resources Agency 2018). This is a 0.6% annual growth rate and is higher than the DOF's projections. Table 3.12-6 below depicts the DOF's Population projections through the year of 2060, indicating a general decline in overall population.

**Table 3.12-6. Population Projections for Tuolumne County**

| Year | 2030 | 2040 | 2050 | 2060 |
|---|---|---|---|---|
| Tuolumne County | 50,082 | 48,956 | 48,542 | 49,317 |

**Source:** DOF 2024b.

#### Employment

From 2014 through 2018, the annual average unemployment rate for the County was higher than the unemployment rate for the state of California. Unemployment ranged from a high of 8.7% in 2014 to a low of 5.0% in 2018. During this period, the statewide unemployment rate was 4.2%. Table 3.12-7 depicts the average unemployment rate in the communities of Jamestown and Chinese Camp as well as the County and state. Further, Table 3.12-8 displays the available labor forces as of 2021. According to the US Census American Community Survey (ACS), in 2016, the unincorporated areas of the County had a total employment of 17,627 individuals

16 years of age or older. Based on a 2006-2010 report, the California Employment Development Department (EDD) determined that out of the 17,195 workers in the County, 18% commuted to other counties for work. Additionally, a report published in 2019 by the California EDD found that 2,853 workers commute into the County for work and an additional 2,755 works commute out of the County for work (EDD 2022).

### Table 3.12-7. Average Annual Unemployment Rate (2018-2023)

| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| Jamestown CDP | 5.0% | 5.0% | 11.4% | 7.8% | 4.9% | 5.4% |
| Chinese Camp CDP | 31.3% | 32.3% | 52.5% | 42.9% | 31.0% | 33.3% |
| Tuolumne County | 4.7% | 4.6% | 10.6% | 7.3% | 4.5% | 5.0% |
| California | 4.2% | 4.1% | 10.1% | 7.3% | 4.3% | 4.8% |

**Source:** EDD 2024a–f.
**Note:** Data has not been seasonally adjusted.
CDP = Census Designated Place.

### Table 3.12-8. Labor Force (2023 Average Annual)

| Area | Labor Force |
|---|---|
| Jamestown CDP | 1,290 |
| Chinese Camp CDP | 30 |
| Tuolumne County | 19,980 |

**Source:** EDD 2024f.
**Note:** CDP = Census Designated Place.

## Housing

As of 2015, the County had a total of 19,435 Single Family Residential Dwelling Units and 1,805 Multi-Family Residential Dwelling Units. By the General Plan's buildout year of 2040, it is projected that 4,332 Single Family Residential Dwelling Units and 827 Multi-Family Residential Units will be added in the County. This represents a 24% increase in dwelling units (County of Tuolumne 2018). Table 3.12-9 displays the total number of housing units, occupied units and the vacancy rates for unincorporated Tuolumne County, the city of Sonora, and the County as a whole.

### Table 3.12-9. D.O.F. Housing Estimates for Tuolumne County (Jan. 2023)

| | Total Housing Units | Occupied Units | Vacancy Rate |
|---|---|---|---|
| Sonora | 2,524 | 2,309 | 8.5% |
| Unincorporated Tuolumne County | 29,065 | 20,491 | 29.5% |
| Tuolumne County Total | 31,589 | 22,800 | 27.8% |

**Source:** DOF 2024c.

### 3.12.1.4 Port of Stockton

#### 3.12.1.4.1 Regional Setting

##### Population and Population Growth

The project site is located in the Port of Stockton West Complex in the city of Stockton, California (City), within the greater San Joaquin County (County). The County is comprised of several incorporated and unincorporated cities and towns. Incorporated cities include Lodi, Stockton, Lathrop, Manteca, Tracy, Ripon, and Escalon. The County has experienced substantial growth within the past 20 years, with 87% of the growth concentrated in the incorporated cities. Between 1990 and 2010, the County saw an increase of 204,572 people within 20 years. The City of Stockton experienced the largest share of this growth at a 39% overall growth rate (San Joaquin County 2014). DOF data indicates that the population of Stockton, as of January 1, 2023, is approximately 315,685 (DOF 2024a). Table 3.12-10 displays the DOF population projections for San Joaquin County. Historically, the City has been one of the fastest growing communities in California. However, the population decreased by over 19,000 residents in the 2007 and 2008 housing market crash. Since then, the rate of growth has been significantly slower (City of Stockton 2016).

**Table 3.12-10. Population Projections for San Joaquin County**

| Year | 2030 | 2040 | 2050 | 2060 |
|---|---|---|---|---|
| San Joaquin County | 831,956 | 896,033 | 942,102 | 976,326 |

**Source:** DOF 2024b.

##### Employment

The City's General Plan EIR anticipates more job growth by 2040 than the San Joaquin Valley Council of Governments (SJCOG) projections. The General Plan EIR expects a total of 43,750 new jobs (City of Stockton 2018). The SJCOG predicts that within the County, the job classifications for Construction, Natural Resources & Mining and Professional & Business Services will more than double in employment by 2045 (SJCOG 2018). Additionally, employment growth is expected to occur in correlation to the County's population growth centers, including the City. The City's Housing Element anticipates employment growth to occur at a similar rate to population growth, thus creating a stable jobs-housing ratio (City of Stockton 2016).

Within the past decade, unemployment in the City has generally mirrored the highs and lows of the greater County and State, except at a higher rate (City of Stockton 2016). The City's historical average unemployment rate compared to the County and State is displayed in Table 3.12-11 below. Table 3.12-12 additionally presents the available labor force for the aforementioned areas.

**Table 3.12-11. Average Annual Unemployment Rate (2018-2023)**

| Year | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| City of Stockton | 7.1% | 6.9% | 13.1% | 9.9% | 6.1% | 7.0% |
| San Joaquin County | 6.1% | 6.0% | 11.5% | 8.6% | 5.3% | 6.2% |
| California | 4.2% | 4.1% | 10.1% | 7.3% | 4.3% | 4.8% |

**Source:** EDD 2024a–f.
**Note:** Data has not been seasonally adjusted.

**Table 3.12-12. Labor Force (2023 Annual Average)**

| Area | Labor Force |
|---|---|
| City of Stockton | 136,100 |
| San Joaquin County | 346,800 |

**Source:** EDD 2024f.

### Housing

The General Plan predicts an increase in the total number of housing units in the City from 100,300 to 141,200 units by the horizon year of 2040. This represents a 41% increase in housing units (City of Stockton 2018). Table 3.12-13 below displays the total number of housing units, occupied units and the vacancy rates for the City and County.

**Table 3.12-13. D.O.F. Housing Estimates for the City of Stockton (Jan. 2023)**

| | Total Housing Units | Occupied Units | Vacancy Rate |
|---|---|---|---|
| City of Stockton | 103,808 | 99,554 | 4.1% |
| San Joaquin County | 262,955 | 252,188 | 4.1% |

**Source:** DOF 2024c.

The City's Housing Element determined that, as of 2010, the City had a lower than desired housing vacancy rate for rental and for-sale housing. This indicates that the City requires additional housing units. The SJCOG created Residential Housing Needs Allocation (RHNA) Plan for 2014-2023 to determine the need for housing units within their jurisdiction. The RHNA concluded that by 2023, there would need to be 40,360 new housing units constructed in the County. However, as of 2017, only 6,881 units have been built. At that rate of development, there would be a significant gap in housing needs (over 20,000 homes) by the end of 2023 (SJCOG 2023).

## 3.12.2 Regulatory Setting

### 3.12.2.1 Federal

There are no federal laws or regulations addressing population, employment, or housing that are relevant to the proposed project.

### 3.12.2.2 State

#### Regional Housing Needs Assessment (Government Code Section 65584)

The State of California requires each local jurisdiction to periodically develop a new Regional Housing Needs Assessment to plan for its share of the state's housing need for people of all income levels. The Regional Housing Need Allocation process is a state mandate designed to address each jurisdiction's "fair share" of the statewide housing need for an eight - year planning period. The Regional Housing Need Allocation process requires the State Department of Housing and Community Development (HCD) to determine the total housing need for each region in the state, and each region's Council of Governments is then responsible for distributing this need to local governments. Each jurisdiction's housing element must include a strategy to meet its share of the region's housing

need for four income categories (very low, low, moderate, and above moderate) that encompass all levels of housing affordability and must be certified by the HCD.

### 3.12.2.3 Local

#### Lassen County

##### Lassen County General Plan

The Lassen County General Plan contains goals, policies, and implementation measures applicable to development projects in the unincorporated areas of the County.

The County General Plan Housing Element contains the following goals and policies that relate to housing, population, and employment and are applicable to the proposed project (Lassen County 2019)

Goal HE-GP-1. Housing Need – Ensure that there is an adequate number of housing units at a range of densities sufficient to meet the current and future needs of county residents.

Policy HE-GP-1.A. Encourage a variety of housing opportunities affordable to the county's workforce.

Goal HE-GP-6. Jobs-Housing Balance – Promote the development of balanced communities, including a range of housing types, with access to employment opportunities, community facilities, and adequate services to meet the needs of residents.

Policy HE-GP-6.A. Maintain a healthy jobs-to-housing balance.

Policy HE-GP-6.B. Support the preservation and creation of employment opportunities in the county in order to increase homeownership opportunities for residents.

Policy HE-GP-6.C. Continue to encourage both commercial/industrial and residential development in the county to maintain a balance between jobs and housing.

The County General Plan Land Use Element (Lassen County 1999) contains the following goals and policies that relate to economic development and are applicable to the proposed project.

Goal L-11. Transportation systems which complement and support the County's land use patterns.

Policy LU26. When proposed projects will generate a substantial number of large trucks carrying heavy loads, the County shall require special mitigation measures to ensure that those projects do not cause significant deterioration of County roads, or will otherwise mitigate such damage with adequate repair.

Implementation Measures:

- LU-Q. The Regional Transportation Plan shall include provisions to help implement related policies of the County's General Plan and should not include provisions which are inconsistent with or counter-productive to related policies of the General Plan. The County will encourage the consideration and

interaction of land use and other General Plan policies and capital facility plans in the course of preparation of the Regional Transportation Plan.

- LU-R. Pursuant to impacts evaluated in an environmental impact report or other form of project review, the County may require mitigation measures which will ensure that project developers adequately and fairly compensate or participate with the County in the necessary upgrading and/or repair of roads which will be significantly damaged by a project.

Goal L-13. Improvement, expansion and diversification of the County's industrial base and generation of related employment opportunities.

Policy LU32. The County encourages and will facilitate the development of new, environmentally responsible industrial projects for the economic benefit of the County.

### Lassen County Code

There are no population, employment, or housing regulations within the Lassen County Code that are applicable to the effects of the proposed project.

## Tuolumne County

### Tuolumne County General Plan

Tuolumne County Community Development and Design:

Goal 1C. Promote a jobs-housing balance in the County and encourage new communities to be designed to provide a jobs-housing balance.

Policy 1.C.2. Encourage a Countywide jobs-housing balance as some communities in the County are not suited for extensive job-related or residential-related development.

### Implementation Program

- 1.C.a. Designate adequate land for commercial, recreational, industrial, business park and mixed use development within and near identified communities that have adequate infrastructure and services.

Goal 1G. Promote the development of industrial uses to meet the present and future needs of Tuolumne County's residents and to provide jobs and promote economic vitality.

Policy 1.G.3. Encourage industrial businesses which utilize the output of lumber and natural resource processors and other industries that can provide a broad economic base for Tuolumne County.

The Tuolumne County Housing Element:

Goal 2B. Encourage and promote the development and rehabilitation of extremely low-, very low-, low-, and moderate-income housing for the residents of Tuolumne County to meet the regional housing need.

Policy 2.B.5. Facilitate expanded housing opportunities that are affordable to the workforce of Tuolumne County to support economic development and help ensure that workers have the ability to afford housing in the community where they work.

### Tuolumne County Code

There are no population, employment, or housing regulations within the Tuolumne County Code that are applicable to the effects of the proposed project.

### City of Stockton General Plan

#### Housing Element

Goal HE-1. Ensure the adequate provision of sites for housing of all types, recognizing the importance of a jobs-to-housing ratio that encourages living and working in our community.

Policy HE-1.1. Availability of Land. The City shall maintain sufficient designated and zoned vacant and underutilized sites for housing to achieve a mix of single-family and multi-family development that will accommodate anticipated population growth and the housing needs established in the City's regional housing needs allocation of 11,824 units (1,675 extremely low, 1,482 very low, 2,004 low, 2,103 moderate, 4,560 above moderate).

#### Transportation Element

Goal TR-1. Mobile Community. Provide an integrated transportation system that enables safe and efficient movement of people and goods for all modes of travel.

Policy TR-1.3. Facilitate expanded port and airport operations, service, and development as travel and goods movement assets to the community and sources of employment growth.

### City of Stockton Municipal Code

There are no population, employment, or housing regulations within the City of Stockton Municipal Code that are applicable to the effects of the proposed project.

## 3.12.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to population and housing are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to population and housing would occur if the project would:

- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

# 3.12.4 Impact Analysis

## 3.12.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to population, employment, and housing.

The analysis in this section is based on the Lassen County 2000 General Plan, Tuolumne County 2018 General Plan, and the Envision Stockton 2040 General Plan. The analysis utilizes estimates from the California DOF and the California Employment and Development Department estimates relating to regional population, housing, and employment availability. To evaluate the potential impacts of the proposed project on the local and regional population, employment, and housing availability, the project's projected employment needs were compared to projected regional and local population and housing supplies, as well as regional available workforce.

## 3.12.4.2 Project Impacts

Impact POP-1 The project would not induce substantial unplanned population growth in the area, either directly or indirectly.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Feedstock for the proposed project will derive from Sustainable Forest Management Projects on public forest lands (federal, state, and tribal) or private timber lands within the Working Area. In light of the nature and location of the work, it is anticipated that the workers employed to conduct feedstock acquisition activities will be sourced from within an 100-mile radii of the Lassen and Tuolumne production facilities, which is encompassed by the Working Area. For the feedstock acquisition aspect of the project in relation to the Lassen facility, it is estimated 140 full-time employees would be required. Additionally, approximately 145 truck drivers would be required to transport materials to the Lassen Facility. Table 3.12-14 presents a breakdown of the total persons within these areas currently employed in the mining, logging, and construction industry as well as employees in the industry of transportation, warehousing, and utilities. As seen in Table 3.12-14, these areas include up a total of 9,310 employees in the mining, logging, and construction workforce, and 7,530 employees in the transportation, warehousing, and utilities workforce. These totals indicate a significant available workforce for the proposed activities.

**Table 3.12-14. Feedstock Workforce for Lassen Work Area**

| | Lassen | Modoc | Siskiyou | Shasta | Trinity | Plumas | Tehama | Butte | Totals |
|---|---|---|---|---|---|---|---|---|---|
| Mining, Logging, *Construction | 60 | 120* | 160 | 4,400* | 90* | 70 | 110 | 4,300* | **9,310** |
| Transportation, Warehousing and Utilities | 80 | 330 | 330 | 2,200 | 370 | 290 | 1,830 | 2,100 | **7,530** |
| **Totals** | **140** | **450** | **490** | **6,600** | **460** | **360** | **1,940** | **6,400** | **16,840** |

**Source:** EDD 2023.

**Note:** Not all counties have a separate designation for logging and mining apart from construction. If counties have a specific category for mining and logging, that number is used in the table above. If they do not, the mining and logging workforce is included with construction and is labeled with an "*". EDD does not have a category for Transportation/Trucking alone.

The national forests within the Working Area around the Tuolumne site include Sierra National Forest, Sequoia National Forest, Stanislaus National Forest, El Dorado National Forest, Tahoe National Forest, and Inyo National Forest. It is estimated 50 full-time forestry employees and approximately 50 truck drivers would be required for feedstock operations at Tuolumne facility. Table 3.12-15 below displays the workforce of counties that border Tuolumne County or have been identified by the EDD as counties that contribute to the workforce of the County through commute.

## Table 3.12-15. Feedstock Workforce for Tuolumne Work Area

| | Tuolumne | Mariposa | Merced | Stanislaus | Calaveras | San Joaquin | Amador | Fresno | Sacramento | Totals |
|---|---|---|---|---|---|---|---|---|---|---|
| Mining, Logging, *Construction | 150 | 30 | 3,400* | 10,800* | 990* | 0 | 280 | 200 | 100 | **15,950** |
| Transportation, Warehousing & Utilities | 200 | 70 | 3,100 | 10,800 | 480 | 8,700 | 220 | 20,000 | 25,800 | **69,370** |
| **Totals** | **350** | **100** | **6,500** | **21,600** | **1,470** | **8,700** | **500** | **20,200** | **25,900** | **85,320** |

**Source:** EDD 2023.
**Note:** Not all counties have a separate designation for logging and mining apart from construction. If counties have a specific category for mining and logging, the quantity used in the table above. If they do not, the mining and logging workforce is included with construction and is labeled with an "*". EDD does not have a category for Transportation/Trucking alone.

As seen above, there are a total of 15,950 individuals currently employed in the mining, logging, and construction industries and 69,370 individuals employed in the transportation, warehousing, and utilities industries. These numbers indicate that there is a significant workforce available to the feedstock acquisition aspect surrounding the Tuolumne wood pellet production facility.

The amount of industry specific available workforce for feedstock operations indicates that a workforce from outside of the targeted feedstock areas would not be required to fill the projects employment needs. In addition, this work is inherently mobile, and relocation of potential employees within the treatment areas is unlikely. Therefore, unplanned population growth would not occur at a significant level as the majority of jobs brought forth by the feedstock acquisition are anticipated to be filled by individuals living in the areas described above. See also Section 3.14, Transportation, for a discussion of work force location and commute. In the event that potential employees relocate closer to the feedstock sources, the number of individuals would not be so significant as to create significant impacts on housing and population in the respective areas. Furthermore, any impacts would be temporary as feedstock acquisition is expected to occur over several forested areas across the Working Area. Given the overall size of the forestry workforce in northern and central California, and that feedstock operations will vary in location within the Working Area, the impact on housing and population growth would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

The project does not propose new residential land uses. The project site is located on a portion of a larger property that has previously been used as a mill site, containing no residential units on the property. Consistent with the current General plan, the project site would be used for industrial purposes. By increasing the demand for employees, the wood pellet production facility has the potential to increase the demand for housing in the project vicinity. As stated in the Environmental Setting above, the town of Nubieber has a total population of 38 (U.S. Census Bureau 2021a). The proposed facility would require up to 60 employees. However, it is anticipated that the jobs the project would introduce will be filled by people in the surrounding regions. The project site region is rural and commuting to work is a common characteristic of the existing workforce. A report by the American Community Survey using U.S. Census Bureau information from 2011 through 2015, found that a total of 1,924 individuals commute into Lassen County from surrounding counties for work. More specifically, it was found that there were 172 individuals in Shasta County who commute in, 302 in Plumas, and Washoe County (Nevada) contributed 1,091 individuals (EDD 2022). The City of Susanville, located 55 miles from the project site, possesses the largest and closest available labor force. In addition to Susanville, there are several existing communities within a 60-mile commuting radius of the project site that have the potential to provide additional workforce to the site. This includes the town of Burney, Chester, Westwood, McCloud, and Alturas. See also Section 3.14, Transportation, for a discussion of employee commuting. With consideration to the region's workforce as well as the greater region's patterns of commute for employment, it is unlikely that the demand for housing would significantly increase in the County, and therefore indirectly or directly induce substantial population growth. General Plan Policy HE-GP-6.C further encourages industrial development within the County to maintain a balance between jobs and housing. The proposed project is consistent with policies brought forth in the General Plan. For these reasons, the project would have a **less than significant** impact on housing and population growth in Lassen.

### Tuolumne Facility

The project does not propose new residential land uses. The Tuolumne site was in operation as a wood processing facility until mid-2020. The project site would be used for industrial purposes, consistent with the County's General

plan land use designations (Tuolumne County Community Resources Agency 2018). Employment would likely be sourced from surrounding communities such as Jamestown (see Table 3.12-8 for workforce estimates). As presented in Table 3.12-7 above, Jamestown, and the County as a whole, has historically had a higher unemployment rate than the State of California. General plan policies, such as Policy 1.G.3, promote industrial development to support the County's economy and workforce. The proposed facility would require up to 51 employees. The project site is located 10 miles from Jamestown, where there is an available workforce. An additional portion of the County's labor force regularly commute from outside of the region, into the County for work. In consideration to the regular commute patterns of the County's workforce, along with the relatively close proximity of the project site to Jamestown, it is unlikely that potential employees for the proposed project would need to relocate closer to the project site. Therefore, the project would not induce substantial unplanned population growth in the area, either directly or indirectly. The project's impacts on housing and population growth in Tuolumne would be **less than significant**.

#### Transport to Market

##### Port of Stockton

The project would employ eight (8) daily GSNR employees over three shifts, and will require an additional eight (8) full-time equivalent stevedores for ship loading. It is anticipated that most of the jobs introduced by the project would be filled by people already living in the region as the City and county have a large existing workforce, and a relatively high unemployment rate (see Table 3.12-14). The City's General Plan Housing Element also anticipates new employment opportunities to be available at a similar rate of population growth. For these reasons, the impacts on housing and population growth in Stockton would be **less than significant.**

Impact POP-2 The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

The three proposed facility sites (Lassen, Tuolumne, and Port of Stockton) are appropriately zoned sites, with a history of similar prior use. No residential uses are located on the project sites. The Lassen and Tuolumne sites have a small number of residences nearby. However, these residences have historically been in proximity to active mill operations, and so are unlikely to result in displacement due to project operations. Similarly, the feedstock operations would be temporary operations within forestlands (or in the case of vegetation treatment and defensible space activities, within open space, agricultural, and rural residential areas). Therefore, the project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. Therefore, the project would have **no impact.**

### 3.12.4.3 Cumulative Impacts

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

As discussed in Section 3.0, other vegetation management and forestry projects would occur within the feedstock areas of the two facilities. However, given the overall workforce size, and the varied locations and temporal nature of these projects, it is unlikely that these projects would result in a significant cumulative impact to population and housing within the project area.

### Wood Pellet Production

#### Lassen Facility

As described in Section 3.0, there are no cumulative projects within the Big Valley that would induce unplanned population growth.

#### Tuolumne Facility

Cumulative projects in Tuolumne County are identified in Section 3.0. It is not anticipated that these project would result in unplanned population growth within the project vicinity. These projects will require additional employees. However, given the available regional workforce, described above, it is assumed that the project would not result in a cumulative population and housing impact.

### Transport to Market

#### Port of Stockton

Cumulative development at the Port of Stockton, described in Section, 3.0, would result in additional demand for employees. However, it is anticipated that most of the jobs produced by the project would be filled by people living in the area, since the City and County have a large workforce. The proposed project would rely on the existing Port workforce. Therefore, the proposed project, in combination with other Port projects, would not have a cumulative impacts related to population and housing.

## 3.12.4.4 Mitigation Measures

No mitigation measures are required.

## 3.12.4.5 Significance After Mitigation

Project impacts would be **less than significant**.

# 3.12.5 References

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# 3.13 Public Services

This section of the EIR evaluates potential impacts on public services associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing public services conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California, and evaluates the potential for project-related public service impacts, considering proposed project design features that could reduce or eliminate associated impacts. Several scoping comments were received regarding fire protection services in response to the Notice of Preparation (NOP) (see Appendix A).

## 3.13.1 Environmental Setting

### 3.13.1.1 Sustainable Forest Management Projects

As described in Chapter 2, Project Description, in 2019, the Golden State Finance Authority (GSFA) and the U.S. Forest Service signed a master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes all of the 18 national forests located in California. Feedstock for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from California's private, state, tribal, and federal timberlands located within these areas.

#### Police Protection

Law enforcement services on federal forest lands are provided by the U.S. Forest Service (USFS). The USFS employs over 500 law enforcement officers and special agents who patrol and investigate crimes on 193 million acres managed by the U.S. Forest Service across the country (USFS 2022). Respective county sheriff's offices also have general law enforcement responsibilities within unincorporated county areas, including enforcing state law on forested lands. California Department of Forestry and Fire Protection's (CAL FIRE) Peace Officers provide law enforcement personnel that enforce California law, including California's forest practice regulations, throughout state-owned lands. Duties of these officers typically include investigating fire causes, interviewing witnesses, issuing citations and setting up surveillance operations. The officers also provide support to state agencies and local fire and law enforcement with arson, bomb, fireworks, and fire extinguisher investigations, as well as the disposal of explosives. California Department of Fish and Wildlife officers protect California's diverse resources from poaching and overuse. Wildlife officers investigate reports of violations, collect and preserve evidence, write reports, and testify in court. Wildlife officers are typically assigned to and responsible for enforcing the law in a specific geographical area of the State. They enforce all Fish and Game laws related to hunting, recreational and commercial fishing, trapping, pollution, falconry, and exotic animal laws. California Highway Patrol (CHP) provides police protection services along State and interstate highways throughout California, including highways that pass throughout the treatable landscape. CHP provides traffic law enforcement to prevent crime; manages traffic and emergency incidents; assists other public agencies with law enforcement duties; and provides protection to the public, State employees, and State infrastructure.

### Fire Protection

It is anticipated that USFS and CAL FIRE would be the primary fire protection services for feedstock acquisition areas of the project, within Federal and State Responsibility Areas, respectively. Local fire departments and fire protection districts would have primary responsibility for Local Responsibility Areas. Note that mutual aid agreements may affect which agency is the "first" responder, but do not change who has overall financial responsibility.

The USFS responds to all wildfires on National Forests and Grasslands. An average of 7,500 wildfires burn approximately 1.5 million acres of USFS land each year, nationwide. As of 2023, the USFS wildland firefighting force consists of 11,187 wildland firefighters across the nation, over 900 engines, and hundreds of aircraft (USFS 2023a). The USFS reports that they have nearly met their goal of employing 11,300 firefighters prior to the busiest part of the fire season of 2023. The employment goal of 11,300 firefighters represents the highest capacity for the number of firefighters the USFS can support with their existing infrastructure and budget. Of the firefighters currently employed by the USFS, 3,497 are based out of the Pacific Southwest Region, which consists of all eighteen national forests in California (USFS 2023b). However, the USFS is unable to solely respond to the increasing demands of wildfire management and works closely with other federal, tribal, state, and local partners. Mutual aid agreements allow for partnering agencies to send their firefighters, engines, aircraft, and equipment to wildfires on land under federal jurisdiction for increased firefighting forces (USFS 2023c).

CAL FIRE is a state agency that is responsible for protecting natural resources from fire on land designated as State Responsibility Area (SRA) by the California State Board of Forestry. As of 2023, CAL FIRE provides protection to over 31 million acres of California's wildlands (CAL FIRE 2023a). CAL FIRE also provides fire protection to local government cooperators through agreements with counties, cities, fire districts, special districts, and service areas (CAL FIRE 2024). Furthermore, CAL FIRE's cooperative programs involves an agreement for the exchange of fire protection services with the five federal wildland fire agencies, including the U.S. Forest Service. This agreement allows CAL FIRE to ensure efficient responses to wildland fires with the assistance of federal personnel, equipment, supplies, services, and information. In collaboration with other wildfire agencies, in 2021, CAL FIRE responded to 7,396 fires that burned a total of 2,569,386 acres in California (CAL FIRE 2023b, 2024).

### Schools, Parks and Other Facilities

Federal and state forests throughout California allow for multiple uses, including recreation. Recreation opportunities on forest lands include camping, hiking, biking, fishing, or horseback riding. CAL FIRE states that the California state forests demonstrate how a forest can be managed for multiple objectives and goals at the same time. Vegetation management practices, including sustainable timber production, allows for increased public safety while recreating in forest lands (CAL FIRE 2023c). The Forest Service similarly provides for recreational opportunities in its strategic plan: including the objective to connect people to the outdoors. The Service seeks to maintain recreational settings, hiking trails, and other sustainable recreational opportunities on the national forests and grasslands for public use (USDA 2015).

## 3.13.1.2 Northern California (Lassen Facility) Site

### Police Protection

Law enforcement services at the project site are provided by the Lassen County Sheriff's Office. The Sheriff's office offers a range of services including crime prevention, detection, and investigation, management of a 911 dispatch

center, search and rescue services, court security services, and boat safety services. The County's Sheriff's Office also operates an adult detention facility (jail), functions as the County Corner, as well as serves all state mandated writs, warrants, and other notices issued by the court (Lassen County 2023). The singular location for the Sheriff's Office is located in the city of Susanville, approximately 54 miles southeast of the project site. However, the law enforcement personnel are distributed into "Resident" post patrol areas that are based on population, geographic location, and calls for service volumes. There are currently 18 deputies assigned to patrol, one of which is assigned to the Big Valley area, which serves the project site.

The California Highway Patrol (CHP) provides additional law enforcement services in the Lassen County. The CHP provides traffic enforcement including the issuance of traffic violation citations and aids with a range of other services along state highways and unincorporated County roadways. The County is located in the CHP's northern division, that covers the 14 northern-most counties in California. There is one CHP office in the County, located at 472-400 Diamond Crest Road, Susanville (CHP 2023a).

## Fire Protection and Emergency Medical Services

Fire protection for the Lassen County (County) is divided into 16 separate fire protection districts. The project site is served by the Big Valley Fire Protection District (BVFD). BVFD covers a service area of 105.3 miles with one station in the town of Bieber. The station is located approximately 2.5 miles northeast of the project site. The department is staffed by ten active volunteer fire fighters. Services offered by the BVFD include response to both structural and wildland fires, as well as response to medical emergencies related to traffic or crowd control (BVFD 2022). BVFD is part of the Susanville Interagency Fire Center and the Lassen County Fire Chiefs Association. Mutual aid agreements additionally allow BVFD to provide assistance to the Adin Fire Departments and CAL FIRE. The BVFD fire protection equipment includes one engine, three water tender pumpers, one squad brush vehicle, and one extrication jaw. Additionally, the CAL FIRE station located in Bieber has two engines, one helicopter, and one bulldozer. If needed, the Intermountain Conservation Camp also has four 17-person fire crews that are available to provide assistance. Southern Cascades Emergency Medical Services provides ambulance services to the Big Valley district that respond from Adin. Additional first responder support is provided by the Adin Fire Protection District.

In the year of 2018 (most recent available data), the BVFD received a total of 24 calls for service. 12 of these calls for service were to assist another agency within their mutual aid agreement. The BVFD district itself received five calls regarding wildland fires, four calls for false alarms or 'other fires' (not structure fires), and three calls for traffic collisions (LAFCo 2020).

### Fire Hazard Severity Zone

The project site is within a moderate severity zone for wildfire hazard. Most of the site is within a Local Responsibility Area, while the southern portion of the site is within a State Responsibility Area. Please see Section 3.13.2.2, below, and Section 3.17 Wildfire for further discussion of fire hazard severity zones.

#### Schools

The project site is served by the Big Valley Unified Schools District. The closest schools to the project site are Big Valley Elementary School and Big Valley High School and approximately 2.5 and 2.6 miles northeast respectively.

### Parks and Recreation Facilities

The County's General plan (Lassen County 1999) identifies two general categories of recreation: developed recreation and dispersed recreation. Parks, public swimming areas, campgrounds, and downhill ski parks are considered Developed recreation. Whereas dispersed recreation refers to areas suitable for recreational activities that do not require the use of man-made facilities. Hiking, fishing, horseback riding are recreational activities typically included in dispersed recreation. Federal and state-owned lands significantly contribute to the County's open space and dispersed recreational resources. The County General plan states that the Bureau of Land Management manages over 1,025,000 acres of land within the County, most of which are primarily recognized as open space lands. The most notable federally owned lands in the County include Lassen National Forest and Lassen Volcanic National Park. The State of California further manages approximately 69,000 acres of land in the County. 40,000 acres of which is managed by the Department of Fish and Game and is devoted to the provision of wildlife habitat.

As of 1996, the County owned and operated eleven recreation facilities as well as several boat ramps. The closest of these to the project site is Clara Bieber Memorial park, located 2.71 miles northeast. Additionally, Ash Creek Wildlife Area is located approximately 6.25 miles northeast of the project site. No information about park to resident ratio is provided in the General Plan or General Plan EIR. For additional information on parks and recreation facilities in Lassen County, please see Section 3.15, Parks and Recreation of this EIR.

### Library Services

The Lassen Library District provides the only public library in the County. The library is located in Susanville, approximately 55 miles from the project site. The library provides testing services, computers, Wi-Fi, printing, scanning, and copying facilities, adult and family literacy course, several eLearning resources, as well as books, eBooks, and audiobooks (Lassen Library 2023).

## 3.13.1.3 Central Sierra Nevada (Tuolumne Facility) Site

### Police Protection

Tuolumne County Sheriff's Office (TSCO) provides law enforcement services to the unincorporated areas of Tuolumne County (County) as well as provides staffing to the County jail. The TSCO provides a wide range of services for the public including investigations, narcotics investigation, boat patrol, courts security, records, swat, search & rescue, crime prevention, K-9, and administrative services. The County's General Plan estimates that there are approximately 135 authorized positions within the TSCO. This includes 63 patrol deputies and 38 adult detention deputies. These positions provide services to the 54,531 residents of the County (U.S. Census Bureau 2022). The only Sheriff Station in the County is located at 28 Lower Sunset Drive, in the City of Sonora. The TSCO further operates the Emergency Dispatch Center that is staffed by 13 Dispatchers and functions on a 24/7 basis.

As a result of the large geographic area of the County, TSCO does not have an adopted service ratio standard. However, TSCO works to ensure that they have sufficient personnel to cover the large geographic area. The General Plan states that as of 2015, TSCD had a service ratio of 403 residents to one officer and an average response time of 3 minutes and 18 seconds (County of Tuolumne 2018). The TSCO Patrol Division responds to approximately 55,000 calls for service per year (County of Tuolumne 2023a).

Additional traffic enforcement along state highways and County roadways is provided by the CHP. The CHP issues traffic citations for traffic violations and assists in providing a range of other services for the greater goal of supporting the safety of residents within the County. The County is located within the CHP's Central Division that covers the heart of the San Joaquin Valley. The County has one CHP office located at 18437 Fifth Avenue in Jamestown (CHP 2023b).

## Fire Protection and Emergency Medical Services

Fire protection for the County is provided by the Tuolumne County Fire Department (TCFD) and the California Department of Forestry and Fire Protection (CAL FIRE). TCFD and CAL FIRE provide emergency medical responses, rescue, extrication, fire control, as well as fire and life safety inspections. A mix of professional and volunteer firefighters and mutual aid agreements among the fire service agencies provide fire services for the County. A contract between TCFD and CAL FIRE allows TCFD to protect the unincorporated areas of the County even though the majority of the unincorporated areas fall outside of a fire district boundary. In total, the two agencies cover 2,200 square miles and provide services to 54,531 residents within the County (County of Tuolumne 2023b; U.S. Census Bureau 2022). TCFD has a total of 13 fire stations, with 8 located in the unincorporated area. Station 61 is the closest station to the project site, located approximately 4.75 miles northeast. Out of the 8 fire stations located unincorporated areas, the Jamestown and Groveland stations are the only stations that are not staffed by volunteer firefighters. The Jamestown Station is the closest of the two, located approximately 9.32 miles northeast of the site. Table 3.13-1 below displays the Tuolumne County Fire Stations and their respective staffing. Current funding permits TCFD 50.5 full-time positions. These positions include 3.5 Emergency Command Center positions, 2 Training/Safety Captains, an Assistant Chief, 40 Engine Operators, and 1 Heavy Equipment Manager. 46.5 of these positions are funded through cooperative agreements with CAL FIRE, Mariposa County, and Columbia College (County of Tuolumne 2023b).

**Table 3.13-1. Tuolumne County Fire Department Locations and Staffing**

| County Stations | Location | Staffing |
|---|---|---|
| Mono Village Station 51 | 19500 Hillsdale Dr., Sonora | 5 paid full time, 12 volunteer |
| Ponderosa Hills Station 53 | 20810 Tomira Meadows Ct., Tuolumne | 12 volunteer |
| Long Barn Station 54 | 25910 Long Barn Rd., Long Barn | 12 volunteer |
| Pinecrest Station 55 | Pinecrest Ave., Pinecrest | 12 volunteer |
| Mono Vista Station 56 | 16925 Mono Vista Rd. North, Sonora | 12 volunteer |
| Crystal Falls Station 57 | 21720 Phoenix Lake Rd., Sonora | 12 volunteer |
| Cedar Ridge Station 58 | 24190 Kewin Mill Rd., Sonora | 12 volunteer |
| Chinese Camp Station 61 | Highway 120, Chinese Camp | 12 volunteer |
| Smith Station 63 | 223260 Elmore Rd., Groveland | 12 volunteer |
| Don Pedro Station 64 | 2990 Highway 132, La Grange | 12 volunteer |
| Jamestown Station 76 | 18249 4th Ave., Jamestown | 5 paid, 12 volunteer |
| Groveland Station 78 | 18930 Highway 120 Groveland | 5 full time and 21 part time paid |
| Columbia College Station 79 | 11600 Columbia College Dr., Sonora | 1 full time paid, 15 student, 12 volunteer |

**Source:** County of Tuolumne 2023b.

As set forth in the 2018 General Plan EIR, TCFD carries out shifts of nine firefighters that are on duty for 24 hours a day, seven days a week. For urban areas, the TCFD response time is an average of 9 minutes; suburban areas have a response time of 10 minutes; rural areas have a response time of 14 minutes; and remote areas have response times dependent directly on travel distance (County of Tuolumne 2018, 2021). These goals specify response times, minimum staffing for different demand zones such as Urban areas, Suburban Areas, and Rural or Remote areas. TCFD reports that in 2022 there were a total of 6,431 incidents inside the TCFD jurisdiction. Of those, 4,541 were calls for medical assistance, 596 were for fires, 246 were related to hazardous materials/fire standby, and 1,048 were 'other' incidents. From 2021 to 2022, TCFD has seen a 5.2% increase in incidents reported (County of Tuolumne 2023b).

The CAL FIRE Green Springs Station is located only 0.25 miles from the project site entrance, south of the project site. This station houses one engine, and is staffed by Battalion 6 of the Tuolumne Calaveras Unit (CAL FIRE 2022). As the site is within a State Responsibility Area, and due to the proximity, it is expected that this station would be the primary responder for fire protection.

Emergency and non-emergency medical transport services are provided by the Tuolumne County Ambulance Service. There are approximately 60 part time and full time Emergency Medical Technicians and Paramedics employed in the County. The General Plan EIR states that they handle roughly 8,000 calls per year (County of Tuolumne 2018).

### Fire Hazard Severity Zone

The project site is within a high severity zone for wildfire hazard. The site is within a State Responsibility Area. Please see Section 3.13.2.2, below, and Section 3.17 Wildfire for further discussion of fire hazard severity zones.

#### Schools

The project site is served by the Jamestown School District and the Sonora Union High School District. The closest schools to the project site are Chinese Camp Elementary located approximately 4.5 miles northeast and Sonora Union High School located approximately 12.5 miles northeast (TCSOS 2023).

## Parks and Recreation Facilities

The Tuolumne County Recreation Department along with multiple other agencies have jurisdiction over parks and other recreational facilities within the planning area. These agencies include the U.S. Forest Service, U.S. Bureau of Reclamation, National Park Service, U.S. Bureau of Land Management, California Department of Parks and Recreation, and California Fish and Wildlife. County residents are also permitted to use schools as recreational facilities when they are not in session. The County's park system consists of several community parks that serve as both recreational and open spaces. The National Parks in the County offer natural settings for hiking, water skiing, horseback riding, camping, snowmobiling, and a variety of other activities. Human-made attractions include museums, golf courses, restaurants, train rides, and casinos. There are a several other community parks in the incorporated and unincorporated area of County that offer picnic areas, playgrounds, athletic fields, pools, and campsites. As of 2015, the County's unincorporated area provided approximately 7 acres of parks per 1,000 residents. The closest recreational site to the project location is Lake Tulloch Marina, located approximately 6 miles northwest (County of Tuolumne 2018). Please see Section 3.15 of this EIR for additional information on Parks and Recreation Facilities in Tuolumne County.

### Library Services

The Tuolumne County Library system provides one main location along with three additional branches in the County. The Main Library is located in Sonora and the three branches are in Groveland, Tuolumne City, and Twain Harte. These locations offer reference and circulating collections, videos, periodicals and newspapers, interlibrary loans, as well as children's programs (County of Tuolumne 2018). The closest library location to the project site is the Groveland Branch located approximately 15.4 miles east.

## 3.13.1.4 Port of Stockton

### Police Protection

As the project site is located in the Port of Stockton, the Port of Stockton Police Department would primarily serve the project site. The Port Police are a full-service police department that is certified as a P.O.S.T. Police Agency. Their jurisdiction lies within the City's Port District. Services by the Port Police are provided twenty-four hours a day, seven days a week and include the enforcement of local, state, and applicable federal laws, in addition to US Department of Homeland Security and US Coast Guard Relations. To prevent security breaches and ensure quick responses, available to the Port Police are automated access control gates, remotely monitored video camera systems, and vehicle-mounted computers (Port of Stockton 2024).

The Port patrol maintains mutual aid agreements with the City of Stockton Police Department, the San Joaquin Sheriff's Department, and the California Highway Patrol in the event that backup services are needed. The Stockton Police Department operates out of three police stations in the City: the Police Operations Facility, Police Administration and Support Building, and the Police Firing Range Training Facility. The Police Operations Facility is located approximately 3.5 miles east of the proposed project site (City of Stockton 2018).

### Fire Protection and Emergency Medical Services

The Stockton Fire Department (SFD) provides fire protection and emergency medical services (EMS) to the City, including the project site. The SFD serves a 90-square-mile area and population of approximately 336,000 (City of Stockton 2023a). The SFD is organized into six operational divisions: Administration, Operations, Fire Prevention, Training, Communications/Dispatch, and Emergency Medical services (City of Stockton 2023b). There are additional specialized units and teams including the Hazardous Materials Team, Water Rescue Team, and the Urban Search and Rescue Team, which are staffed by the Operations personnel and provide services 24 hours, seven days a week. All personnel are trained in EMS by the Departments Training Division.

As of 2022, the SFD consisted of 182 sworn personnel, and 35 civilian employees, led by one Fire Chief. Based on the Department of Finance Population estimates for 2023, the current service ratio is .58 personnel per 1,000 residents[1] (DOF 2024). The City's General Plan indicates that the current staffing levels are not sufficient to support the community need. However, the General Plan EIR includes several goals, policies, and actions related to service levels to address this issue and ensure SFD continues to provide adequate facilities and staffing levels. For example, Action LU-6.1.G, states that the City should maintain adequate staffing levels to support achieving the service level goals for police and fire protection. See Subsection 3.13.2.3 for additional policies relating to fire protection services. There are 13 fire stations throughout the City, listed in Table 3.13-2 below, that contain three

[1] Stockton Fire Department current service ratio: 182 sworn personnel / (315,685 residents / 1,000) = .58 sworn personnel per 1,000 residents.

four-person truck companies and 13 three-person fire engine companies. Station 3 houses the HazMat Team, and Station 2 houses the Urban Search and Rescue Team. The closest stations to the project site are Station 1, located approximately 2.8 mile driving distance southeast, and Station 2 located approximately 2.4 miles driving distance east. Station 6 is a similar distance geographically to the Port as Station 2, but is an additional 2 miles driving distance.

**Table 3.13-2. City of Stockton Fire Department Locations**

| Station Number | Street Address |
|---|---|
| Station 1 | 1818 S. Fresno Avenue, Stockton, CA 95206 |
| Station 2 | 110 West Sonora Street Stockton, CA 95203 |
| Station 3 | 1116 East First Street Stockton, CA 95206 |
| Station 4 | 5525 Pacific Avenue Stockton, CA 95207 |
| Station 5 | 3499 Manthey Road Stockton, CA 95206 |
| Station 6 | 1501 Picardy Drive Stockton, CA 95203 |
| Station 7 | 1767 West Hammer Lane Stockton, CA 95209 |
| Station 9 | 550 East Harding Way Stockton, CA 95204 |
| Station 10 | 2903 West March Lane Stockton, CA 95219 |
| Station 11 | 1211 East Swain Road Stockton, CA 95210 |
| Station 12 | 4010 East Main Street Stockton, CA 95215 |
| Station 13 | 3606 Hendrix Drive Stockton, CA 95212 |
| Station 14 | 3019 McNabb Street Stockton, CA 95209 |

**Source:** City of Stockton 2023c.

The most recent year for which data is available, 2015, SFD responded to a total of 38,275 incidents, including calls for public assistance to major emergency management incidents. The City's General Plan states that the response time goal for the SFD is within four minutes, 90 percent of the time. Data from 2015 concluded that 90 percent of the SFD's Code 3 responses took 5 minutes 43 seconds or less. Thus, the SFD is not currently meeting its response time goal. The goal of 4 minutes was met 62 percent of the time (City of Stockton 2018). To adequately serve the growing population of the City, SFD predicts that they will require three additional fire stations in the east and southeast areas of the City (City of Stockton 2018). As is has previously been stated, the City's General Plan includes policies and implementation measures to ensure staffing, service levels, and response times throughout the City are sufficiently maintained.

### Fire Hazard Severity Zone

The project site is not within a fire hazard severity zone. Please see Section 3.13.2.2, below, and Section 3.17 Wildfire for further discussion of fire hazard severity zones.

## Schools

The project site is served by the Stockton Unified School District (SUSD) (City of Stockton 2018). The closest schools to the project site are Washington Elementary School approximately 2 miles southeast and Edison High School approximately 3.7 miles southeast.

### Parks and Recreation Facilities

There are three categories of parks that the City owns and operates: neighborhood, community, and specialty parks. In addition to these three categories, the City also owns and operates trails, special purpose facilities, and accessible open space. In total, the City maintains 215 acres of neighborhood parks, 411 acres of community parks, and 14 acres of specialty parks. Population data from 2018 concludes that the ideal ratios of parkland to residents are not currently met by the city. The current ratios including both the City and San Joaquin County parks are:

- 0.8 acres of neighborhood parkland per 1,000 residents
- 1.3 acres of community parkland per 1,000 residents
- 0.6 acres of regional parkland per 1,000 residents
- 2.8 acres of total parkland per 1,000 residents

The proposed standard in the City's General Plan is 2 acres of neighborhood parkland, 3 acres of community parkland, and 3 acres of regional parkland per 1,000 residents respectively (City of Stockton 2018).

The closest City owned park to the project site is Louis Park, located approximately 0.30 miles north of the project site, across the San Juaquin River.

### Library Services

The Stockton-San Joaquin County Public Library (SSJCPL) provides library services to the residents of the City. Currently, the SSJCPL operates five facilities, all of which are open five days a week. The library facilities are the Cesar Chavez Central Library, the Margaret K. Troke Branch Library, the Maya Angelou Branch Library, the Fair Oaks Branch Library, and the Weston Ranch Branch Library. In addition to the library branches, SSJCPL offers mobile library services to areas of the county that are underserved or are remote. The library locations collectively offer residents access to electronic resources, reference and advisory materials., online learning platforms, free internet access, as well as computers equipped with printers (City of Stockton 2018). The closest library facility to the project site is the Cesar Chavez Central Library approximately 1.8 miles east.

## 3.13.2 Regulatory Setting

### 3.13.2.1 Federal

#### U.S. Forest Service

In 2019, the lead agency and the U.S. Forest Service signed a Master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes all of the 18 national forests located in California. Individual Sustainable Forest Management Projects to reduce high hazard fuel loads and increase resiliency will be implemented through Supplemental Project Agreements and similar stewardship contracting mechanisms (SPAs). (While the MSA applies to the entirety of Region 5, only Sustainable Forest Management Projects within the Working Area described in Section 2.4 are contemplated under the proposed project.) The Forest Service's strategic plan (USDA 2015) includes four outcome-oriented goals:

1. Sustain Our Nation's Forests and Grasslands.
2. Deliver Benefits to the Public.

3. Apply Knowledge Globally.
4. Excel as a High-Performing Agency

The plan further identifies three strategic objectives for the first goal:

- Foster resilient, adaptive, ecosystems to mitigate climate change.
- Mitigate wildfire risk.
- Conserve open space.

### Federal Fire Prevention and Control Act of 1974/Federal Fire Safety Act of 1992

The Federal Fire Prevention and Control Act of 1974 was created to provide federal assistance to states and communities for research and development, education, and training on fire problems; setting priorities; and identifying possible solutions to problems. The 1974 act was amended in 1992 by the Federal Fire Safety Act of 1992 to require, among other things, automatic sprinkler systems or an equivalent level of safety on buildings having more than 25 employees that have been purchased, constructed, or renovated with federal funds.

### National Fire Protection Association Codes and Standards

The National Fire Protection Association is a membership organization that develops and monitors the use of more than 300 fire codes and standards that have been widely incorporated into state and local fire codes. There are no legislative enforcement mechanisms in place. By working through numerous technical committees, the National Fire Protection Association uses a consensus approach to solve many safety-related issues. The National Fire Protection Association standards are updated every 3 to 5 years (NFPA 2018).

## 3.13.2.2 State

### State Fire Regulations

The California Fire Code (CFC) is Part 9 of Title 24 of the California Code of Regulations, which includes regulations concerning building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training. It was created by the California Building Standards Commission and is based on the International Fire Code created by the International Code Council. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The CFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The CFC and the California Building Code use a hazard classification system to determine what protective measures are required to protect fire and life safety (24 CCR Part 9). These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the CFC employs a permit system based on hazard classification. The CFC is updated every 3 years and was most recently updated in 2016, with an effective date of January 1, 2017.

### Fire Hazard Severity Zones

CAL FIRE maps Fire Hazard Severity Zones California based on fuel loading, slope, fire weather, and other relevant factors as directed by Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189. Fire Hazard Severity Zones are ranked from moderate to very high and are categorized for fire protection

within a federal responsibility area, state responsibility area, or local responsibility area under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively. The California Code of Regulations (CCR), Title 14, Section 1280 entitles the maps of the geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."

### California Public Resources Code

California Public Resources Code Section 4290 and the implementing regulations adopted by the California Board of Forestry and Fire Protection set forth minimum fire safety standards related to defensible space within state responsibility areas approved after January 1, 1991, and within lands classified and designated as very high fire hazard severity zones, as defined in subdivision (i) of Section 51177 of the Government Code after July 1, 2021. These regulations apply to the perimeters and access to all residential, commercial, and industrial building construction. The regulations include all of the following:

1. Road standards for fire equipment access.
2. Standards for signs identifying streets, roads, and buildings.
3. Minimum private water supply reserves for emergency fire use.
4. Fuel breaks and greenbelts.

### California Occupational Safety and Health Administration

In accordance with California Code of Regulations Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Equipment" the California Occupational Safety and Health Administration (Cal/OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance and use of all firefighting and emergency medical equipment.

### California Education Code Section 17620 and Senate Bill 50

California Senate Bill 50, the School Facilities Act of 1998, and the bond procedures under Proposition 1A of 1998 amended state law to reform school facilities financing and to set the California Environmental Quality Act (CEQA) standards for mitigation for school facilities. As amended by Senate Bill 50, California Education Code Section 17620 authorizes school districts to levy a fee against new development, including residential and non-residential, within the school district to fund construction, reconstruction, and/or modernization of school facilities. The school district must demonstrate the need for school construction or reconstruction, and demonstrate that the fee does not exceed the cost of construction or reconstruction necessary to meet this need. Senate Bill 50 also amended California Government Code Sections 65966–65968 to prohibit a local agency from either denying approval of a land use project because of inadequate school facilities or imposing school impact mitigation measures other than the designated fees provided for in the Education Code. However, in any year that a proposed statewide bond measure for K– 12 school facilities fails, Senate Bill 50 would permit a local agency to deny a development project requiring legislative approval on the basis of inadequate school facilities.

### Quimby Act

In 1975, the Quimby Act (California Government Code Section 66477, as amended in 1982) granted cities and counties authority to pass ordinances requiring developers to set aside land, donate conservation easements, or

pay in-lieu fees for park improvements. The goal of the Quimby Act was to require developers to help mitigate the impacts of their developments. Special districts must work with cities and counties to receive parkland dedication and/or in-lieu fees. The fees must be paid and land conveyed directly to the local public agencies that provide park and recreation services to the affected community. Revenues generated through the Quimby Act cannot be used for operation and maintenance of park facilities.

### 3.13.2.3 Local

#### Lassen County

##### Lassen County General Plan

Goal L-14. A rate and the location of community growth which does not result in a significant burden to existing levels of public services and facilities, including schools, fire protection, and community sewer and water facilities.

Policy LU36. A rate and the location of community growth which does not result in a significant burden to existing levels of public services and facilities, including schools, fire protection, and community sewer and water facilities.

Policy LU37. The County shall periodically evaluate the impacts of general development trends on public services and, within its authority and in consultation with public service providers, encourage and facilitate mitigation of significant adverse cumulative impacts.

##### Lassen County Code

###### Section 12.60.020. – Fire Capital Impact Fees

Section 12.60.020 of the Lassen County Municipal Code presents the requirements for the payment of fire capital impact fees by new residential, commercial, industrial, and industrial developments. The amount of said fee shall be established by a competent analysis of the nexus, relationship and degree of the impact of growth upon the delivery of district services, commissioned and provided by said fire protection districts (Big Valley Fire Protection District). The impact fees are to be used for the acquisition of band and easements for fire facilities, design and ordinance construction of fire facilities, and/or fire capital expenditures made necessary by the development of new residential, commercial, industrial and other projects in the respective districts.

###### Section 9.16.070 – Enforcement Authority [Fire Warden]

Section 9.16.070 of the Lassen County Municipal Code states that the County Fire Warden is empowered to enforce all provisions of Chapter 9.16 – Fire Hazards of the County Municipal Code (see below) as well as the State SRA/VHFHSZ Fire Safe Regulations (California Code of Regulations Title 14, section 1270 et seq.). The term "County Fire Warden includes any person duly deputized as such by said county fire warden. The County Board of Supervisors first established the position of County Fire Warden in 1983 and designated the CAL FIRE Ranger in Lassen County as the Lassen County Fire Warden (Board Resolution Number 83/84-47). The current fire warden for the County is Scott Packwood.

The Fire Warden enforces the County and State Fire Safe Regulations in close coordination with the Lassen County Department of Planning and Building Services, who is responsible for the issuance of building permits in the unincorporated areas of Lassen County (all areas outside the City of Susanville, excluding certain state and federally managed property). In many instances, Lassen County performs certain inspections required pursuant to these standards on behalf of the Fire Warden (as delegated by the Fire Warden). Said delegation is provided in an August 31, 2022, letter from the Fire Warden/CAL FIRE titled "Delegation of authority to enforce the Fire Safe Regulations in any SRA within Lassen County to the Lassen County Planning and Building Services Department.

#### Chapter 9.16 – Fire Hazards

Chapter 9.16 of the Lassen County Municipal Code presents basic wildfire protection standards of the California Board of Forestry. The Chapter states that any law, regulation or ordinance involving fire safety which is more restrictive will take precedence over the standards presented therein.

#### Chapter 12.08 – California Building Code

Chapter 12.08 of the Lassen County Municipal Code adopts the California Building Code.

### Tuolumne County

#### Tuolumne County General Plan

#### Police Protection

Goal 9D. Protect and enhance the quality of life in Tuolumne County by providing a criminal justice system that offers peace of mind to the citizens of Tuolumne County that their lives and personal property will be protected from crime.

Policy 9.D.2. Provide law enforcement, such as patrol, investigation, supervision, administration, clerical support, dispatch, coroner, crime laboratory, prosecution, probation, and jail services within the unincorporated area of Tuolumne County and assure that the established level of service is maintained and maintain this level.

Policy 9.D.3. Assure that the established level of service in the criminal justice system is maintained prior to approving new development.

#### Fire Protection

Goal 9C. Protect and enhance the quality of life by continuing to provide the highest quality and cost-effective emergency services to the citizens of, and visitors to, Tuolumne County.

Policy 9.C.1. Provide participating first responder medical aid units with the equipment necessary to efficiently and safely provide emergency first aid, along with the training programs necessary for the safe and effective use of the equipment.

Policy 9.C.2. Provide ambulance service within the County which maintains a professional level of service to the public in a cost-efficient manner.

Goal 9E. Provide structural fire protection to persons and property within Tuolumne County consistent with the needs dictated by the level of development and in accordance with current Federal, State, and local fire protection agency regulations and policies.

Policy 9.E.2. Maintain adopted levels of fire service.

Policy 9.E.3 Require new development to be consistent with State and County regulations and policies regarding fire protection.

Goal 9G. Establish and maintain a codified fire protection risk management strategy which requires new development within Tuolumne County to incorporate or supply fire protection infrastructure and improvements necessary so that such development does not exceed the capabilities of the County's fire protection resources.

Policy 9.G.3. Determine the impact proposed development will have on the provision of fire protection services and maintain the established level of service as outlined in the current Tuolumne County Fire Department Service Level Stabilization Plan.

### Parks and Recreation

Goal 11A. Provide an adequate supply and equitable distribution of recreation facilities for residents based on existing and projected population and the results of community needs surveys.

Policy 11.A.1. Acquire and develop recreation facilities to fulfill the County's projected unmet need based on a goal of 5 acres of recreational facilities per 1,000 residents.

Goal 11E. Address the impacts of new development on the County's recreational facilities.

Policy 11.E.1. Maintain and update, as necessary, the Tuolumne County Ordinance Code sections pertaining to land dedications and/or payment of in-lieu fees for new development's contribution to providing recreational facilities consistent with Government Code Section 66477.

### Library Services

Goal 12C. Adopt an acceptable level of availability and variety of library services and maintain that level as new development occurs within Tuolumne County.

Policy 12.C.1. Maintain a goal through the Capital Improvements Program (CIP) for levels of library services throughout Tuolumne County equivalent to 325 square feet of gross floor area of adequately equipped and staffed library facilities per 1,000 population, exclusive of the Sierra Conservation Center.

## Tuolumne County Code

### Chapter 15.04

Chapter 15.04 of the Tuolumne County Code of Ordinances adopts the California Building Code.

### Chapter 15.20

Chapter 15.20 of the Tuolumne County Code of Ordinances adopts the California Fire Code and provides regulations for fire hydrant, off-street signing, gate entrances, setbacks, defensible space, and fuel modifications.

## City of Stockton

### City of Stockton General Plan

Goal PFS-1. To ensure the provision of adequate facilities and services that maintain service levels are adequately funded and allocated strategically.

Policy PFS-1.1 Maintain Existing Levels of Services. The City shall give priority to providing services to existing urban areas in order to prevent the deterioration of existing levels-of-service.

Policy PFS-1.4 Development Impacts to Existing Infrastructure. The City shall ensure that proposed developments do not create substantial adverse impacts on existing infrastructure and that the necessary infrastructure will be in place to support the development.

Policy PFS-1.5 Funding for Public Facilities. The City shall continue to utilize developer fees, the City's public facilities fees, and other methods (i.e., grant funding and assessment districts) to finance public facility design, construction, operation, and maintenance.

Policy PFS-1.8 Impact Mitigation. The City shall review development proposals for their impacts on infrastructure (i.e., sewer, water, fire stations, libraries, streets) and require appropriate mitigation measures if development reduces service levels.

Policy PFS-1.9 Development Guidelines. During the development review process, the City shall not approve new development unless the following guidelines are met:

- The applicant provides acceptable documentation demonstrating infrastructure capacity will be available to serve the project prior to occupancy;
- The applicant can demonstrate that all necessary infrastructure to serve the project is adequately financed and will be installed prior to occupancy;
- Infrastructure improvements are consistent with City or other service provider’s infrastructure master plans; and
- Infrastructure improvements incorporate a range of feasible measures that can be implemented to reduce all public safety and/or environmental impacts associated with the construction, operation, or maintenance of any required improvement.

### Police Protection

Goal PFS-7 To provide protection to the public through adequate police staffing and related resources, effective law enforcement, and the incorporation of crime prevention features in new development, as approved by the Police Department.

Policy PHS-7.1 Police Response Time. The City shall maintain an average response time of 5 minutes or less for priority one calls.

### Fire Protection

Goal PFS-8 To provide protection to the public through effective fire protection services and the incorporation of fire safety features in new development.

Policy PFS-8.1 Fire Response Time. The City shall work to maintain a fire response time as indicated in Table 9-1, which shall be used to determine future fire stations needs.

Policy PFS-8.4 Cost Sharing. The City shall require new development to pay all public facility fees (PFF) as a means to provide a fair share of costs to provide fire station facilities and equipment in order to maintain current levels of service in newly developed areas. Also, new development may be required to create a Community Facility District (CFD) or other funding mechanisms to pay the costs associated with the operation of a fire station.

Policy PFS-8.6 Adequate Emergency Access. The City shall require that new development provide adequate access for emergency vehicles, particularly firefighting equipment, as well as provide evacuation routes.

Goal LU-6 Effective Planning. Provide for orderly, well-planned, and balanced development.

Policy LU-6.1 Carefully plan for future development and proactively mitigate potential impacts.

Action LU-6.1.G. Maintain adequate staffing levels to support achieving the City's service level goals for police and fire protection.

### Parks and Recreation

Goal RW-2. To provide a variety of recreational facilities to meet the diverse needs of Stockton's residents, workers, and visitors.

Policy RW-2.2 Funding for Recreational Areas and Facilities. The City shall strive for adequate funding to meet the park standards in Policy RW-2.1 through development fees and State, Federal, and local grants to construct new recreational facilities.

### Schools

Goal PFS-9 To ensure that adequate school facilities are available to meet the needs of City residents.

Policy PFS-9.2 Funding for New School Construction. The City shall support school districts in maximizing the use of developer fees and other funding options (Mello-Roos districts) to fund new construction.

Policy PFS-9.5 School Funding To the extent allowed by State law, the City will require new projects to mitigate impacts on school facilities, which could occur through the use of developer fees. The City

will also work with school districts, developers, and the public to evaluate alternatives to funding/providing adequate school facilities.

#### Library Services

There are no local laws or regulations addressing library services that are relevant to the proposed project.

### Port of Stockton

#### West Complex Development Plan

As part of long-term planning for the West Complex, the Port identified and considered the types of development and operations that could occur based on existing infrastructure, approved land uses, and future regional consumer demand. The West Complex Development Plan (WCDP) was approved in 2004, along with certification of WCDP EIR.

#### City of Stockton Municipal Code

##### Section 16.72.260

Section 16.72.260 of the Stockton Municipal Code establishes a public facilities fee on the issuance of permits for development within the city. Subsection B.1 defines public facilities as City offices, fire stations, libraries, police stations, community recreation centers, street improvements, and water and sewage facilities. Per Subsection C, revenue from building permits will be used to pay for design and construction of designated public facilities, program development, and overall maintenance.

## 3.13.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to Public Services are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to Public Services would occur if the project would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
  - Fire protection?
  - Police protection?
  - Schools?
  - Parks and Recreation facilities?[2]
  - Other public facilities?

[2] As indicated in the Notice of Preparation issued June 1, 2023, the project is not anticipated to significantly impact recreation - and particularly does not involve any activities that might increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. This Environmental Impact Report therefore does not include a separate "Recreation" chapter, and whether the project would induce construction or expansion of recreational facilities which might have an adverse physical effect on the environment is evaluated in this chapter.

# 3.13.4 Impact Analysis

## 3.13.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to public services.

Evaluation of potential public service impacts was based on a review of documents identifying current level service standards for the local jurisdictions, including the Lassen County 2000 General Plan, Tuolumne County 2018 General Plan, Envision Stockton 2040 General Plan, Big Valley Fire Department, Tuolumne County Fire Department, Port of Stockton, and the U.S. Forest Service. Impacts on public services that would result from the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation.

## 3.13.4.2 Project Impacts

Impact SER-1 The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Feedstock for the proposed project will derive from Sustainable Forest Management Projects on public forest lands (federal, state, and tribal) or private lands zoned for timber production within the Working Area described in Section 2.4. It is anticipated that USFS and CAL FIRE would be the primary fire protection services for feedstock acquisition areas of the project, within Federal and State Responsibility Areas, respectively. Local fire departments and fire protection districts would have primary responsibility for Local Responsibility Areas. Note that mutual aid agreements may affect which agency is the "first" responder, but do not change who has overall financial responsibility. Please refer to Section 3.17 for a discussion about possible impacts relating to wildfire. It is not anticipated that the proposed project would result in an increase in a service demand for fire protection services such that additional facilities would be necessary. As stated in Chapter 2 of this EIR, one of the primary objectives of the proposed project is to reduce the possibility for wildfire across the state.

Vegetation management that would occur as a result of project operations would be temporary in nature. Therefore, the demand for law enforcement or other public services in the varying feedstock acquisition regions would not significantly increase and not necessitate the need for new or altered facilities for public services. Therefore, impacts would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

#### Fire Protection

The BVFD is one of 16 fire protection districts in the County and provides services over 105.3 square miles, including the project site. The BVFD has one joint station with CAL FIRE located in the town of Bieber, approximately 2.5 miles northeast of the project site. The staffing consists of ten active volunteer fire fighters. The services provided include response to structural and wildland fire, in addition to medical emergency within the scope of traffic or crowd control. Ambulance services are provided through Southern Cascades Medical Services and respond from the town of Adin, roughly 13.9 miles northeast of the project site. The most recent municipal services review for the fire districts in the County was circulated in December of 2020. This report concludes that the BVFD is functioning at an adequate level in collaboration with CAL FIRE. Further, the report predicts that the BVFD will have the capacity to continue functioning at this level into the future. This determination was also made in consideration to the County's estimated future population growth, or lack thereof, in the unincorporated areas of the County (LAFCo 2020).

The proposed project would involve the development of a wood pellet processing facility, consistent with existing zoning. The project would increase the service population at the project site. However, as discussed in Section 3.13, Population and Housing of this Environmental Impact Report (EIR), it was determined that the proposed project would not induce a significant permanent population growth in the surrounding areas of the project site as there is not a residential component to the project and employees would likely commute from around the region.

The project would introduce new structures to the project site, and storage of materials, that would comply with local, state, and federal regulations regarding fire code, protection, and safety to assist in minimizing the likelihood of a fire event. The storage of wood pellets can create a potential fire hazard under certain conditions. The methods to reduce the risk of fire are described in Chapter 2, Project Description, and further described in Section 3.8, Hazards and Hazardous Materials. These methods would substantially reduce the potential for fire related to the storage of wood pellets.

Through the increase in service population at the site, and the construction of new structures, the proposed project has the potential to slightly increase BVFD's calls for services. However, compliance with applicable regulations regarding fire code, protection, and safety, implementation of maintenance and operational measures as described in the project description, and the use of on-site fire suppression methods, would reduce the need for expanded fire protection facilities in the project vicinity. Impacts related to fire protection are **less than significant**.

#### Police Protection

The Lassen County Sheriff's Office provides law enforcement services to the project site. The only sheriff's station in the County is located in the City of Susanville, approximately 54 miles southeast of the project site. However, the Sheriff's Office has one assigned deputy to the Big Valley patrol post, which serves the town of Nubieber. As it was previously identified in Section 3.13 of this EIR, the proposed project would not result in unplanned population growth. The project is a 24-hour, 7 day/week operation, which limits the opportunity for property crime. In addition, the facility is secure, with a perimeter fence, and access controlled by manned gatehouses. A substantial increase in demand for police protection is therefore not anticipated. Should additional patrols be required in the project vicinity, the Sheriff's Office employs a residential patrol model, that would not result in new public facilities (the

construction of which could result in potential environmental impacts). The project would not increase the demand for police protection services in a manner that would require new facilities or the expansion of existing facilities. Impacts related to police protection would be **less than significant**.

### Schools

The project would not include residential uses. Although it is possible that the additional employment opportunities at the project site could induce population growth in the surrounding towns, it is anticipated that most of the jobs would be filled by commuters as it is consistent with the region's workforce patterns. As a result, the project is not expected to increase the demand on school facilities in the area. In addition, the project would be subject to school impact fees for non-residential construction. The payment of such fees are considered full mitigation for school facilities under CEQA. Impacts would be **less than significant**.

### Parks

The County manages the parks and recreation facilities throughout the County. The project would not involve development of residential uses or result in direct or indirect population growth that would, in turn, increase demand on regional parks and open spaces. Therefore, impacts related to parks and recreation resources would be **less than significant**.

### Library Facilities

The Lassen Library District is the only public library in the County and provides library services to the project site. As previously stated, the proposed project does not include any residential uses and is not anticipated to induce population growth that would, in turn, increase demand on regional libraries. Therefore, impacts related to library facilities would be **less than significant.**

## Tuolumne Facility

### Fire Protection

The project site is located within a State Responsibility Area. The primary fire response would come from the CAL FIRE Green Springs Station, located 0.25 miles from the project site. The project site is previously developed, and therefore has historically been served by existing fire facilities. The proposed project includes on site fire prevention and suppression systems (see also Section 3.8 Hazards and Hazardous Materials). New, or expanded, fire protection facilities would not be required in order to serve the project site.

The proposed project involves the development of a wood pellet production facility. The project would increase the service population at the project site, in the form of employees. However, as noted in Section 3.13, Population and Housing, the proposed project would not cause substantial population growth within the area, and thus would not increase the permanent population requiring fire and medical services. The project would introduce new structures to the project site, and storage of materials, that would comply with local, state, and federal regulations regarding fire code, protection, and safety to assist in minimizing the likelihood of a fire event. The storage of wood pellets can create a potential fire hazard under certain conditions. The methods to reduce the risk of fire are described in Chapter 2, Project Description, and further described in Section 3.8, Hazards and Hazardous Materials. These methods would substantially reduce the potential for fire related to the storage of wood pellets. Compliance with

General Plan policies in addition to local, state, and federal requirements would result in **less than significant** impacts to fire protection and emergency services.

#### Police Protection

The County Sheriff's Office provides law enforcement services within the County. The only Sheriff's Station in the County is located in the city of Sonora, approximately 12 miles northeast of the project site. As it was present in Section 3.13 of this EIR, the project would primarily employ individuals residing in the region and would not substantially increase the demand for housing or result in population growth. The County's General Plan anticipates a low level of population increase through the year of 2040. Based on the predicted growth percentage, the General Plan assumes that additional 23 Sheriff deputies will be added incrementally throughout their planning horizon. Therefore, there would not be significant impacts on the average response time of 3 minutes and 18 seconds. Furthermore, the potential for new facilities required to accommodate the additional law enforcement personnel have been addressed in the County's General plan. For these reasons, the project is not expected to increase demand for police protection services such that new or expanded facilities would be required. Impacts related to police protection would be **less than significant**.

#### Schools

The project would not include residential uses. Although additional employment opportunities at the project site could induce slight population growth in towns adjacent to the project site, it is anticipated that most of the jobs would be filled by people already living in the area, since the region has a reasonable workforce. Nevertheless, the proposed project would be required to pay impact fees to the Jamestown School District and the Sonora Union Highschool District for the construction of non-residential structures. The payment of such fees are considered full mitigation for school facilities under CEQA .Impacts related to school facilities would be **less than significant**.

#### Parks

The Tuolumne County Recreation Department provides park and recreation services to the project site. The proposed project would not involve development of residential uses and would not result in direct or indirect population growth that would, in turn, increase demand on regional parks and open spaces. Therefore, impacts related to libraries facilities would be **less than significant**.

#### Library Facilities

The County Library provides services to the project site. The proposed project would not involve development of residential uses and would not result in a direct or indirect population growth that would, in turn, increase demand on the regional libraries. Therefore, impacts related to libraries would be **less than significant.**

## Transport to Market

### Port of Stockton

#### Fire Protection

The SFD provides fire protection and emergency medical services to approximately 90 square miles, including the project site. SFD has a total of 13 fire station that are staffed by a total of 182 sworn personnel. The 13 SFD stations

are equipped with 3 four-person truck companies and 13 three-person fire engine companies. The first responding station to the project site would be Station 1.

The proposed project includes the construction of a purpose-built export terminal at an existing port. The project site is zoned for industrial use and would be used as such. Likewise, the proposed project is consistent with surrounding land uses. The project would add approximately eight (8) employees to the site and eight (8) full-time equivalent stevedore positions for ship loading operations. The project would introduce new structures to the project site, and storage of materials, that would comply with local, state, and federal regulations regarding fire code, protection, and safety to assist in minimizing the likelihood of a fire event. The storage of wood pellets can create a potential fire hazard under certain conditions. The methods to reduce the risk of fire are described in Chapter 2, Project Description, and further described in Section 3.8, Hazards and Hazardous Materials. These methods would substantially reduce the potential for fire related to the storage of wood pellets.

In addition to the measures for fire protection and suppression described above, under Stockton Municipal Code Section 16.72.260, the proposed project would be required to pay public facility impact fees to ensure proper mitigation of impacts from new development on public facilities. Compliance with applicable regulations regarding fire code, protection, and safety, implementation of maintenance and operational measures as described in the project description, and the use of on-site fire suppression methods, would reduce the need for expanded fire protection facilities in the project vicinity. Impacts related to fire protection are **less than significant**.

### Police Protection

The project facility would be located within the Port of Stockton, which is currently served by Port police. In addition, the Port is a secure facility. Only authorized persons are granted entry to the project site. The project would be served by the existing police staffing and facilities. No new or expanded police facilities are anticipated to serve the project. Therefore, the proposed project would have a **less than significant** impact on police protection services.

### Schools

The project would not include residential uses and would not generate additional students. It is anticipated that an additional eight employees, and eight full-time equivalent stevedore positions, will required at the Port. It is anticipated that the existing local workforce would be sufficient (and thus not generate additional students). In addition, the proposed project would pay impact fees to the Stockton Unified School District for the construction of non-residential structures. The payment of such fees are considered full mitigation for school facilities under CEQA.. Impacts related to school facilities would be **less than significant**.

### Parks

The City of Stockton provides park and recreation services to the City, including the project site. The project would not involve development of residential uses and would not result in a direct or indirect population growth that would, in turn, increase demand on regional parks or open spaces. Therefore, impacts related to parks and recreational resources would be **less than significant.**

### Library Facilities

The Stockton-San Joaquin County Library provides library services to the project site. The project would not involve development of residential uses and would not result in a direct or indirect population growth that would, in turn,

increase demand on regional libraries. Therefore, impacts related to parks and recreational resources would be **less than significant.**

### 3.13.4.3 Cumulative Impacts

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

Other vegetation management projects, as described in Section 3.0, would occur within Northern California. However, it is unlikely that such projects would interact in such a way as to increase service demands in a particular location. Furthermore, feedstock operations are temporary in nature, and occur only during working hours. Such projects would not require new or expanded facilities. The proposed project would not have a considerable contribution to a cumulative service impact.

#### Wood Pellet Production

##### Lassen Facility

As described in Section 3.0, no other cumulative projects have been identified in Big Valley that would result in substantial service needs. In addition, the County General Plan states that County will continue its working relationship with community service districts in considering approval of new development to help anticipate and mitigate expanding demands and impacts upon those services. The County General Plan includes policies to address the effects of growth, including a requirement that new development pay its fair share of costs for new fire and police protection facilities and services. The proposed project would not result in a considerable contribution to a cumulative service impact.

##### Tuolumne Facility

As described in Section 3.0, cumulative projects in the project vicinity may require additional services. The two planned biomass plants would create minimal service demand, similar to the proposed project, and would be served by existing facilities. The proposed project would not result in a considerable contribution to a cumulative service impact.

#### Transport to Market

##### Port of Stockton

As described in Section 3.0, other cargo projects are planned within the Port of Stockton. The Port has planned for such expansion in its West Complex Development Plan (WCDP), and accompanying EIR. The WCDP EIR concluded that the existing fire response capacity was sufficient for development of the West Complex. Likewise, while new development activities have the potential to incrementally increase the demand for law enforcement, it would not require new or expanded facilities. Furthermore, the proposed project is consistent with type and intensity of land uses evaluated in the WCDP EIR. The proposed project would generate a negligible demand on law enforcement services and the findings would be the same as those described in the WCDP EIR. The proposed project would not result in a considerable contribution to a cumulative service impact.

### 3.13.4.4 Mitigation Measures

No mitigation measures are required.

### 3.13.4.5 Significance After Mitigation

Impact SER-1 The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services. (Less than significant).

The project would not result in a significant impact to public services. No mitigation is required, as the potential impact is **less than significant**.

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# 3.14 Transportation

This section of the Draft EIR evaluates potential transportation impacts associated with the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing transportation conditions at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California (Stockton Terminal), and evaluates the potential for project-related transportation impacts, and considers proposed project design features that could reduce or eliminate associated impacts. Six (6) scoping comments were received regarding transportation in response to the Notice of Preparation (NOP) (see Appendix A).

## 3.14.1 Environmental Setting

### 3.14.1.1 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from California's private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities. Haul routes from the Sustainable Forest Management Projects to the production facilities are described below.

### 3.14.1.2 Northern California (Lassen Facility) Site

The following discussion provides an overview of the existing transportation setting throughout the study area.

#### Roadway Network

##### Site Access Roadways

The Lassen Facility Site is located southeast of Lassen State Highway (SR-299) and along the eastern edge of the community of Nubieber. Employee access to the site is provided via 4th Street to Washington Avenue and truck access is provided via Babcock Road.

**State Route 299 (SR-299) –** SR-299 is an east-west highway located north of the project site. SR-299 is a Caltrans designated truck route with primary access to the Lassen Facility and allows the use of both Surface Transportation Assistance Act (STAA) and California legal trucks. The posted speed limit is generally 55-65 miles per hour (MPH).

**Washington Avenue –** Washington Avenue is an east-west, two-lane, undivided roadway located west of the project site. Washington Avenue will provide primary personnel (passenger-car) access to the project site. There is no posted speed limit.[1]

**Babcock Road –** Babcock Road is an east-west, two-lane, undivided roadway located west of the project site. Babcock Road will provide truck access to the project site. There is no posted speed limit.

**Adams Avenue –** Adams Avenue is a north-south, two-lane, undivided roadway located west of the project site. Adams Avenue provides secondary personnel access to the project site. There is no posted speed limit.

## Haul Routes

Although the exact haul routes to be used at any given time would vary widely depending on the feedstock areas, the following local and state highways would constitute the majority of expected haul routes throughout the Working Area. A brief description of each route is provided below, and all routes for the Lassen feedstock area are shown in Figure 3.14-1, Feedstock and Haul Routes – Lassen Facility.

**State Route 139 (SR-139) –** SR-139 is a north-south highway located northeast of the project site. SR-139 is a Caltrans designated truck route with terminal access, and allows the use of both STAA and California legal trucks. South of Postmile Marker 43.3, SR-139 allows only trucks that are no longer than 65 feet as per the kingpin-to-rear-axle (KRPA) advisory. The posted speed limit is generally 55 MPH.

**US Route 395 (US-395) –** US-395 is a north-south highway located east of the project site. US-395 is a Caltrans designated truck route with terminal access, and allows the use of both STAA and California legal trucks. The posted speed limit is generally 65 MPH.

**State Route 89 (SR-89) –** SR-89 is a north-south highway located west of the project site. SR-89 is a Caltrans designated truck route with terminal access, and allows the use of both STAA and California legal trucks. A section of SR-89 runs through Lassen National Park, and this section is not a Caltrans truck route. Furthermore, the project's haul routes will not pass through this section of the highway. The posted speed limit is generally 55-65 MPH.

**State Route 36 (SR-36) –** SR-36 is an east-west highway located south of the project site. SR-36 is a Caltrans designated truck route and varies between allowing STAA trucks, 65 feet California Legal trucks, and 65 feet California KRPA advisory trucks. SR-36 allows STAA trucks from Red Bluff to Postmile Marker 64.0, and east of its junction with SR-147. SR-36 allows 65 feet California Legal trucks from Postmile Marker 39.7 to Postmile Marker 41.3, Postmile Marker 64.0 to Postmile Marker 75.2, and Postmile Marker 83.1 to the SR-147 junction at Lake Almanor. SR-36 allows 65 feet California KRPA advisory trucks from Postmile Marker 75.2 to Postmile Marker 83.1. The posted speed limit is generally 55-65 MPH.

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[1] For locations where there is no posted speed limit, Chapter 7. Speed Laws [22348 – 22431] of the California Vehicle Code (CVC) apply. Specifically:
- Per CVC Section 22349, the maximum speed limit for all California roadways is 55 mph on two lane undivided roadways and 65 mph on all other roadways.
- Per CVC Section 22352, prima facie limits [of 15 mph and 25 mph] are applicable unless changed as authorized in this code, and if so changed, only when signs have been erected giving notice thereof. A speed limit of 15 mph is applicable to uncontrolled railway crossings; blind, uncontrolled intersections; and alleyways. A speed limit of 25 mph is applicable to business and residential areas without other posted speed limits; school zones, and areas immediately around senior centers.

**US Route 97 (US-97) –** US-97 is a north-south, two-lane, undivided highway located northwest of the project site. US-97 connects I-5 to the Klamath Falls region and travels through Klamath National Forest. US-97 is a Caltrans designated truck route with terminal access, and allows the use of both STAA and California legal trucks. The posted speed limit is generally 65 MPH.

**Interstate 5 (I-5) –** I-5 is an is a north-south, divided, four to eight-lane freeway located to the west of the project site. I-15 is a major interstate freeway that begins near the Mexico—US Border and extends to Alberta, Canada, and serves as a critical connection for many other regional roadways, freeways, and highways. Caltrans classifies I-5 as a designated truck route on the National Network (STAA). The posted speed limit is 65 MPH.

## Transit

Transit in Lassen County is provided by Lassen Transit Service Agency (LTSA) which operates the Lassen Rural Bus, and has agreements with neighboring agencies for connecting services. The Lassen Rural Bus provides service with five routes: the Susanville City Route, the West County Route, the South County Route, the South County Commuter Route, and the Eagle Lake Route. There are no existing bus or transit routes that operate within a 1-mile radius of the project site. For additional reference, the Lassen Rural Bus routes, which primarily operate in and around the greater Susanville area, are described below.

The Susanville City Route provides service to local schools, government facilities, residential, and commercial areas within the city limit of Susanville. The route operates on weekdays from 7:00 a.m. to 7:00 p.m. with 60-minute headways. On Saturdays, the route operates from 8:00 a.m. to 4:00 p.m. with 60-minute headways.

The West County Route provides service between the cities and communities of Susanville, Westwood, Lake Almanor, and Chester (located in Plumas County). The route operates three times on weekdays: at 5:36 a.m., 12:10 p.m., and 5:15 p.m. The route operates twice on Saturdays at 8:20 a.m. and 3:00 p.m.

The South County Route provides service between the communities of Herlong, Janesville, Standish, Litchfield, Leavitt Lake, Johnstonville, and Susanville. The route operates twice a day on weekdays and Saturdays at 6:30 a.m. and at 3:00 p.m.

The South County Commuter Route provides service between the communities of Susanville, Janesville, Milford, and Herlong. The route operates twice a day on weekdays, at 5:00 a.m. and 5:00 p.m. A majority of the stops are restricted to the public, so riders must call in advance to schedule stops as needed. Additionally, the route is subject to year-round closures due to high winds and inclement weather.

The Eagle Lake Route provides service along the west side of Eagle Lake and between Susanville during summer months. The route operates twice a day only on Saturdays at 10:00 a.m. and 3:00 p.m. This route is available only by appointment, and riders must specify a designated pick-up location in their reservation.

Lassen Rural Bus also operates Dial-A-Ride which provides complementary paratransit service throughout Lassen County. Dial-A-Ride operates on weekdays from 7:00 a.m. to 6:50 p.m., and on Saturdays from 8:00 a.m. to 3:50 p.m. LTSA also partners with Big Valley 50 Plus, Lassen Senior Services, Sage Stage, Lassen College, and the Far Northern Regional Center to provide riders from the respective communities with service.

### Pedestrian and Bicycle Facilities

There are currently little to no pedestrian or bicycle facilities provided near the project site or within the community of Nubieber. The Caltrans District 2 Active Transportation Plan (ATP) (Caltrans 2022) identifies the needs for improvements throughout Lassen County, and additional pedestrian or bicycle facilities may be provided in the future; however, the ATP currently identifies the segment of SR-299 along the project site's frontage as a "Tier 3" Highway Segment, which indicates low relative priority for pedestrian and/or bicycle facility improvements. Additionally, this location was not identified to include a need through local public engagement per the ATP. The Lassen County Regional Transportation Plan (RTP), prepared for the Lassen County Transportation Commission (LCTC) (LCTC 2023), identifies SR-299 along the project site's frontage as a proposed Class II Bike Lane.

### Rail

The Lassen facility is bordered on its eastern side by the Burlington Northern Santa Fe Railway (BNSF). BNSF serves the site, and other commercial properties in Nubieber, with an existing railway siding that crosses the project site from east to west. The main line is owned and operated by BNSF from the project site to Keddie, in Plumas County, at which point the track is owned by Union Pacific Railroad (UPRR), but BNSF has trackage rights to Stockton.

Rail traffic counts indicate an average of 4 freight trains per day pass through Nubieber (a daily average of 5 including locomotives with no freight cars), with an average length of 69 rail cars, up to a maximum of 100 rail cars (NDS 2023).

## 3.14.1.3 Central Sierra Nevada (Tuolumne Facility) Site

The following discussion provides an overview of the existing transportation setting throughout the study area.

### Roadway Network

#### Site Access Roadways

The Tuolumne Facility Site is located south of State Route 120 (SR-120) and north of the unincorporated community of Keystone in Tuolumne County. Employee access to the site is provided via La Grange Road and the northern site access driveway and truck access the site is provide via the southern site access driveway.

**State Route 120 (SR-120) –** SR-120 is an east-west, two-lane undivided highway located north of the project site. SR-120 is a Caltrans designated truck route; in Tuolumne County, SR-120 has terminal access, and allows the use of both STAA and California legal trucks. In Mariposa County, SR-120 allows only trucks that are no longer than 65 feet as per the kingpin-to-rear-axle (KRPA) advisory. The posted speed limit is generally 55-65 MPH.

**La Grange Road – County Road J59 (CR-J59) –** La Grange Road is a north-south, two-lane, undivided roadway located along the western edge of the project site. La Grange Road will provide primary personnel access to the project site. The posted speed limit is 55 MPH.

**Yosemite Boulevard – State Route 132 (SR-132) –** SR-132 is an east-west, two-lane, undivided highway located south of the project site. SR-132 is a Caltrans designated truck route; west of the City of Modesto, SR-132 has terminal access, and allows the use of both STAA and California legal trucks. East of the City of Modesto, SR-132

allows only trucks that are no longer than 65 feet as per the California Legal Route. The posted speed limit is 45 MPH.

**Red Hill Road –** Red Hill Road is a north-south, two-lane, undivided, and unstriped roadway located northeast of the project site. There are no present sidewalks, or curbs, and the use of trucks heavier than 25 tons is prohibited. The posted speed limit is 25 MPH.

**Montezuma Road – State Route 49 (SR-49) –** SR-49 is a north-south, two-lane, undivided highway located northeast of the project site. SR-49 is identified as Montezuma Road from Postmile Marker (PM) 16.276 south of Chinese Camp to PM 11.587 at its intersection with SR-108. SR-49 provides regional access to the project site, and is a Caltrans designated truck route, wavering between a STAA and 65-foot California Legal Route with and without KPRA advisory. East of the Lassen Facility, SR-49 is an STAA route between its junction with SR-120 at PM 23.9 to Ponderosa Drive in Sonora (PM 17.3), and a 65-foot California Legal Route with KPRA advisory of 30 feet north from Ponderosa Drive to its junction with SR-4 in Angels Camp. The posted speed limit is generally 65 MPH.

**Site Access Driveways –** The site access driveways provide direct access to project site. The northern driveway, which is currently unpaved and not operational, will be improved and serve as the primary employee access to the site. The southern driveway, which is currently paved and operational, will provide primary truck access to the project site.

### Haul Routes

Although the exact haul routes to be used at any given time would vary widely depending on the feedstock areas, the following local and state highways would constitute the majority of expected haul routes throughout the Working Area. A brief description of each route is provided below, and all routes for the Tuolumne feedstock area are shown in Figure 3.14-2, Feedstock and Haul Routes – Tuolumne Facility.

**US Route 50 (US-50) –** US-50 is an east-west, two- to four-lane highway located north of the project site. US-50 is a Caltrans designated truck route; west of Postmile Marker 31.3 it is part of the National Network, and allows the use of both STAA and California legal trucks. East of Postmile Marker 31.3, US-50 allows only 65 feet California Legal trucks. The posted speed limit is generally 55-65 MPH.

**State Route 88 (SR-88) –** SR-88 is an east-west highway located north of the project site. SR-88 is a Caltrans designated truck route that varies between allowing trucks with terminal access and trucks that are 65 feet maximum in length. SR-88 allows STAA trucks from Stockton to Amador City, and from Postmile Marker 2.2 to its eastern terminus, and it allows only 65 feet California Legal trucks between Amador City and Postmile Marker 2.2. The posted speed limit is generally 55 MPH.

**State Route 4 (SR-4) –** SR-4 is an east-west highway located north of the project site. SR-4 is a Caltrans designated truck route that varies between allowing trucks with terminal access and trucks that are KPRA advisory sized. SR-4 allows STAA trucks from Stockton to Postmile Marker 8.1, and from its junction with SR-49 to Postmile Marker 3.0, and it allows only KPRA advisory sized trucks between Postmile Marker 8.1 to its junction with SR-49, and from Postmile Marker 3.0 to its eastern terminus. The posted speed limit is generally 55 MPH.

**State Route 108 (SR-108) –** SR-108 is an east-west highway located north of the project site, and overlaps with SR-120 from Oakdale to Yosemite Junction. SR-108 is a Caltrans designated truck route with terminal access, and

allows the use of both STAA and California legal trucks. From Postmile Marker 31.3 to its eastern terminus, SR-108 allows only KPRA advisory sized trucks. The posted speed limit is generally 55 MPH.

State Route 140 (SR-140) – SR-140 is an east-west highway located south of the project site. SR-140 is a Caltrans designated truck route with terminal access, and allows the use of both STAA and California legal trucks. The posted speed limit is generally 55-65 MPH.

State Route 41 (SR-41) – SR-41 is a north-south highway located south of the project site. SR-41 is a Caltrans designated truck route with terminal access, and allows the use of both STAA and California legal trucks, except for a small portion from Postmile Marker 45.7 to its northern terminus in Fresno County. The posted speed limit is generally 55 MPH.

State Route 168 (SR-168) – SR-168 is an east-west highway located south of the project site. SR-168 is a Caltrans designated truck route that varies between allowing trucks with terminal access, 65 feet California Legal trucks, and trucks that are KPRA advisory sized. SR-168 allows STAA trucks from Fresno to Postmile Marker 18.6, allows only KPRA advisory sized trucks between Postmile Marker 36.6 to Postmile Marker 49.7, and allows only 65 feet California Legal trucks from Postmile Marker 18.6 to Postmile Marker 36.3, and from Postmile Parker 49.7 to its eastern terminus. The posted speed limit is generally 55-65 MPH.

### Transit

Transit in Tuolumne County is provided by Tuolumne County Transit (TCT) which currently operates two bus routes and a Dial-A-Ride service. There are no existing bus or transit routes that operate within a 1-mile radius of the project site, or near the community of Keystone. However, for additional reference, the Tuolumne County Transit routes are described below.

The two TCT routes operate only on weekdays whereas the Dial-A-Ride service is available on Mondays through Saturdays. Route 1 provides service mainly within the Sonora and East Sonora communities, and operates from 7:30 a.m. to 7:30 p.m., with 60-minute headways. Route 2 provides service between the Columbia, Shaws Flat, Sonora, Crystal Falls, Sugar Pine, and Sierra Village communities, and operates five buses at 6:25 a.m., 9:30 a.m., 11:00 a.m., 1:30 p.m., and 4:40 p.m. The Dial-A-Ride service is reservation based and has an expansive service area throughout Tuolumne County; however, it does not service the project site area.

### Pedestrian and Bicycle Facilities

There are currently little to no pedestrian or bicycle facilities provided near the project site. The 2020 Tuolumne County Active Transportation Plan (ATP) (TCTC 2020) has identified the need for improvements in the area under Project Numbers ATP-County06 and ATP-County07 for SR-108 and SR-120, respectively, which both include installation of bikeways with 4- to 8-foot shoulders and buffers throughout Tuolumne County along these roadways, including the extent adjacent to the project site. These facilities are identified as “Tier 2” improvements as prioritized by the Tuolumne County Transportation Commission (TCTC), indicating improved facilities have received either community and/or local agency support, but would likely require more community outreach and project information prior to implementation.

### Rail

The Tuolumne facility is served by the Sierra Northern Railway (SERA). SERA owns and operates the track from the project site to Riverbank, at which point BNSF takes over as the carrier west to the Port of Stockton. Rail traffic counts were conducted within the City of Riverbank, near Patterson Road between Claus Road and Central Avenue. This point was selected as it is the point where westbound SERA traffic merges with the BNSF. Observed rail traffic indicates an average of 5 freight trains per day (a daily average of 7 including locomotives with no freight cars), with an average length of 9 rail cars, with a high of 26 rail cars (NDS 2023). Federal Rail Administration crossing data shows considerably more train traffic. The Patterson Road at-grade grade crossing (DOT #028767V) showed 16 daytime crossings and 16 night time crossings. Of the 32 trains, 12 were passenger trains, with the balance being freight trains (FRA 2023a).

## 3.14.1.4 Port of Stockton

### Roadway Network

As discussed in Section 2.7, finished pellets would be transported by rail from both the Lassen and Tuolumne facilities to the Port of Stockton, California. The proposed GSNR facility would be located in the West Complex of the Port, formerly known as Rough and Ready Island.

Regional vehicle access to the West Complex is provided by the Navy Drive Bridge and a parallel rail bridge on the west side, connecting to the main port, and the Port of Stockton Expressway Bridge to the south – the Expressway ultimately connects to Highway 4. The proposed GSNR facility would be located in the northwest quarter of the West Complex, on a relatively undeveloped site bordered by Davis Avenue, Boone Drive, Edwards Avenue, and Lipes Drive.

**Port of Stockton Expressway Bridge (Highway 4) –** The Expressway Bridge is an extension of Highway 4 that stretches from I-5 to Navy Drive. The Bridge is an east-west, four-lane, undivided roadway, and is designated as a Freeway in the City of Stockton General Plan Circulation Element. The posted speed limit is 65 MPH.

**Navy Drive –** Navy Drive is an east-west, two- to four-lane roadway that extends from the I-5/Charter Way interchange into the West Complex of the Port of Stockton and the proposed GSNR facility, serving as the primary truck route and point of entrance into the West Complex. Navy Drive is designated as an Arterial in the City of Stockton General Plan Circulation Element. The posted speed limit is 35 MPH.

**Fyffe Street –** Fyffe Street is an east-west, two-lane, undivided roadway that stretches from Navy Drive and to the west across the southern extent of West Complex. Fyffe Street provides access to James Drive and Davis Street into the proposed GSNR facility, and is identified as a Collector in the City of Stockton General Plan Circulation Element. The posted speed limit is 35 MPH.

### Transit

Transit in the City of Stockton is provided by San Joaquin Regional Transit District (RTD) which currently operates throughout the City of Stockton, Escalon, Ripon, Manteca, Lathrop, Tracy, and Lodi. There are no existing bus or transit routes that operate within a 1-mile radius of the project site within the Port. The nearest bus stop is located approximately 2-miles from the proposed GSNR facility, along Los Angeles Avenue, between Sonora Street and Hazelton Avenue, serving SJRTP Route 515. Route 515 extends from the City of Stockton Downtown Transit Center

(DTC) to the Marshall Elementary School to the south, and to the Washington Elementary School, located just north of the Port of Stockton Expressway Bridge.

### Pedestrian and Bicycle Facilities

There are currently little to no pedestrian or bicycle facilities located along the proposed GSNR facility frontage as the land adjacent and around the site is currently undeveloped, or generally within the Port of Stockton. The nearest bicycle facilities include Class I bike paths north of the Stockton Deep Water Channel and south of Charter Way along the San Joaquin River Levee Road, as well as a Class II bike lane along Lincoln Street east of I-5 (City of Stockton 2018).

### Rail

The Port of Stockton is served by Class I mainline carriers (BNSF and UPRR) and a Class III short line carrier, Central California Traction Company (CCTC). BNSF operates the Stockton Intermodal Facility on the southeast edge of the City, and UP operates a major intermodal facility and other terminal operations in Lathrop, California. In northern California, the Martinez Subdivision, Feather River Canyon, and Donner Pass routes serve the ports of Oakland and Stockton and are owned and dispatched by UPRR but serve BNSF through trackage right agreements.

CCTC is the short line operator for the Port. CCTC is jointly owned by BNSF and UPRR and operates 52 miles of freight service between Stockton and Lodi. CCTC connections are made with BNSF, UPRR, and the Stockton Terminal and Eastern Railroads, which runs from Stockton to Linden. The Port provides its own internal railway system with CCTC handling all switching and local movements within the Port; however, some tracks are owned and maintained by their respective customers (Anchor QEA LLC 2023).

The environmental analysis prepared for the *Port of Stockton Rail Bridge Replacement and Rail Improvement* Project (Anchor QEA LLC 2023) described 21 weekly train trips at the West Complex. However, prior to 2019, FRA rail crossing data shows 5 daily train trips (4 daytime, 1 night) within the West Complex at Fyffe Street (DOT #752931R), with an additional 2 switching trains per day (FRA 2023b). To provide context for overall Port rail activity, FRA data shows 10 daily crossings (6 day and 4 night), plus an additional 8 switching trains, at W. Washington Avenue (FRA 2019). The W. Washington Ave. line is operated by CCTC. Looking further east, the FRA data shows 16 daily crossings (8 daytime and 8 night) at the BSNF line at S. Lincoln Street, and 10 daily crossings (FRA 2023c).

## 3.14.2 Regulatory Setting

### 3.14.2.1 Federal

### United States Department of Agriculture Forest Service

The California Department of Agriculture (USDA) Forest Service maintains roadways within the feedstock acquisition area. Commercial Use of Forest Development Roads is regulated under the authority of Title 36 of the Code of Federal Regulations. Per Regional Forester Order 98-2, use of a National Forest System Road or Forest Development Road for commercial hauling is prohibited without a permit or written authorization. Commercial vehicle activity subject to a Road Use Permit would include logging trucks, as well as other vehicles, including but not limited to, tractor-trailer combinations, lowboys, yarders, chip vans, sand, gravel, or cement trucks.

### 3.14.2.2 State

#### Senate Bill 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law, which created a process to change the way transportation impacts are analyzed under CEQA. SB 743 required the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to level of service (LOS) as the metric for evaluating transportation/traffic impacts. Under the new transportation guidelines, LOS or vehicle delay, is no longer considered an environmental impact under CEQA. Amendments to the CEQA Guidelines required under SB 743 were approved on December 28, 2018, and the new section 15064.3 identifies vehicle miles traveled (VMT) as the most appropriate measure of transportation impacts under CEQA and is currently being implemented as of July 1, 2020.

Related legislation, SB 32 (2006) requires California to reduce greenhouse gas emissions 40% below 1990 levels by 2030. The California Air Resources Board has determined that it is not possible to achieve this goal without reducing VMT growth and specifically California needs to reduce per capita VMT across all economic sectors. SB 743 is primarily focused on passenger-cars and the reduction in per capita VMT as it relates to individual trips.

The OPR Technical Advisory (OPR 2018) provides guidance and tools to properly carry out the principles within SB 743 and how to evaluate transportation impacts in CEQA. Specific County guidance and thresholds are discussed in Section 3.14.2.3, where applicable.

#### California Department of Transportation

The California Department of Transportation (Caltrans) manages the state's highway facilities. Caltrans is responsible for constructing, enhancing, and maintaining the state highway and interstate freeway systems. Any change to the state roadway system requires an encroachment permit from Caltrans. As the owner and operator of the State Highway System, Caltrans implements established state planning priorities in all functional plans, programs, and activities. Caltrans has the responsibility to coordinate and consult with local jurisdictions when proposed local land use planning and development may impact state highway facilities.

To comply with SB 743 implementation, the Caltrans Transportation Impact Study Guide (Caltrans 2020a), replaced the Guide for the Preparation of Traffic Impact Studies (Caltrans 2002). Per the 2020 Transportation Impact Study Guide, Caltrans' primary review focus is VMT, replacing LOS as the metric used in CEQA transportation analyses. Caltrans recommends use of OPR's recommended thresholds and guidance on methods of VMT assessment found in OPR's Technical Advisory (OPR 2018). In addition to VMT, Caltrans has developed an Interim Local Development and Intergovernmental Review Safety Review Practitioners Guidance (December 2020) which may request a targeted operational and safety analysis to address a specific geometric or operational issue related to the State Highway System and connections with the State Highway System (Caltrans 2020b). To comply with this requirement, an assessment of queuing at study area intersections with Caltrans roadways has been included in the EIR.

#### California Public Utilities Commission (PUC)

The Public Utilities Commission of the State of California (PUC) includes Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossings pursuant to General Order (G.O.) No. 75-D, adopted August 24, 2006; effective September 23, 2006. Development of the Tuolumne Facility Site would include the

paving and reopening of an existing driveway (currently gated and overgrown) for employee vehicle access located at the northwestern corner of the site. This crossing would occur on privately-owned land, and would be subject to Section 7 (Private At-Grade Crossings) of G.O. No. 75-D, which includes the following regulations:

### 7. Private at-grade crossings

**7.1.** Pursuant to Public Utilities Code Section 7537, the Commission has the authority to determine the necessity for any private at-grade crossing and the place, manner, and conditions under which the at-grade crossing shall be constructed and maintained, and to fix and assess the cost and expense thereof. The Commission exercises such jurisdiction when it is either petitioned by one of the parties or Commission staff.

**7.2.** The establishment of a private at-grade crossing, other than a private at-grade crossing of the railroad tracks by the owning railroad, must be authorized through a written agreement between the railroad and the party requiring the crossing.

**7.3.** Standard 1-X. "PRIVATE CROSSING" sign shall be installed at all private at-grade crossings. See Figure 6 for additional specifications.

**7.4.** At all approaches to private at-grade crossings there shall be installed either a STOP sign (defined as a Standard R1-1 in the CA MUTCD) or an automatic warning device described in Sections 6.2 through 6.6.

a) If a STOP sign is used, the Standard 1-X sign shall be mounted on the post below it.
b) If a Standard 8, 8-A, 9, 9-A, or 9-E device is used, the Standard 1-X sign shall be attached to the mast of the warning device below the flashing light signals.

**7.5.** The language contained in the lower portion of the "PRIVATE CROSSING" sign shown in Figure 6 (in Public Utilities Code Section 7537), commencing with, and including the words "No Trespassing", shall be permitted at the option of the railroad.

## 3.14.2.3 Local

### Lassen County

#### Lassen County General Plan

The Circulation Element of the Lassen County General Plan (Lassen County 1999) provides the framework for decisions in Lassen County concerning the countywide transportation system, and includes the general location and extent of the existing and proposed major thoroughfares, transportation routes, terminal, and other local public utilities and facilities. The Circulation Element is also intended to support the goals, objectives, policies, and proposals of the Land Use Element. Specific goals and policies identified in the Circulation Element that are relevant to the proposed project are identified below.

Goal C-1. A comprehensive, efficient and safe transportation system to serve the needs of County residents and to stimulate the economic progress of the County.

Policy CE-1. Designated major circulation routes are indicated on the enclosed Lassen County Circulation Map. This map has been prepared after consideration of and in correlation with the Land Use Element of the General Plan. Local roads are not indicated in this element.

Policy CE-2. The County shall pursue receipt of funds from the California Transportation Commission and the local transportation planning agency to help maintain the County Road System.

Policy CE-3. Encourage city, state, and Federal agencies to consult with the County in the planning of major roads projects, and to adequately maintain their road systems to serve recreationists and people and businesses who rely upon the use of resources on or near public lands in Lassen County. The County may consider the acceptance of Federal Forest Roads into the County-maintained road system when such roads are planned and developed in consultation with the County.

Policy CE-6. The County shall continue to review and, when warranted, formulate improved standards for the necessary improvement and maintenance of roads serving new development, including standards for the incremental improvement or development of public roads.

Policy CE-10. In consideration of proposed projects which would generate a substantial number of large trucks carrying heavy loads, the County shall require special mitigation measures to ensure that those projects do not cause, or will adequately mitigate, significant deterioration of County roads.

Policy CE-C Pursuant to impacts evaluated in an environmental impact report or other form of project review, the County may require mitigation measures which will insure that project developers adequately and fairly compensate or participate with the County in the necessary upgrading and/or repair of the affected roads.

Policy CE-12. No public highway or roadway should be allowed to fall or exist for a substantial amount of time at or below a Level of Service rating of "E"

### Lassen County Regional Transportation Plan (2023-2043)

The Lassen County Regional Transportation Plan (RTP) was prepared for the Lassen County Transportation Commission (LCTC) to identify future transportation improvement projects and funding throughout the County (LCTC 2023). As noted in Section 3.14.1.2, the RTP identifies proposed Class II Bike Lanes along SR-299 adjacent to the project site's frontage. Additionally, the RTP provides general regional transportation goals and proposed transportation improvement projects consistent with those goals. The applicable major goals listed in the RTP are identified below and reviewed in Section 3.14.4.

Goal 1. Develop and maintain a comprehensive, efficient, and safe transportation system to serve the needs of County residents and to stimulate the economic progress of the County.

Goal 2. To provide adequate cost-effective public transit services, especially to accommodate the needs of the elderly and handicapped.

Goal 3. Promote the continuous flow of goods in, out of, and through the County in a safe and economically efficient manner.

Goal 5. Provide a safe and efficient bicycle and pedestrian circulation system that takes advantage of the natural scenery and physical characteristics of Lassen County.

Goal 6a. Minimize traffic congestion by increasing the efficiency of the existing transportation system through Transportation System Management (TSM) techniques.

Goal 6b. Where feasible, reduce the demand for travel by Single Occupant Vehicles (SOVs) through Transportation Demand Management (TDM) techniques.

Goal 7. Reduce GHG emissions from transportation-related activities within the Lassen County boundaries to support the state's efforts under AB-32 and to mitigate the impact of climate change.

### Caltrans District 2 Active Transportation Plan (ATP) 2022

Caltrans developed a Caltrans District 2 Active Transportation Plan (ATP) 2022, with input from each county, including Lassen County. There are no specified routes planned, but the ATP outlines needs for the Lassen community. The ATP identified the need for sidewalk improvements along main roadways, improvements for pedestrian and bicycle crossings, and freeway crossings. Caltrans anticipates an update to the ATP in 2024 to align with Complete Streets targets for the 2024 State Highway Operations and Protection Program.

### Lassen County Code

The following standards are included in the code, and would be applicable to any improvements to public roadways for access to the project site.

#### Section 16.32.090. Street requirements and definitions

(3) Paved Rural Streets. Paved rural streets shall be required:

(A) Where it is anticipated that, due to the General Plan designation of the property or lands in the area, the ultimate road standard necessary to serve the area would be a paved street; or

(B) For divisions of property where more than ten parcels are, or will be, served by the access road for the project.

Construction of paved rural streets shall be in conformance with the standards for Road Section Number 3, as illustrated in the diagram below, and will be considered for acceptance into the county maintained road system.

(4) Unpaved Rural Streets. This classification of roadway is intended to serve projects which are located in areas where it is determined by the approving body, through the discretionary consideration of the project, that it is not necessary to improve the road to a paved standard. Unpaved rural streets shall meet all of the following requirements:

(A) Unpaved rural streets shall be permitted for divisions of property where ten or fewer existing or proposed parcels will be served by the access road after recordation of the final map, parcel map or parcel map waiver.

(B) The required width shall be determined by the approving body, in accordance with the following:

(i) When it is not anticipated that the future density of property or the surrounding area would require improvement of the roadway to a paved standard, a twenty-six-foot width shall be applied.

(ii) When the approving body determines that there is a reasonable possibility that the roadway will require improvement to a paved standard, a twenty-eight-foot width shall be applied, pursuant to the standards set forth in this chapter.

## Tuolumne County

### Tuolumne County General Plan

The Transportation Element of the Tuolumne County General Plan (County of Tuolumne 2018) provides the framework for decisions in Tuolumne County concerning the countywide transportation system. Specific goals and policies identified in the Transportation Element that are relevant to the proposed project are identified below.

Goal 4A. Preserve the County's substantial investment in the existing road system and provide for the long-range planning and development of the County's transportation system for the safe and efficient movement of people and goods.

Policy 4.A.1. Support and work with the TCTC to regularly conduct assessments of the current status of the highway system to determine the current level of needs in the system, and report those needs to the Board of Supervisors.

Policy 4.A.a. Plan, design and regulate roadways in accordance with the following functional classification system and designations which are reflected in the County's Regional Transportation Plan, and are shown on the Master Plan of Streets and Highways in Chapter 4 of the General Plan Technical Background Report:

- Other Freeways and Expressways (Functional Class Code 2)
- Other Principal Arterial (Functional Class Code 3)
- Minor Arterial (Functional Class Code 4)
- Major Collector (Functional Class Code 5)
- Minor Collector (Functional Class Code 6)
- Local Road (Functional Class Code 7)
- Scenic Routes
- Urban Streets

Policy 4.A.b. Develop and manage the County's roadway system to maintain the following minimum levels of service (LOS)[2] using methodology adopted by the Tuolumne County Transportation Council:

- **Arterials, Minor Collectors, Major Collectors, Urban Streets:** LOS D, unless an exception is made
- **Local Road:** LOS C
- **Minimum Peak Hour of all Intersections:** LOS D

Policy 4.A.c. Establish priorities based on available funding for road improvement projects while balancing the need to support employment generating uses, affordable housing, and educational facilities. Emphasize, consistent with legal and funding constraints, the following road improvement projects in the County Road Improvement Program:

Policy 4.A.2. Dedicate, widen and construct roads according to design and access standards generally defined in Chapter 4 of the General Plan Technical Background Report and, more specifically, the County Ordinance Code and the Countywide Traffic Circulation Improvement Program. Exceptions to these standards may be necessary and shall be approved by the Community Resources Agency Director, who shall ensure that safe and adequate public access and circulation are preserved by such exceptions.

Policy 4.A.g. Require local roads serving new development to be aligned with existing local roads on abutting properties and extend existing roads to link with other roads wherever possible to provide continuity and provide safety in the local road system.

Policy 4.A.h. Accommodate through traffic in a manner that discourages the use of neighborhood Local Roads. This through traffic, particularly truck traffic, shall be directed to appropriate routes in order to maintain public safety and local quality of life by using design measures, such as appropriate signage and traffic calming devices.

Policy 4.A.i. Maximize intersection spacing on arterial and collector roadways and thoroughfares and minimize driveway encroachments. Except where specific site conditions warrant, no new intersection of a local road or new driveway with an arterial or collector road shall be closer to an existing local road or driveway than 500 feet in rural areas or 200 feet within urban areas.

Policy 4.A.5. Consider the traffic impacts of development in relation to General Plan growth policies and require new development to provide mitigation for its fair share of impacts to the County's transportation system. Assess the needs of street and road users regularly through the land development application review process.

[2] The County may allow exceptions to these level of service standards where it finds that the improvements or other measures required to achieve the LOS standards are unacceptable. In allowing any exception to the standards, the County shall consider the following factors, including congestion/delays, rights of way, environmental impacts, safety, aesthetics, alternative transportation modes, and other geographical, environmental, social or economic factors on which the County may base findings to allow an exceedance of the standards. Exceptions to the standards will only be allowed after all reasonably feasible measures and options are explored.

Policy 4.A.p. Evaluate and analyze the traffic impacts of proposed land uses in relation to stated goals and objectives of the General Plan since growth policies regarding land use decisions directly affect the existing and future transportation system.

Policy 4.A.q. Evaluate the impacts of new development on the County's transportation system and require such development to provide mitigation for its fair share of the impact. New development that is determined by the County to create or exacerbate an identified deficiency in the transportation system may not be approved if a plan and funding program to provide needed roadway improvements have not been approved and if the mitigation provided by the development will not correct the deficiency or if it will create an additional burden on County transportation funds. This implementation program shall not apply to new development for which the County makes a finding of overriding considerations for traffic impacts related to the new development in accordance with the California Environmental Quality Act.

Policy 4.A.r. Implement Vehicles Miles Traveled for evaluating transportation impacts under CEQA to be consistent with SB 743.

Policy 4.A.6. Strive to maintain all components of the transportation system at adopted level of service standards.

Policy 4.A.t. Require new development to mitigate that development's impacts on the local and regional transportation system through the fair share contribution of improvements to the master planned system and/or the payment of Traffic Impact Mitigation Fees. Exceptions to the payment of traffic impact mitigation fees may apply to land uses listed in the Traffic Impact Mitigation Fee Schedule or when alternative sources of funding can be identified to offset foregone revenues.

Goal 4B. Encourage the use of alternative means of transportation by providing safe bicycle and pedestrian facilities within urban development boundary areas and between identified communities thereby reducing road congestion which improves circulation, health and air quality within the County.

### Tuolumne County Regional Transportation Plan (RTP)

The Tuolumne County Regional Transportation Plan (RTP) was prepared for the Tuolumne County Transportation Commission (TCTC) to identify future transportation improvement projects and funding throughout the County (TCTC 2017). The RTP provides general regional transportation goals and proposed transportation improvement projects consistent with those goals. The applicable regional goals listed in the RTP are identified below and reviewed in Section 3.14.4.

Regional Goal 1: Enhance the quality of life of Tuolumne County residents by providing transportation access to jobs, housing, recreation, and community services.

Regional Goal 5: Practice environmental stewardship by protecting our air quality, natural resources, historical and cultural assets.

Regional Goal 6: Integrate land use and transportation decisions by prioritizing infrastructure investments within the Defined Community Boundaries that strikes a balance between development, available infrastructure, conserves natural resources, and provides for a high quality of life.

Regional Goal 7: Consider transportation safety, and security in all transportation funding decisions.

Regional Goal 8: Support a vibrant economy by enhancing the movement of goods and people to spur economic development, growth, and job creation.

### Tuolumne County Active Transportation Plan (ATP) 2020

The Tuolumne County Active Transportation Plan (ATP) 2020 was prepared by the Tuolumne County Transportation Council, and outlines needs, goals, and objectives to promote and maintain a reliable, flexible, and multimodal transportation system for Tuolumne County residents, and is consistent with the General Plan. The ATP identifies the following primary goals as they relate to the active transportation network:

Goal 1. Develop a transportation system that maximizes the use of transportation facilities in the most efficient and cost-effective way.

Goal 2. Plan for a balanced multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel.

Goal 3. Plan, support, and implement Smart Mobility Framework and Context Sensitive Solutions

## City of Stockton

### Envision Stockton 2040 General Plan

The Envision Stockton 2040 General Plan Transportation Element outlines goals and policies for both the City and Port of Stockton. Specific goals and policies identified in the Transportation Element that are relevant to the proposed project operations at the Port are identified below:

Goal TR-1. Mobile Community. Provide an integrated transportation system that enables safe and efficient movement of people and goods for all modes of travel.

Policy TR-1.1. Ensure that roadways safely and efficiently accommodate all modes and users, including private, commercial, and transit vehicles, as well as bicycles and pedestrians and vehicles for disabled travelers.

Policy TR-1.2. Enhance the use and convenience of rail service for both passenger and freight movement.

Policy TR-1.3. Facilitate expanded port and airport operations, service, and development as travel and goods movement assets to the community and sources of employment growth.

Goal TR-4. Effective Transportation Assessments. Ensure that traffic-related impacts of proposed land uses are evaluated and mitigated.

Policy TR-4.2. Replace LOS with: (1) vehicle-miles traveled (VMT) per capita; and (2) impacts to non-automobile travel modes, as the metrics to analyze impacts related to land use proposals under the California Environmental Quality Act, in accordance with SB 743.

Policy TR-4.3. Use the threshold recommended by the California Office of Planning and Research for determining whether VMT impacts associated with land uses are considered significant under State environmental analysis requirements.[3]

### West Complex Development Plan (WCDP)

The West Complex Development Plan (WCDP), includes planned development and growth of the West Complex within the Port of Stockton. The 2004 WCDP EIR found environmental impacts related to trip generation related to the additional truck traffic to the Port, as well as other impacts related to the overall projected increase of traffic associated with implementation of the WCDP under Cumulative 2020 conditions. An addendum to the EIR was completed in 2021 (Denmar Addendum), which reviewed remediation, construction, and operational changes planned for the Denmar terminal, and compared existing operations of the West Complex with the original projections for the year 2020 assumed under the WCDP. Findings in the Denmar Addendum showed that existing West Complex trip generation fell significantly below projected values reported in the 2004 EIR, as noted below.

- Trucks
  - WCDP EIR Project Calls (2020): 1,327,350
  - Existing West Complex Calls (2019): 274,343
- Ships
  - WCDP EIR Project Calls (2020): 150
  - Existing West Complex Calls (2019): 43
- Trains
  - WCDP EIR Project Calls (2020): 240
  - Existing West Complex Calls (2019): 188

Consistency with the WCDP, WCDP EIR, and subsequent Denmar Addendum to the WCDP EIR are reviewed in the impact analysis below, where applicable.

### Port of Stockton Rail Bridge Replacement and Rail Improvement

The Final Environmental Assessment (FEA) for the Port of Stockton Rail Bridge Replacement and Rail Improvement Project was completed in March 2023, and evaluated the effect of the United States Coast Guard's (USCG) issuance of a Bridge Permit that would "result in removal and replacement of the Port of Stockton's functionally obsolete rail swing bridge over the San Joaquin River and the related construction of a new lead track to increase the overall efficiency of train operations within the Port" *(*Anchor QEA LLC 2023). The Rail Improvement Project would replace the existing single-track bridge connecting the East and West Complexes with a double-track span, to accommodate the Port's growth and reduce system bottlenecks. The FEA indicates that the current Port's rail system serves 21 trains per week, with a project increase to 34 trains by 2026. The replacement bridge would also be designed to handle 286k and 315k unit trains, which would support the Port's goals of more efficient movement of cargo by rail instead of by trucks.

[3] The updated City of Stockton TIA Guidelines were adopted May 2, 2023, and establish VMT thresholds and screening criteria, consistent with City's General Plan Policy TR-4.3.

Findings in the FEA found that the proposed Rail Improvement Project would avoid significant environmental impacts, with short-term, minor, adverse impacts and short-term, minor beneficial impacts to transportation. Additionally, no mitigation measures were identified for transportation-related impacts.

## 3.14.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to transportation are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to transportation would occur if the project would:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?

## 3.14.4 Impact Analysis

### 3.14.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to transportation, where applicable.

Transportation information and data for this analysis was primarily obtained from the Golden State Natural Resources Forest Resiliency Demonstration Project's Transportation Impact Studies (TIS) for the Lassen Facility and the Tuolumne Facility, both prepared by Dudek, February 2024 (Appendices I2 and I3, respectively).

#### Project Vehicle Trips

The project vehicle trip generation associated with the Lassen and Tuolumne pellet processing facilities are summarized in Table 3.14.1 below, and additional project trip information is provided in the TIS's as well as in Section 2 of this EIR. In addition, the programs, plans, ordinances, and policies listed in Section 3.14.2, were analyzed for their applicability to the proposed project's vehicle operations.

**Table 3.14-1. Vehicle Trip Generation Summary (Lassen and Tuolumne Facilities)**

| Vehicle Type | Daily Quantity | | Daily Trips | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In | Out | Total | In | Out | Total |
| **Lassen Facility** | | | | | | | | | |
| Employees (Passenger Vehicles)[1] | 60 | workers | 120 | 28 | 16 | 44 | 16 | 0 | 16 |
| Logging/Haul Trucks (day)[2] | 191 | trucks | 383 | 16 | 16 | 32 | 16 | 16 | 32 |
| Logging/Haul Trucks (night)[2] | 82 | trucks | 164 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ash Removal[3] | 1 | trucks | 2 | 1 | 0 | 1 | 0 | 1 | 1 |

**Table 3.14-1. Vehicle Trip Generation Summary (Lassen and Tuolumne Facilities)**

| Vehicle Type | Daily Quantity | | Daily Trips | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In | Out | Total | In | Out | Total |
| **Lassen Facility Total** | | | **669** | **45** | **32** | **77** | **32** | **17** | **49** |
| **Tuolumne Facility** | | | | | | | | | |
| Employees (Passenger Vehicles)[1] | 51 | workers | 102 | 25 | 13 | 38 | 13 | 0 | 13 |
| Logging/Haul Trucks (day)[2] | 82 | trucks | 165 | 7 | 7 | 14 | 7 | 7 | 14 |
| Logging/Haul Trucks (night)[2] | 36 | trucks | 71 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ash Removal[3] | 1 | trucks | 2 | 1 | 0 | 1 | 0 | 1 | 1 |
| **Tuolumne Facility Total** | | | **340** | **33** | **20** | **53** | **20** | **8** | **28** |

1 Assumes employee arrivals and departures coincide with shift times.

2 Trucks are assumed to arrive and depart the site throughout the day. Feedstock would be received 24 hours per day, with 70 percent of total daily feedstock expected to be received across 12 hours from 7am to 7pm, and 30 percent of total daily feedstock to be received overnight from 7pm to 7am.

3 Ash removal may occur at any time of the day; 1 truck trip is assumed to arrive during the AM peak hour and depart during the PM peak hour for the purposes of this analysis. Ash removal would occur once every two days at Lassen, and once every four days at Tuolumne.

### Project Train Trips

The project train trip generation associated with the Lassen and Tuolumne pellet processing facilities, along with the train trips accessing the Stockton Terminal, are summarized in Table 3.14.2 below. Train trips would be generated from both the Lassen and Tuolumne Facilities, traveling to the Port of Stockton, along established BNSF, UP, CCTC, and SERA)railways.

Additional project train trip information is provided in the TIS's as well as in Section 2 of this EIR. As with vehicle operations, the programs, plans, ordinances, and policies listed in Section 3.14.2, were analyzed for their applicability to the proposed project's train operations.

**Table 3.14-2. Train Trip Generation Summary (Lassen and Tuolumne Facilities; Stockton Terminal)**

| Location | Daily Train Trips | | | Annual Train Trips | | |
|---|---|---|---|---|---|---|
| | Existing | Project | Existing plus Project | Existing | Project | Existing plus Project |
| Lassen Facility[1] | 0 | 1 | 1 | 0 | 70 | 70 |
| Tuolumne Facility[1] | 0 | 0 (12-14 cars) | 0 (12-14 cars) | 0 | 0 (+3,000 cars) | 0 (+3,000 cars) |
| Stockton Terminal[3] | 3 | 1 (+ 12-14 cars) | 4 (+ 12-14 cars) | 1,092[1] | 70 (+3,000 cars) | 1,162 (+3,000 cars) |

1 The Lassen facility would generate one unit train, consisting of 100 cars, every 5 days (70 per year), which is rounded up in the table as a maximum of 1 train per day.

2 The Tuolumne Facility will only generate "manifest" train trips, which indicate the addition of train cars to an existing train already in operation. The Tuolumne Facility will not generate the need for an additional unit train. Thus, the Tuolumne Facility shows the increase in the number of rail cars, rather than in increase in train trips. A full description of manifest and unit train trips is provided in Section 3.14.4.2.

3 Existing daily and annual train trips estimated from Port of Stockton FEA (Anchor QEA LLC 2023), which reports an average of 21 trains per week served by the Port's rail system.

Additional methodology related to the impact analysis is provided below.

## Vehicle Miles Traveled

The CEQA Guidelines state that "generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts" and define VMT as "the amount and distance of automobile travel attributable to a project." "Automobile" refers to on-road passenger vehicles, specifically cars and light trucks. Other relevant considerations may include the effects of a project on transit and non-motorized travel.

The Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) provides technical assistance and recommendations for the analysis of VMT. The methodology recommendations for the VMT analysis include a discussion on vehicle types. An excerpt from the OPR Technical Advisory regarding vehicle types is below:

> **"Vehicle Types.** Proposed Section 15064.3, subdivision (a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. Heavy-duty truck VMT could be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT). For an apples-to-apples comparison, vehicle types considered should be consistent across project assessment, significance thresholds, and mitigation."

Per Section 21099 of the Public Resource Code, the selection of the VMT criteria for determining the significance of transportation impacts was intended to promote reductions of greenhouse gas emissions (GHG); to develop multimodal transportation networks; and to diversify land uses. As mentioned in OPR's Technical Advisory, there are various legislative mandates and state policies that establish quantitative GHG emission reduction targets. Pursuant to Senate Bill 375, the California Air Resources Board GHG emissions reduction targets for metropolitan planning organizations (MPOs) call for reductions in GHG emissions only from cars and light trucks. As such, VMT impacts are analyzed based on the number of employee trips within the specified boundary area, and not logging/haul truck trips.[4]

VMT was analyzed at both the Lassen and Tuolumne wood pellet production locations, where the largest concentration of employee trips would occur. OPR provides the following screening guidance to determine if a project should be expected to cause a less-than-significant impact (OPR 2018):

- **Screening Threshold for Small Projects:** Projects that generate or attract fewer than 110 trips per day and are consistent with a Sustainable Communities Strategy (SCS) or general plan.
- **Map-Based Screening for Residential and Office Projects:** Projects located in areas with low VMT that incorporate similar features (i.e., density, mix of uses, transit accessibility).
- **Presumption of Less Than Significant Impact Near Transit Stations:** Certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an

[4] Impacts related to logging/haul truck trips are accounted for in Chapter 3.7 – Greenhouse Gas Emissions.

existing major transit stop[5] or an existing stop along a high quality transit corridor[6] will have a less-than-significant impact on VMT. This presumption would not apply, if the project:

- Has a Floor Area Ratio (FAR) of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking)
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization)
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units

- **Presumption of Less Than Significant Impact for Affordable Residential Development:** A project consisting of a high percentage of affordable housing may be basis for the lead agency to find a less-than-significant impact on VMT.
- **Presumption of Less Than Significant Impact for Local Serving Retail:** Locally serving retail projects, less than 50,000 square feet.

If a project does not meet the above screening criteria, consistent with the OPR guidelines (OPR 2018) and CEQA Guidelines Section 15064.3(b), the following specific VMT metrics are recommended to complete a VMT impact assessment:

- **Residential Projects:** VMT per resident for all home-based trips.
- **Employment[7] Projects:** VMT per employee for only the home-based-work trip purpose[8]
- **Regional Retail (>50,000 square feet):** Total VMT per service population for trips taken by both workers and visitors.
- **Mixed-Use:** Total VMT per service population.
- **Other:** Total VMT per service population for trips taken by both workers and visitors.

### Lassen County

The County of Lassen does not have established VMT thresholds or standards; as such, use of OPR's guidance is provided in this analysis. OPR recommends a 15% reduction from baseline VMT per capita or per employee for

5 PRC Section 21064.3: "'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods."

6 PRC Section 21155: "For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours."

7 The OPR Guidelines do not provide a category for all employment generating land uses, referring to use of the VMT per employee metric for "office" projects. However, pursuant to CEQA Guidelines, § 15064.7(c), w*hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.* Several agencies have adopted their own thresholds of significance utilizing this metric for not only purely office projects, but also for industrial or similar employment generating uses as well. Under the Tuolumne County VMT Thresholds Resolution and Staff Report on August 4, 2020 (County of Tuolumne 2020), the County of Tuolumne adopted the VMT per employee metric for both office and industrial employment projects. Additionally, the City of Stockton TIA Guidelines, adopted on May 2, 2023 (City of Stockton 2023), also indicate that in general, work-related land uses may be treated like the office land use. As the automobile trips associated with the proposed project are generated by employees (e.g., trips originating from a residence with the primary destination being a place of employment), the VMT per employee metric utilized in this analysis is consistent with the intent of the OPR guidance and as adopted by both the City of Stockton and County of Tuolumne.

8 A home-based-work trip is any trip where the home is either the origin or destination of the trip, and the non-home end (origin or destination) is a workplace.

residential and work projects, respectively (OPR 2018). As the proposed project involves sourcing feedstock for manufacturing of wood pellets into wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests; the project primarily functions as an employment project for the purposes of VMT. Therefore, home-based work (HBW) VMT per employee metric was used in the assessment of VMT impacts, capturing the VMT from workers traveling to and from the wood pellet processing facility.

Additionally, due to the lack of a regional travel demand model for the County of Lassen, two resources were used to analyze VMT for the proposed project:

1. California Statewide Travel Demand Model (CSTDM)
2. U.S. Census Bureau OnTheMap application9

The CSTDM is a statewide model; therefore, it contains larger traffic analysis zones (TAZs) compared to regional models and provides a high-level VMT analysis. The CSTDM has a base year of 2020, with a forecast year of 2040. Based on data provided in the CSTDM for Lassen County, 15% below the County average home-based work VMT per employee is 14.13.

Due to the size of TAZs included in the statewide model, census information from the Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES) dataset was also reviewed to provide more granular data of Lassen County's employment characteristics. This data is available through the OnTheMap application, which provides 24 census block groups within Lassen County, as opposed to the six (6) TAZs included in the CSTDM for Lassen County.

For all 24 census blocks groups, the Distance/Direction Analysis was performed in the tool to obtain the Work-to-Home metric, which identifies the target census block as the "work" location and identifies the corresponding "home" locations. The distances between each origin and destination pair was tabulated to obtain total trip lengths. It must be noted that due to the raw nature of the reported census data, the data identified many "home" locations as much further outside of Lassen County areas than would be realistic for day-to-day travel (e.g., southern California). Further refinement of this dataset would be necessary to determine if reported work locations within Lassen County were addresses of where people physically worked, or rather only where an employer's address was located, for example. As such, a total trip length of 200 miles (100 miles in one direction) was used to truncate trips and provide a realistic estimate of VMT within the County.

The difference in CSTDM VMT estimates and those determined from OnTheMap census data is shown in Table 3.14-3. As noted, "home" locations up to 100 miles from the from the target census block groups were captured in the dataset, and result in much higher VMT estimates than estimated from the CSTDM. This analysis does not attempt to compare the two datasets, but to provide a comparison of the VMT within the proposed wood pellet processing facility's TAZ or census block group to each respective dataset.

9 The OnTheMap application is a web-based mapping and reporting application provided by the U.S. Census Bureau, which enables access to the Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES) dataset. OnTheMap can be access at https://onthemap.ces.census.gov/.

**Table 3.14-3. Lassen County VMT Threshold Summary**

| | CSTDM[1] | OnTheMap[2] |
|---|---|---|
| | VMT per Employee | |
| Regional Average (Lassen County) | 16.63 | 67.46 |
| 15% below Lassen County | 14.13 | 57.34 |

Notes:
VMT = vehicle miles traveled; SJCOG = San Joaquin Council of Governments; RTDM = Regional Travel Demand Model; CSDTM = California State Transportation Demand Model.
1 CSTDM TAZ excel spreadsheet, updated version provided via email communication August 18, 2023 (Caltrans 2023)
2 U.S. Census Bureau OnTheMap application (U.S. Census Bureau 2023).

### Tuolumne County

The County of Tuolumne adopted VMT thresholds and guidance per the Tuolumne County VMT Thresholds Resolution and Staff Report on August 4, 2020 (County of Tuolumne 2020). Per the Resolution, Tuolumne County provides the following screening guidance to determine if a project should be expected to cause a less-than-significant impact:

- **Residential, Office, or Industrial Employment Project Located within a Low VMT Area:** Low-VMT areas defined by the TCTC VMT maps.
- **Small Project:** Less than 110 trips per day and consistent the General Plan.
- **Local Serving Retail:** Local-serving and 50,000 square feet or less.
- **Local Serving Public Facility:** Public K-12 schools, local parks, libraries, post offices, police stations, utility buildings, etc.
- **Affordable Housing:** 100% affordable housing located in identified communities.
- **Mixed-Use Project:** Each project land use type should be considered separately and compared against the appropriate screening criteria.
- **Redevelopment Project:** Projects that would generate less total VMT than the existing land use they are replacing.

If a project does not meet the above screening criteria, consistent with the County and OPR guidelines, along with CEQA Guidelines Section 15064.3(b), the following specific VMT metrics are recommended to complete a VMT impact assessment:

- **Residential:** A project's VMT is less than or equal to the subarea average VMT per capita under baseline conditions, and the project is consistent with the County/City General Plan and the RTP.
- **Office/Industrial:** A project's VMT is less than or equal to the subarea average VMT per employee under baseline conditions, and the project is consistent with the County/City General Plan and the RTP.
- **Retail/Non-Office Commercial:** No net increase in total regional VMT.
- **Hotel/Campground:** Consistent with General Plan and less than or equal to subarea baseline average VMT per room/site.
- **Mixed-Use:** Analyze each land sue individually per the relevant thresholds.
- **Redevelopment:** If the redevelopment of an existing site leads to a net overall decrease, or no change in VMT, the project impact would be less than significant. If the redevelopment of an existing site leads to a

net overall increase in VMT, the project would be evaluated based on the relevant thresholds as if it were a new project.

As noted above, the project primarily functions as an employment project for the purposes of VMT. As such, HBW vehicular trips were selected for evaluation to estimate trips associated with work VMT and estimate an average HBW VMT per employee within the Lake Don Pedro Subarea (County of Tuolumne 2020). Within this subarea, the County of Tuolumne recommends 100.4 VMT per employee as a threshold for VMT impacts as noted in Table 3.14-4 below.

**Table 3.14-4. VMT Threshold Summary**

| | Tuolumne County RTDM[1] |
|---|---|
| | VMT per Employee |
| Subarea Average (Lake Don Pedro Subarea) | 100.4 |

**Notes:**
VMT = vehicle miles traveled; RTDM = Regional Travel Demand Model
[1] Attachment A (Baseline Average VMT for Subareas) of the Tuolumne County SB 743 VMT Thresholds Study (County of Tuolumne 2020)

### City of Stockton

The City of Stockton established VMT thresholds and guidance in the updated City of Stockton TIA Guidelines (adopted May 2, 2023). Per the City of Stockton's TIA Guidelines, and similar to the County of Tuolumne and OPR's screening criteria noted above, a project would be expected to cause a less-than-significant impact if it meets any of the screening criteria noted below:

- Low VMT Area
- Transit Priority Area (TPA)
- Affordable Housing
- Small Projects
- Locally Serving Public Facility
- Neighborhood-Serving Retail Project
- Consistent with General Plan and Zoning

Applicability of these screening criteria is further reviewed in Section 3.14.4.2.

If a project does not meet the above screening criteria, consistent with the City and OPR guidelines, along with CEQA Guidelines Section 15064.3(b), the following specific VMT metrics are recommended to complete a VMT impact assessment:

- **Residential:** 15% below the Citywide average for home-based VMT per resident.
- **Office:** 15% below the Citywide average for home-based work VMT per employee.
- **Retail:** No net increase in total VMT.
- **Other Land Uses:** To be established on a case-by-case basis, reflecting the City's commitment to achieving VMT reductions while also being sensitive to the characteristics of the project being evaluated. In general, work-related land uses may be treated like the office land use subject to city approval. Likewise, land uses

that generate a high proportion of their vehicle trips from visitors or customers may be treated like the retail land use subject to city approval.

As noted above, the project primarily functions as an employment project for the purposes of VMT. As such, HBW vehicular trips were selected for evaluation to estimate trips associated with work VMT and estimate an average HBW VMT per employee within the City of Stockton (City of Stockton 2023). The City of Stockton recommends 15.78 VMT per employee as a threshold for VMT impacts as noted in Table 3.14-5 below.

**Table 3.14-5. VMT Threshold Summary**

| | City of Stockton General Plan Model[1] |
|---|---|
| | VMT per Employee |
| Baseline Level (citywide average) | 18.56 |
| Impact Threshold (15% below citywide average) | 15.78 |

**Source:** Table 6: VMT Impact Criteria for Land Use Projects under Baseline Conditions (City of Stockton 2023)
**Notes:** VMT = vehicle miles traveled

### Hazardous Features (Project Access)

The analysis evaluates whether the project would result in hazards due to design features by determining appropriate acceleration and deceleration lane lengths, analyzing proximity of project driveways to other driveways, driveway throat depths, and truck access. A significant impact would occur if truck traffic would not be able to navigate the site due to insufficient driveway widths or curb radii, locations of project driveways would interfere with nearby driveways, or if vehicle queueing would impact on- or off-site vehicle operations.

### Emergency Access

The emergency access analysis evaluated whether the project would comply with Lassen County's and Tuolumne County's emergency access and/or evacuation requirements, including those imposed by the local fire departments. A significant impact would occur if the project would not comply with Section 503.1 of the California Fire Code and the applicable County fire access and roadway standards such that emergency vehicles would not be able to access project sites within the proposed project.

## 3.14.4.2 Project Impacts

Impact TRF-1 The project may conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, as discussed further below.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests located within the Working Area (see Chapter 2, Project Description, for a full description). The feedstock

would originate from private, state, tribal, and federal timberlands located within these areas. The projects would be temporary in nature and occur in areas where vegetation management would be consistent with land use and the circulation system (such as forest lands and timberlands).

As noted under Chapter 3.14.2.1, use of a National Forest System Road for commercial hauling is prohibited without a Road Use Permit or written authorization. As GSNR will operate under Project Design Features that require compliance with all applicable laws (see Section 2.4), and therefore adherence to U.S. Forest Service and state laws (e.g., Road Use Permits) would be required, the project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

#### California PUC

The project would not include the construction of roadways or driveways across railroad tracks. Existing railroad tracks primarily run along the eastern boundary of the project site, and an existing switching yard is present on-site. Any improvements to the railroad facilities would be done in accordance with PUC standards, and the proposed project would not conflict with an applicable program, plan, ordinance, or policy addressing the performance of the circulation system, including public transit, roadway, bicycle or pedestrian facilities. Impacts would be **less than significant**.

#### Lassen County General Plan

The proposed project would not conflict with the circulation policies within the County's Circulation Element of General Plan, or the County's ATP, including policies related to maintaining and expanding a safe and efficient circulation and transportation system, except for the addition of truck traffic to Babcock Road which has the potential to conflict with Policy CE-6 and CE-10.

Employees and haul trucks accessing the Lassen Facility would use existing roadways and intersections from SR-299. However, the project would add approximately 274 trucks per day to Babcock Road to access the project site. Although Babcock Road is currently paved, the addition of approximately 549 total daily truck trips (accounting for both inbound and outbound trucks) between SR-299 and the project site may cause faster degradation of this stretch of Babcock Road if it was not designed to withstand this daily load.

The project would not include site improvements that would interfere with existing public transit, bicycle, or pedestrian facilities, or impede the construction of new or the expansion of such existing facilities in the future. Bicyclist and pedestrian safety would be maintained at existing levels in the area. As noted in the RTP, there are proposed Class II Bike Lanes along SR-299 adjacent to the project site's frontage; however, the ATP currently identifies this segment of SR-299 as a "Tier 3" Highway Segment, which indicates low relative priority for pedestrian and/or bicycle facility improvements. Additionally, as bus routes do not currently operate near the project site, the project would not conflict with or result in the change of bus routes in the study area; therefore, the project would not severely delay, impact, or reduce the service level of transit in the area.

The potential conflict with Lassen County General Plan Policy CE-6 and CE-10 could result in the physical degradation of Babcock Road, resulting in a **potentially significant** impact.

### Lassen County Regional Transportation Plan (2023-2043)

The overarching goals of the RTP are to create a transportation system which supports the needs of the system user, enhance the economy, preserve the environment, and minimize traffic congestion. Goals also include providing adequate cost-effective public transit services, providing a safe and efficient bicycle and pedestrian circulation system, and to promote a convenient, desirable, and reliable public transit system and active transportation system for all users, and where feasible, reduce the demand for single occupant vehicles. The project would not include site improvements that would interfere with existing infrastructure supporting multi-modal mobility or impede the construction of new or the expansion of such existing facilities in the future. For these reasons, proposed project would not conflict with the applicable goals in the RTP.

Therefore, the project would not adversely affect, in a manner that conflicts with, an applicable program, plan, ordinance, or policy addressing the performance of the circulation system, including public transit, roadway, bicycle or pedestrian facilities. Impacts would be **less than significant**.

## Tuolumne Facility

### California PUC

The project includes improvements to the northern site access driveway to serve as an employee access to the site. The site access driveway railroad crossing is not currently used and is marked off by rocks and temporarily fenced further east. However, the two residential properties currently use a separate but adjacent railroad crossing and driveway for access. Improvements would include paving and addition of signage per the PUC Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossings pursuant to General Order (G.O.) No. 75-D. This crossing would occur on GSNR's privately-owned land, and would be subject to Section 7 (Private At-Grade Crossings) of G.O. No. 75-D.

All improvements at this railroad crossing would be designed pursuant to these standards, and the proposed project would not conflict with an applicable program, plan, ordinance, or policy addressing the performance of the circulation system, including public transit, roadway, bicycle or pedestrian facilities. Impacts would be **less than significant**.

### Tuolumne County General Plan

The proposed project would not conflict with the circulation policies within the County's Transportation Element of General Plan, or the County's ATP. The Transportation Element includes goals to provide the safe and efficient movement of people and goods and encourages the use of alternative means of transportation by providing safe bicycle and pedestrian facilities within urban development boundary areas and between identified communities.

The project is proposing to improve the northern site access driveway to serve as an employee access to the site. The improvements are intended to enhance vehicle circulation and site access and would not hinder the County's ability to provide a unified, coordinated, and cost-efficient countywide road and highway system. As noted above, all improvements across the railroad crossing would occur on privately owned land and would be constructed per PUC standards. The project would not include site improvements that would interfere with existing public transit,

bicycle, or pedestrian facilities, or impede the construction of new or the expansion of such existing facilities in the future. Additionally, as bus routes do not currently operate near the project site, the project would not conflict with or result in the change of bus routes in the study area; therefore, the project would not severely delay, impact, or reduce the service level of transit in the area. Impacts would be **less than significant**.

#### Tuolumne County Regional Transportation Plan (RTP) 2016

The overarching goals of the RTP are to create a transportation system which supports the needs of the system user, enhance the economy, preserve the environment, and integrate land use and transportation decisions by prioritizing infrastructure investments. Goals also include considering transportation safety and security in all transportation funding decisions supporting sustainable transportation options, and optimizing the existing local, interregional and regionally significant roadway system to support improved safety and multi-modal mobility. The project also would not include site improvements that would interfere with existing infrastructure supporting multi-modal mobility or impede the construction of new or the expansion of such existing facilities in the future. For these reasons, proposed project would not conflict with the applicable goals in the RTP. Impacts would be **less than significant**.

### Transport to Market

#### Stockton Terminal

The Port of Stockton is a fully operational port. The addition of the GSNR facility, which would employ eight (8) daily GSNR employees over three shifts, and require an additional eight full-time equivalent (8) stevedores for ship loading, would have a minimal effect on vehicular traffic and would not conflict with local plans and policies. Review of current Port of Stockton railway operations[10] indicate a daily count of 16 trains, with eight (8) during daytime hours (6:00 AM to 6:00 PM), and eight (8) during nighttime hours (6:00 PM to 6:00 AM), recorded at the BNSF Railway Company (BNSF) at-grade train crossing over Lincoln Street, east of I-5 (DOT Crossing Inventory Number 029617R). After transferring from the BNSF tracks onto the Central California Traction Company (CCTC) railroad under the Ort J. Lofthus Freeway, the estimated number of total trains recorded through the at-grade Washinton Street crossing (DOT Crossing Inventory Number 757370W) indicate six (6) trains during daytime hours and four (4) trains during nighttime operations, along with eight (8) switching trains, for a total of 18 daily trains recorded at this crossing. Finally, once trains cross the Navy Drive Bridge from the East to West Complex, a count of four (4) daytime, one (1) nighttime, and two (2) switching trains was recorded at the at-grade crossing over Fyffe Street to Hooper Street (DOT Crossing Inventory Number 752931R), for a total of seven (7) daily trains recorded near the proposed spur into the GSNR facility. The project would result in one additional train trip per day, on average (70 annual unit train trips[11] from Lassen and 240 annual manifest train trips[12] from Tuolumne). The use of trains, rather than trucks, is consistent with City policy TR-1.2 (Enhance the use and convenience of rail service for both passenger and freight movement). as well as the WCDP. Impacts would be **less than significant**.

Additionally, the Port of Stockton Rail Bridge Replacement and Rail Improvement Project FEA, which plans improvements to the railways within the Port including replacement of the Navy Drive Bridge with a double-track

10 Current railway operations estimated from the U.S. Department of Transportation (DOT) Federal Railways Administration (FRA) Crossing Inventory Form. See Appendix I1 for referenced DOT Crossing Inventory Number reports.

11 A "unit" train refers to a train transporting a single commodity from the same origin to the same destination. One unit train trip in this context refers to a train traveling from the Lassen Facility to the Port of Stockton.

12 A "manifest" train combines rail cars from different freight companies and origins, traveling to the same destination. One manifest train trip in this context is the addition of 12-14 cars with project operations to an existing train traveling along the Sierra Northern Railway to the Port of Stockton.

span, was reviewed for consistency with the proposed project. The FEA indicates that rail operations are projected to grow from 21 trains per week in 2023 to 34 trains per week by 2026. The proposed project's addition of approximately one train per day would be within these projections, nor would construction of the GSNR Facility conflict with implementation of the Port's Rail Improvement Project, including both replacement of the Navy Drive Bridge or other improvements planned along the Port's railways.

The project would not adversely affect, in a manner that conflicts with, an applicable program, plan, ordinance, or policy addressing the performance of the circulation system, including public transit, roadway, bicycle or pedestrian facilities. Impacts would be **less than significant**. No mitigation is required.

Impact TRF-2 The project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

## Feedstock Acquisition

### Sustainable Forest Management Projects

As noted below, for the purposes of vehicle travel as it relates to VMT under this impact criteria is focused on passenger vehicles, specifically cars and light trucks. Acquisition of biomass from feedstock areas will primarily occur using logging/haul trucks, with a small crew supporting timber harvest at each acquisition site. Although the crew size and location will vary widely depending on the intensity of the specific project across the Working Area, crews (or "sides" at any given location would not normally exceed 6 workers, resulting in 2 to 12 daily commuting trips, depending on extent of carpooling. These trips will be temporary in nature, lasting only for the extent of each timber harvesting job, and opportunities for carpool/vanpool from staging areas to work sites may occur to further reduce the number of vehicles traveling to remote locations. Per the OPR Technical Advisory screening criteria, small projects generating less than 110 daily trips can be screened out from significant VMT impacts. Therefore, as feedstock acquisition will result in 2 to 12 temporary daily trips at any one work site across the Working Area, project VMT impacts related to feedstock at any one area would be less than significant since this component would not generate substantial commuting passenger-car trips.

However, the number of simultaneous feedstock acquisition projects is unknown, and has the potential to exceed 110 daily trips across the entire Working Area. As described in Chapter 2, Project Description, feedstock for manufacturing of wood pellets will be sourced from Sustainable Forest Management Projects on California's private, state, tribal, and federal timberlands, which includes the following types of projects:

- **GSNR Biomass Only Thinning Projects** are wildfire fuel reduction operations, including vegetation management activities on forested lands designed to reduce the risk and severity of wildfire occurrence.
- **Harvest Residuals Projects** include those which GSNR will procure and utilize residual biomass material resulting from timber harvest and forest management operations undertaken by third-parties unaffiliated with GSNR.
- **Mill Residuals Projects** include those which GSNR will procure and utilize residual biomass material resulting from by-products of commercial lumbermills operated by third-parties unaffiliated with GSNR, including mill residual chips, sawdust, planer shavings, and bark.

As Mill Residuals would be removed from the forest and disposed of by the source mill facilities regardless of GSNR's proposed project, these components of the Sustainable Forest Management Projects are not expected to result in a net increase in VMT. However, GSNR Biomass Only Thinning Projects and the removal of Harvest Residuals from the forest would not occur without GSNR's proposed project; therefore, this component would

generate a net increase in VMT compared to baseline conditions. The scale of GSNR Biomass Only Thinning Projects ranges from 10 to 2,000-acre areas, with daily trips from all feedstock acquisition projects ranging from 2 to 12 daily commuting trips and the number of simultaneously occurring projects varying widely. The removal of Harvest Residual materials entails even fewer vehicle trips for each individual project, as only the trips associated with the removal activities, and not the underlying forest treatments (which are occurring regardless), are attributable to GSNR's proposed Forest Resiliency Demonstration Project. Although each of these projects would meet the OPR Technical Advisory screening criteria for small projects generating less than 110 daily trips, due to their variability in timing and location, impacts related to feedstock acquisition would be **potentially significant**.

## Wood Pellet Production

### Lassen Facility

As no regional model exists within the County, project VMT has been estimated by reviewing the VMT within the existing TAZ or census block group where the Lassen facility is located, using either the CSTDM or OnTheMap application as noted above. Additionally, the OPR Technical Advisory methodology for screening and project impact thresholds is used as the basis for this analysis.

The following screening criteria were analyzed per the OPR Technical Advisory. Any one of the following criteria would need to be satisfied in order to screen-out of significant VMT impacts:

- **Screening Threshold for Small Projects:** As noted in Table 3.14-1, the proposed project would employee 60 workers per day at the Lassen Facility, generating approximately 120 daily trips. Therefore, the project would not meet the criteria for projects generating less than 110 daily trips and *cannot* be screened-out from further VMT analysis under this criterion.
- **Map-Based Screening for Residential and Office Projects:** As noted above, no regional model exists within the County, nor does a VMT screening map exist. Using the CSTDM and the OnTheMap application, the location of the project TAZ (or census block) was compared with the average of all TAZs (or census blocks) within Lassen County. The VMT within the existing TAZ or census block groups where the Lassen facility is located does not fall below the County averages; therefore, the project *cannot* screened-out from further VMT analysis under this criterion. Further discussion and analysis is provided below and shown in Table 3.14-4.
- **Presumption of Less Than Significant Impact Near Transit Stations:** The project is not located near a transit station; therefore, it *cannot* screened-out from further VMT analysis under this criterion.
- **Presumption of Less Than Significant Impact for Affordable Residential Development:** The project is not a housing project; therefore, it *cannot* screened-out from further VMT analysis under this criterion.
- **Presumption of Less Than Significant Impact for Local Serving Retail:** The project is not a retail land use; therefore, it *cannot* screened-out from further VMT analysis under this criterion.

As available modeling tools cannot estimate project-specific VMT for the proposed Lassen facility, it is assumed that the facility would generate similar travel characteristics as the census block group or TAZ where the project is located. Table 3.14-6 provides a summary of this, along with a comparison to the estimated County thresholds.

## Table 3.14-6. Lassen County VMT Thresholds and Project Site Analysis

| | CSTDM[1] | OnTheMap[2] |
|---|---|---|
| | VMT per Employee | |
| Regional Average (Lassen County) | 16.63 | 67.46 |
| 15% below Lassen County | 14.13 | 57.34 |
| TAZ 122 (Project Site TAZ) | 28.19 | — |
| 1-401 (Project Site Census Block) | — | 70.83 |
| % Project Site Location Above County Average | 69.52% | 5.00% |
| % Project Site Location Above 15% below County Average | 99.51% | 23.53% |

**Source:** Appendix I2
**Notes:**
VMT = vehicle miles traveled; CSDTM = California State Transportation Demand Model.
1 CSTDM TAZ excel spreadsheet, updated version provided via email communication August 18, 2023 (Caltrans 2023)
2 U.S. Census Bureau OnTheMap application (U.S. Census Bureau 2023).

There is a wide range of VMT per employee values and percentage increases between County averages and project site location estimates depending on the methodology used. However, as noted above, this analysis does not attempt to compare the two datasets, but to provide a comparison of the VMT within the proposed wood pellet processing facility's TAZ or census block group to each respective dataset. As the project would be located within a high-generating VMT area (e.g., above the average VMT per employee across the County), it is likely that the project would have a similarly high VMT. Although both the TAZ and census block group encompass large areas of the County, the rural characteristics, along with employment and housing opportunities across each respective area are similar to that of the project's surroundings.

The project is located far from major population centers, and nearby housing is limited. As indicated in Section 3.12, Population and Housing), "commuting to work is a common characteristic of the existing workforce" in the region, and the proposed Project workforce is expected to remain consistent with that pattern. Employee vanpools or carpooling opportunities would be dependent on the location of the workforce. The California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (CAPCOA 2021) transportation measures to reduce GHG emissions were reviewed for feasibility of reducing project related VMT. Due to the rural nature of the proposed Lassen Facility, the following measures were considered based on both the locational context and applicability to the project:

### T11 – Provide Employee-Sponsored Vanpool

Per the CAPCOA Handbook, Measure T-11 would implement an employer-sponsored vanpool service. Vanpooling is a flexible form of public transportation that provides groups of 5 to 15 people with a cost-effective and convenient rideshare option for commuting. The mode shift from long-distance, single-occupied vehicles to shared vehicles reduces overall commute VMT, thereby reducing GHG emissions.

Based on default values provided in the CAPCOA Handbook for Measure T-11, the percent reduction of GHG emissions from an employee-sponsored vanpool service could range from 3.4% to 20.4%, with a similar range in VMT reductions. Due to the remote nature of the Lassen Facility and spread of nearby population centers, the extent of implementation of a vanpool service is unknown at this time; however, CAPCOA Measure T-11 is considered a

feasible mitigation measure for the proposed project when applicable (i.e., when 5 or more employees with similar work hours live close enough to one another for van pooling to be practicable).

#### T13 – Provide Electric Vehicle Charging Infrastructure

Measure T-13 would:

> install onsite electric vehicle chargers in an amount beyond what is required by the 2019 California Green Building Standards (CALGreen) at buildings with designated parking areas (e.g., commercial, educational, retail, multi-family). This will enable drivers of PHEVs to drive a larger share of miles in electric mode (eVMT), as opposed to gasoline-powered mode, thereby displacing GHG emissions from gasoline consumption with a lesser amount of indirect emissions from electricity. Most PHEVs owners charge their vehicles at home overnight. When making trips during the day, the vehicle will switch to gasoline mode if/when it reaches its maximum all-electric range.

This measure could reduce GHG emissions up to 11.0%, with the range of VMT reductions related solely to a reduction of electric vehicle VMT (eVMT), but not overall VMT. Although provision of electric vehicle (EV) charging on-site would allow for employees to charge EVs, thereby reducing eVMT and help meet the goals of SB 743 regarding GHG reduction, quantification of this measure would require some level of certainty that employees own an EV or have the capacity to use one for their daily commute. Although it would not be feasible for the project to provide EVs to their employees, nor would it be assumed that all or a subset of employees own an EV, installing EV charging at a workplace under CAPCOA Measure T-13 would enable drivers to have the option of workplace charging, providing an incentive for employees to utilize EV vehicles. As such CAPCOA Measure T-13 is considered a feasible mitigation measure for the proposed project.

#### T17 – Provide Pedestrian Network Improvement

Measure T-17 would:

> increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions.

This measure could reduce GHG emissions and VMT up to 6.4%. However, due to the low population within Nubieber and the distance to next adjacent communities (e.g., Bieber or McArthur), it is unlikely that a significant number of employees (if any) would both live within walking distance and work at the Lassen Facility. As such, improvements to the transportation network encouraging people to walk instead of drive in this specific community would not be likely to result in notable VMT reductions. CAPCOA Measure T-17 would not be considered a feasible mitigation measure to reduce VMT impacts.

Although the implementation of CAPCOA Measures T-11 and T-13 would result in a reduction to VMT, the project's VMT impacts related to the Lassen facility would be **potentially significant**.

### Tuolumne Facility

The following screening criteria were analyzed per the August 4, 2020, Tuolumne County VMT Thresholds Resolution and Staff Report (County of Tuolumne 2020). Any one of the following criteria would need to be satisfied in order to screen-out of significant VMT impacts:

- ***Residential, Office, or Industrial Employment Project Located within a Low VMT Area Screening:*** Development in a low VMT generating area as defined by the TCTC VMT maps, and that is consistent with consistent with the County General Plan and the RTP.

The baseline average office/industrial VMT per employee values within the Lake Don Pedro Subarea were reviewed per the County VMT Resolution to determine whether the proposed project would be in a low VMT-generating area. A map of the low-VMT areas, generated by comparing locations within each subarea to the overall County average VMT per employee, are provided in Attachment B of the County VMT Resolution. A summary of the Lake Don Pedro Subarea compared to the County's VMT per employee average is provided in Table 3.14-7 below. Consistent with the County's Office/Industrial VMT per Employee Subareas low-VMT Screening Map, the project site would not be located in a low VMT generating area; therefore, the project *cannot* be screened out from further VMT analysis using the low VMT area screening criterion.

### Table 3.14-7. Summary of Project Area VMT

| Base Year (2023) | VMT[1] |
|---|---|
| **VMT Per Employee** | |
| Subarea Average (Lake Don Pedro Subarea) | 100.4 |
| County Average | 53.3 |
| **% Difference (Project Subarea – County)** | **+88.5%** |
| Threshold | 53.3 |

**Source:** Appendix I3
**Note:** VMT = vehicle miles traveled
1 Attachment A (Baseline Average VMT for Subareas) of the Tuolumne County SB 743 VMT Thresholds Study (County of Tuolumne 2020) (Attachment B)

- ***Small Project (Less than 110 daily trips and consistent with the General Plan):*** As noted in Table 3.14-1, the proposed project would employee 51 workers per day at the Tuolumne Facility, generating approximately 102 daily trips. Therefore, the project would meet the criteria for projects generating less than 110 daily trips and *can* be screened-out from further VMT analysis under this criterion.
- ***Local serving retail less than 50,000 SF:*** The project is not a retail land use; therefore, it *cannot* screened-out from further VMT analysis under this criterion.
- ***Local Serving Public Facility:*** Projects which serve the local community (e.g., public K-12 schools, local parks, libraries, post offices, police stations, utility buildings, etc.) and have the potential to reduce VMT should not be required to complete a VMT assessment. The project would not be categorized as a local serving land use due to its nature as a pellet processing facility and *cannot* be screened-out from further VMT analysis under this criterion.
- ***Affordable Housing (100% of units):*** The proposed project does not include affordable housing units. Therefore, the project *cannot* be screened-out from further VMT analysis under this criterion.
- ***Mixed-Use Project:*** The proposed project would not be considered mixed-use. Therefore, the project *cannot* be screened-out from further VMT analysis under this criterion.
- ***Redevelopment Project:*** The proposed project would not be considered a redevelopment project. Therefore, the project *cannot* be screened-out from further VMT analysis under this criterion.

As this project meets the Small Project screening criteria, and the project is consistent with the General Plan land use designation of HI, the Tuolumne Facility would have a **less than significant** impact to VMT.

## Transport to Market

### Port of Stockton Terminal

The addition of the GSNR facility, which would employ eight (8) daily GSNR employees over three shifts, and reqire an additional eight (8) full-time equivalent stevedores for ship loading,, would result in a less than significant impact on day-to-day port operations.

The following screening criteria were analyzed per the City of Stockton TIA Guidelines (May 2023). Any one of the following criteria would need to be satisfied in order to screen-out of significant VMT impacts:

- **Transit Priority Areas (TPA):** The project is not located near a major transit stop or high-quality transit corridor; therefore, it *cannot* be screened-out from further VMT analysis under this criterion.
- **Affordable Housing:** The project is not a housing project; therefore, it *cannot* be screened-out from further VMT analysis under this criterion.
- **Small Projects:** As noted above, the proposed project would employee 16 workers per day at the Port's GSNR facility, generating approximately 32 daily trips. Therefore, the project would meet the criteria for projects generating less than 110 daily trips and *can* be screened-out from further VMT analysis under this criterion.
- **Locally Serving Public Facility:** The project is not encompasses government, civic, cultural, health, and infrastructure uses and activity which contribute to and support community needs; therefore, it *cannot* be screened-out from further VMT analysis under this criterion.
- **Neighborhood-Serving Retail Project:** The project is not a retail land use; therefore, it *cannot* be screened-out from further VMT analysis under this criterion.
- **Low VMT Area:** Development in a low VMT generating area for office/employment uses, as defined by the Daily Home-Based-Work VMT per Employee map (Figure 3 in the City's TIA Guidelines). The Port of Stockton is not located within a low VMT area per the City's TIA Guidelines screening map; therefore, it *cannot* be screened-out from further VMT analysis under this criterion.
- **General Plan and Zoning Consistency:** The City's VMT Guidance also allows for exemptions from further VMT impact analysis if the projects achieve the following:
  - Projects consistent with the General Plan and Zoning that do not require a General Plan land use map amendment.
  - Projects that do not require an EIR for project related impacts beyond the General Plan EIR.
  - Projects located within the Greater Downtown Planning area, as defined in the General Plan, and shown in Figure 2 (of the City's TIA Guidelines), and do not require a land use map amendment or EIR

The GSNR facility within the Port is consistent with the WCDP and City's General Plan; however, the project requires an EIR for impacts not described in the General Plan EIR, therefore, it *cannot* be screened-out from further VMT analysis under this criterion.

As this project meets the Small Project screening criteria, and the project is consistent with the WCDP and City's General Plan, the GSNR Facility at the Port of Stockton would have a **less than significant** impact to VMT.

Impact TRF-3 The project could substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

## Feedstock Acquisition

### Sustainable Forest Management Projects

As noted above, use of a National Forest System Road for commercial hauling is prohibited without a Road Use Permit or written authorization. Moreover, PDF-TRF-1 requires preparation of a Traffic Management Plan containing measures to reduce potential traffic obstructions, hazards, and service level degradation whenever needed to ensure adherence to jurisdictional standards. As GSNR will operate under Project Design Features that require compliance with all applicable laws (see Section 2.4), and therefore adherence to U.S. Forest Service and state laws (e.g., Road Use Permits) would be required, the project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Impacts would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

#### Site Access

Vehicular and truck traffic access into the site will be provided via two existing roadways from SR-299 (analyzed as intersections #1 and #2 in the TIS), as shown in Figure 1, Project Location and Study Area, of the TIS (Appendix I2). All study area intersections have been analyzed as unsignalized intersections with stop control at the minor approach.

The following intersections will provide direct access to the project site:

- Intersection #1 via Babcock Road – full access; trucks
- Intersection #2 via 4th Street to Washington Avenue – full access; passenger vehicles

The three county roads accessing the project site from Highway 299 (4th Street, Washington Avenue, and Babcock Road) are classified as paved rural streets as described in Lassen County Code § 16.32.090 (3)(B). The current Lassen County road standard applicable to such roads would be 24 feet AC paved edge to edge with a 2 foot unpaved shoulder. Minimum thickness for AC would be .33 feet compacted and 6 inches compacted road base (Lassen County 2024).

The project does not include any alteration of the geometric design features of any of these roads, and will not introduce any incompatible uses. All of these roads are presently used for automobile traffic, and some truck traffic currently operates along Babcock Road to the existing railyard to the south. Although the project will not substantially increase hazards on any of these roads, additional project-related truck traffic on Babcock Road may result in an increased rate of deterioration of this roadway, which would conflict with Lassen County General Plan Policy CE-10, as discussed in Impact TRF-1. Mitigation Measure **MM-TRF-2** would ensure that the project-related truck traffic on Babcock Road does not result in the road failing to meet county road standards at any time during the life of the project.

#### Off-Site Queuing Analysis

A queuing analysis was performed for all study intersections analyzed in the TIS (see Appendix I2) to assess vehicle queues along the roadways, specifically at intersections with Caltrans facilities. The queuing analysis was performed for the Existing/Existing plus Project, and Opening Year (2025)/ Opening Year (2025) plus Project conditions, using Synchro/SimTraffic software, as summarized below. All SimTraffic queuing reports are provided in the TIS in

Appendix I2. A queuing impact may occur if intersection turning movements are anticipated to generate queues greater than the available stacking distances and/or if they would impede flow along major movements during the peak hours based on the 95th percentile peak hour traffic flows for analyzed peak hour traffic conditions. Traffic would not be considered to impede flow if queues extend one (1) to two (2) vehicles into an adjacent lane at a stop-controlled intersection.

### Existing Plus Project Conditions

As shown in Table 3.14-8, Peak-Hour Queuing Summary for Existing plus Project Conditions, all intersection turning movements are anticipated to operate within available stacking distances and/or would not impede flow along major movements during the peak hours based on the 95th percentile peak hour traffic flows for the Existing plus Project traffic conditions. Although some queues extend approximately one vehicle length beyond right-turn pockets (or defacto right-turn lanes) at two intersections, these queues would not be considered a queuing or safety issue and as noted in Table 3.14-8 below. As such, there are no turning movements to and/or from SR-299 that are anticipated to experience queuing and/or safety issues during the weekday AM or weekday PM peak hours under Existing plus Project traffic conditions. Impacts would be less than significant.

### Opening Year (2025) Plus Project Conditions

As shown in Table 3.14-9, Peak-Hour Queuing Summary for Opening Year (2025) plus Project Conditions, all intersection turning movements are anticipated to operate within available stacking distances and/or would not impede flow along major movements during the peak hours based on the 95th percentile peak hour traffic flows for the Opening Year (2025) plus Project traffic conditions. Although some queues extend approximately one vehicle length beyond right-turn pockets (or defacto right-turn lanes) at two intersections, these queues would not be considered a queuing or safety issue and as noted in Table 3.14-9 below. As such, there are no turning movements to and/or from SR-299 that are anticipated to experience queuing and/or safety issues during the weekday AM or weekday PM peak hours under Opening Year (2025) plus Project traffic conditions. Impacts would be less than significant.

## Table 3.14-8. Peak-Hour Queuing Summary for Existing Plus Project Conditions

| No. | Intersection | Movement | Available Stacking Distance (Feet) | Existing (2023) | | | | Existing plus Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 95th Percentile Queue (Feet) | | Exceeds Storage Length?[1] | | 95th Percentile Queue (Feet) | | Exceeds Storage Length?[1] | |
| | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| 1 | SR-299-Lassen State Hwy/Babcock Road | WBLT | 315 | 0 | 0 | No | No | 41 | 42 | No | No |
| | | WBR | 25 | 0 | 0 | No | No | 50 | 52 | **Yes[2]** | **Yes[2]** |
| | | SBLTR | 465 | 0 | 0 | No | No | 8 | 8 | No | No |
| 2 | SR-299-Lassen State Hwy/4th Street | WBLT | 315 | 0 | 0 | No | No | 25 | 0 | No | No |
| | | WBR | 25 | 12 | 0 | No | No | 41 | 0 | **Yes[2]** | No |
| | | SBLTR | 100 | 0 | 0 | No | No | 12 | 6 | No | No |
| 3 | SR-299-Lassen State Hwy/Roosevelt Avenue | WBL | 740 | 0 | 7 | No | No | 0 | 4 | No | No |
| | | WBR | 25 | 0 | 15 | No | No | 0 | 16 | No | No |
| | | SBLT | 600 | 0 | 0 | No | No | 0 | 4 | No | No |
| 4 | SR-299-Lassen State Hwy/Adams Avenue | WBR | 200 | 0 | 0 | No | No | 0 | 19 | No | No |
| | | SBLT | -[3] | 0 | 19 | No | No | 0 | 0 | No | No |

**Source:** Appendix I2

**Notes:** XBL = [DirectionBound]left; XBR = [DirectionBound]right; XBT = [DirectionBound]through; XBLTR = [DirectionBound]left-through-right; XBLT = [DirectionBound]left-through

1 Stacking distance would be exceeded if the required stacking distance is greater than the stacking distance provided.

2 **Yes** – Queue extends past available pocket length for movement (measured as a 25-foot defacto right turn lane) but only extends approximately one vehicle length into the through (or left) turning lane.

3 No nearby driveway, intersection, or striped stacking area identified within 1,000 feet upstream of movement.

## Table 3.14-9. Peak-Hour Queuing Summary for Opening Year (2025) Plus Project Conditions

| No. | Intersection | Movement | Available Stacking Distance (Feet) | Opening Year (2025) | | | | Opening Year (2025) plus Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 95th Percentile Queue (Feet) | | Exceeds Storage Length?[1] | | 95th Percentile Queue (Feet) | | Exceeds Storage Length?[1] | |
| | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| 1 | SR-299-Lassen State Hwy/Babcock Road | WBLT | 315 | 0 | 0 | No | No | 40 | 41 | No | No |
| | | WBR | 25 | 0 | 0 | No | No | 49 | 50 | **Yes**[2] | **Yes**[2] |
| | | SBLTR | 465 | 0 | 0 | No | No | 8 | 10 | No | No |
| 2 | SR-299-Lassen State Hwy/4th Street | WBLT | 315 | 0 | 0 | No | No | 24 | 0 | No | No |
| | | WBR | 25 | 13 | 0 | No | No | 39 | 0 | **Yes**[2] | No |
| | | SBLTR | 100 | 0 | 0 | No | No | 11 | 8 | No | No |
| 3 | SR-299-Lassen State Hwy/Roosevelt Avenue | WBL | 740 | 0 | 7 | No | No | 0 | 4 | No | No |
| | | WBR | 25 | 0 | 14 | No | No | 0 | 16 | No | No |
| | | SBLT | 600 | 0 | 0 | No | No | 0 | 4 | No | No |
| 4 | SR-299-Lassen State Hwy/Adams Avenue | WBR | 200 | 0 | 0 | No | No | 0 | 20 | No | No |
| | | SBLT | -[3] | 0 | 17 | No | No | 0 | 5 | No | No |

**Source:** Appendix I2

**Notes:** XBL = [DirectionBound]left; XBR = [DirectionBound]right; XBT = [DirectionBound]through; XBLTR = [DirectionBound]left-through-right; XBLT = [DirectionBound]left-through

1 Stacking distance would be exceeded if the required stacking distance is greater than the stacking distance provided.

2 **Yes** – Queue extends past available pocket length for movement (measured as a 25-foot defacto right turn lane) but only extends approximately one vehicle length into the through (or left) turning lane.

3 No nearby driveway, intersection, or striped stacking area identified within 1,000 feet upstream of movement.

### Deceleration Lane Warrants

As shown in Tables 3.14-8 and 3.14-9 and detailed above, there are no left-turning movements along SR-299 that are anticipated to experience significant peak hour queuing. All southbound left-turning movements are less than 25-feet, which is indicative of free-flowing movements from the highway onto minor streets (e.g., reported queue lengths are primarily a result of a vehicle slowing down to turn, rather than a vehicle waiting in the through-lane as the vehicle waits for a gap in on-coming traffic to safely maneuver the crossing). As such, it would not be expected that a separate left-turn or deceleration lane along SR-299 would be warranted.

A deceleration lane warrant analysis is included in the Lassen TIS (Appendix I2) to further verify these conclusions. Based on projected peak hour volumes at the largest volume intersection in the study area, Caltrans provided a review of AASHTO Table V-1 Warrants for left-turn on two-lane highways, and concluded that the project conditions would not meet the warrant for left-turn channelization as the expected volumes were approximately ¼ of the warrant volume. [13]

Additionally, a review of deceleration lane warrants was also conducted using Figure 4-12 (Volume Warrants for Left-Turn Lanes at Unsignalized Intersections) for 50 mph roadways from NCHRP Report 279 (TRB 1985). The left-turn lane warrant is not met under the highest volumes conditions (Opening Year (2025) plus Project) at the project access intersections (Babcock Road and 4th Street) with SR-299. NCHRP worksheets are provided in Appendix F of Appendix I2.

### Collision Analysis

A collision analysis was conducted to determine if there is crash history along SR-299 at the intersections used for site access (Babcock Road for truck access and 4th Street to Washington Avenue for passenger vehicle access). A 5-year review of available crash data (January 2019 to March 2024) was reviewed using data from the Transportation Injury Mapping System (TIMS) provided by the Statewide Integrated Traffic Records System (SWITRS) and the University of California, Berkeley. Ten (10) crashes were reported over the last five (5) years, within a 5-mile radius of the project site. Of those crashes, none were recorded at the project site access intersections, or within the town of Nubieber. Reviewed data showing the locations of the 10 crashes, along with their detailed reports, is compiled in Appendix F of Appendix I2. Additionally, Caltrans District 2 provided a Table B 5-yr collision analysis and found no collision reported on any of the studied intersections, or within the general vicinity of the project.[13] No further collision analysis is warranted.

### Highway Signage

Existing signage along the stretch of SR-299 in the study area is limited to informational/directional signage, posted speed limit signs in either direction prior to Nubieber, and one pedestrian crossing sign (W11-2) for southbound traffic located between Roosevelt Avenue and Front Street.

As detailed in this chapter, the limited queuing, unmet warrants for left-turn/deceleration lanes, and lack of collision history at the project access intersections indicate that traffic operations in this area would not require additional control. Additionally, both through and turning movements along SR-299 reflect low traffic volumes under peak hour conditions, with and without project conditions. However, as the project would increase southbound left- and northbound right-turning movements from three (3) or fewer trips (with the majority of turning movements currently reported with 0 peak hour trips) to up to 26 trips at the highest turning movement on Babcock Road, additional

[13] Per email correspondence with the Local Development Review Coordinator, Caltrans District 2, July 18, 2024.

signage is warranted to inform drivers of additional truck traffic entering or exiting the highway. Mitigation Measure **MM-TRF-3** will ensure that the public is informed of added project-related traffic to and from SR-299.

Project impacts related to highway warning signage would be **potentially significant**, but would be addressed through Mitigation Measure **MM-TRF-3**.

## Tuolumne Facility

### Site Access

Vehicular and truck traffic access into the site will be provided via two existing roadways from La Grange Road – CR J59 (analyzed as intersections #2 and #3 in the TIS), as shown in Figure 1, Project Location and Study Area, in the TIS. All study area intersections have been analyzed as unsignalized intersections with stop control at the minor approach where applicable.

The following intersections will provide direct access to the project site:

- Intersection #2 via SA Driveway North (currently undeveloped) – full access; passenger vehicles
- Intersection #3 via SA Driveway North (currently operational) – full access; trucks

Truck traffic will utilize the SR-108/120 intersection with La Grange Road to the north (Intersection #1) and the SR-132 intersection with La Grange Road to the south (Intersection #4) to access the site via the existing driveway noted above (Intersection #3). (Truck traffic is prohibited on Red Hill Road between SR-120 and La Grange Road, and project-related trucks consequently will not use that road.)

In Tuolumne County, SR-108 and SR-120 have terminal access, and allow the use of both STAA and California legal trucks. However, in Mariposa County, SR-120 allows only trucks that are no longer than 65 feet as per the kingpin-to-rear-axle (KRPA) advisory. Additionally, SR-132 to the south is a Caltrans designated truck route; however, east of the City of Modesto, SR-132 allows only trucks that are no longer than 65 feet as per the California Legal Route, and east of the La Grange Road intersection, a 30-foot kingpin to rear axle (KPRA) advisory sign is posted.

To verify that sufficient turning radii and pavement right-of-way (ROW) is available, a truck turn analysis using AutoTURN 2024 software has been completed to show the largest potential trucks (chip trucks) accessing the site, along with the most common log trucks.

- **WB-62 Truck (Project Chip Trucks):** AASHTO WB-62 design vehicles are representative of "Green" STAA Trucks allowed on SR-108/120 with a 48-foot semitrailer. Although up to 53-foot maximum semitrailers are allowed along on STAA routes, project operations would not include trucks larger than a WB-62. As shown in Figure 16 of the TIS the WB-62 design vehicle would be able to maneuver the major highway intersections within the pavement provided, although may encroach over lane striping. It must be noted that the project is unlikely to utilize the La Grange Road/SR-132 intersection to the south for any project chip truck operations. The standard WB-62 design vehicle turning template is included to provide a conservative analysis at both intersections.
- **WB-62 Truck with 30-foot KPRA and 44-foot semitrailer (Project Chip Trucks):** AASHTO WB-62 design vehicle, modeled with an adjustment to the semitrailer length to represent a "Black" California Legal Truck, with an overall length of 65 feet. Additionally, due to the 30-foot KPRA advisory noted on SR-132 east of La Grange Road, an additional adjustment has also been made. As shown in Figure 17 of the TIS the WB-62

design vehicle with 30-foot KPRA adjustment would also be able to maneuver the major highway intersections within the pavement provided, with a slightly better turning radius than the standard WB-62, although may continue to encroach over lane striping. As noted above, the project is unlikely to utilize the La Grange Road/SR-132 intersection to the south for any project chip truck operations. This turning template, modeled with an adjustment to the overall length and KPRA given the advisory on SR-132, is included to provide a more representative truck for project operations at both intersections.

- Transcraft 45-foot Flatdeck (Project Pulp Log Trucks): A Transcraft TL-2000 45-foot flatdeck truck from has been used to represent the 45-foot fixed-axle pulp log trailers used in the project's logging operations. This truck represents the most common truck to be used in logging operations as most roundwood logs range from 16- to 20-feet long. As shown in Figure 18 of the TIS, this 45-foot fixed-axle truck would be able to maneuver the major highway intersections within the pavement provided, although may continue to encroach over some lane striping.
- Transcraft 45-foot Flatdeck with Rear Axle Steering (Project Standard Log Trucks): The Transcraft TL-2000 45-foot flatdeck truck, modeled with rear axle steering and a 35-foot distance between axles (representing the placement of upright log "bunks"), has been used to represent the standard log trailers used in the project's logging operations, representing approximately 30- to 40-percent of project log trucks. As shown in Figure 19 of the TIS, these log trucks with rear axle steering have the greatest maneuverability, and would encroach over minimal lane stripping.

Although the largest design trucks included in this turn analysis may encroach over lane striping, sufficient pavement ROW is provided at both intersections such that trucks would not be required to encroach into opposing traffic waiting at stop-controlled approaches (e.g., La Grange Road approach to SR-108/120 and SR-132 westbound approach to La Grange Road). This would not be considered a substantial increase to hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses, and impacts would be **less than significant**.

Additionally, the proposed employee access road would be located along an existing (gated) driveway, currently overgrown and not utilized for vehicles. The alignment extends from La Grange Road, and would cross the railroad tracks at an at-grade crossing approximately 65-feet from the current edge of lane striping. This crossing would be designed consistent with the Public Utilities Commission Regulation, General Order No. 75-D (7), as described under Impact TRF-1. The project site property is subject to a recorded agreement for utilization of the railroad crossing at Mile Post 29.5 of the Oakdale-Sonora Branch, dated March 20, 2014. The agreement is effective for 20 years, and would not require renewal until 2034. As this agreement is in effect and improvements would be designed consistent with PUC regulations, the project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses, and impacts would be **less than significant**.

### Off-Site Queuing Analysis

A queuing analysis was performed for all study intersections analyzed in the TIS (see Appendix I3) to assess vehicle queues along the roadways, specifically at intersections with Caltrans facilities. The queuing analysis was performed for the Existing/Existing plus Project, and Opening Year (2025)/ Opening Year (2025) plus Project conditions, using Synchro/SimTraffic software, as summarized below. All SimTraffic queuing reports are provided in the TIS in Appendix I3. A queuing impact may occur if intersection turning movements are anticipated to generate queues greater than the available stacking distances and/or if they would impede flow along major movements during the peak hours based on the 95$^{th}$ percentile peak hour traffic flows for analyzed peak hour traffic conditions. Traffic

would not be considered to impede flow if queues extend one (1) to two (2) vehicles into an adjacent lane at a stop-controlled intersection.

### Existing Plus Project Conditions

As shown in Table 3.14-10, Peak-Hour Queuing Summary for Existing plus Project Conditions, all intersection turning movements are anticipated to operate within available stacking distances and/or would not impede flow along major movements during the peak hours based on the 95$^{th}$ percentile peak hour traffic flows for the Existing plus Project traffic conditions. Although some queues extend approximately one vehicle length beyond right-turn pockets (or defacto right-turn lanes) at one intersection, these queues would not be considered a queuing or safety issue and as noted in Table 3.14-10 below. As such, there are no turning movements to and/or from any Caltrans facilities that are anticipated to experience queuing and/or safety issues during the weekday AM or weekday PM peak hours under Existing plus Project traffic conditions. Impacts would be less than significant.

### Opening Year (2025) Plus Project Conditions

As shown in Table 3.14-11, Peak-Hour Queuing Summary for Opening Year (2025) plus Project Conditions, all intersection turning movements are anticipated to operate within available stacking distances and/or would not impede flow along major movements during the peak hours based on the 95$^{th}$ percentile peak hour traffic flows for the Opening Year (2025) plus Project traffic conditions. Although some queues extend approximately one vehicle length beyond right-turn pockets (or defacto right-turn lanes) at one intersection, these queues would not be considered a queuing or safety issue and as noted in Table 3.14-11 below. As such, there are no turning movements to and/or from any Caltrans facilities that are anticipated to experience queuing and/or safety issues during the weekday AM or weekday PM peak hours under Opening Year (2025) plus Project traffic conditions Impacts would be less than significant.

## Table 3.14-10. Peak-Hour Queuing Summary for Existing Plus Project Conditions (Tuolumne Facility)

| No. | Intersection | Movement | Available Stacking Distance (Feet) | Existing (2023) | | | | Existing plus Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 95th Percentile Queue (Feet) | | Exceeds Stacking Distance?[1] | | 95th Percentile Queue (Feet) | | Exceeds Stacking Distance?[1] | |
| | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| 1 | SR-120 – SR-108/La Grange Road – CR J59 | WBL | 500 | 47 | 36 | No | No | 50 | 42 | No | No |
| | | WBR | 200 | 43 | 47 | No | No | 45 | 43 | No | No |
| | | NBR | 130 | 0 | 49 | No | No | 0 | 18 | No | No |
| | | SBL | 475 | 52 | 0 | No | No | 62 | 56 | No | No |
| 2 | Site Employee Dwy/La Grange Road – CR J59 | EBLT | 500 | 0 | 0 | No | No | 17 | 15 | No | No |
| | | SBLR | 50 | 0 | 0 | No | No | 32 | 0 | No | No |
| 3 | Site Truck Dwy/La Grange Road – CR J59 | EBL | 300 | 5 | 8 | No | No | 18 | 19 | No | No |
| | | SBLR | 150 | 21 | 0 | No | No | 42 | 36 | No | No |
| 4 | La Grange Road – CR J59/Yosemite Boulevard – SR-132 | EBLT | 1200 | 38 | 47 | No | No | 40 | 47 | No | No |
| | | WBLT | 1000 | 42 | 38 | No | No | 43 | 41 | No | No |
| | | NBLT | 270 | 43 | 43 | No | No | 43 | 44 | No | No |
| | | NBR | 25 | 35 | 29 | **Yes[2]** | **Yes[2]** | 36 | 29 | **Yes[2]** | **Yes[2]** |
| | | SBLT | 220 | 45 | 46 | No | No | 44 | 45 | No | No |
| | | SBR | 25 | 41 | 46 | **Yes[2]** | **Yes[2]** | 40 | 46 | **Yes[2]** | **Yes[2]** |
| 5 | Red Hill Road/Montezuma Road – SR-49 – SR-120 | WBLT | 180 | 0 | 6 | No | No | 0 | 12 | No | No |
| | | NBL | 215 | 18 | 20 | No | No | 17 | 16 | No | No |
| | | NBR | 50 | 21 | 17 | No | No | 21 | 13 | No | No |

**Source:** Appendix I3

**Notes:** XBL = [DirectionBound]left; XBR = [DirectionBound]right; XBT = [DirectionBound]through; XBLTR = [DirectionBound]left-through-right; XBLT = [DirectionBound]left-through

1 Stacking distance would be exceeded if the required stacking distance is greater than the stacking distance provided.

2 **Yes** – Queue extends past available pocket length for movement (measured as a 25-foot defacto right turn lane) but only extends approximately one vehicle length into the through (or left) turning lane.

## Table 3.14-11. Peak-Hour Queuing Summary for Opening Year (2025) Plus Project Conditions

| No. | Intersection | Movement | Available Stacking Distance (Feet) | Opening Year (2025) | | | | Opening Year (2025) plus Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 95th Percentile Queue (Feet) | | Exceeds Stacking Distance?[1] | | 95th Percentile Queue (Feet) | | Exceeds Stacking Distance?[1] | |
| | | | | AM Peak Hour | PM Peak Hour | AM | PM | AM Peak Hour | PM Peak Hour | AM | PM |
| 1 | SR-120 – SR-108/La Grange Road – CR J59 | WBL | 500 | 53 | 56 | No | No | 99 | 46 | No | No |
| | | WBR | 200 | 49 | 45 | No | No | 50 | 45 | No | No |
| | | NBR | 130 | 0 | 0 | No | No | 0 | 11 | No | No |
| | | SBL | 475 | 62 | 64 | No | No | 65 | 71 | No | No |
| 2 | Site Employee Dwy/La Grange Road – CR J59 | EBLT | 500 | 0 | 0 | No | No | 22 | 13 | No | No |
| | | SBLR | 50 | 0 | 0 | No | No | 35 | 0 | No | No |
| 3 | Site Truck Dwy/La Grange Road – CR J59 | EBL | 300 | 7 | 10 | No | No | 24 | 19 | No | No |
| | | SBLR | 150 | 20 | 0 | No | No | 42 | 39 | No | No |
| 4 | La Grange Road – CR J59/Yosemite Boulevard – SR-132 | EBLT | 1200 | 39 | 48 | No | No | 40 | 50 | No | No |
| | | WBLT | 1000 | 45 | 42 | No | No | 48 | 40 | No | No |
| | | NBLT | 270 | 45 | 42 | No | No | 41 | 42 | No | No |
| | | NBR | 25 | 34 | 27 | **Yes[2]** | **Yes[2]** | 36 | 31 | **Yes[2]** | **Yes[2]** |
| | | SBLT | 220 | 48 | 53 | No | No | 46 | 54 | No | No |
| | | SBR | 25 | 43 | 52 | **Yes[2]** | **Yes[2]** | 44 | 51 | **Yes[2]** | **Yes[2]** |
| 5 | Red Hill Road/Montezuma Road – SR-49 – SR-120 | WBLT | 180 | 0 | 4 | No | No | 0 | 12 | No | No |
| | | NBL | 215 | 18 | 18 | No | No | 21 | 14 | No | No |
| | | NBR | 50 | 22 | 17 | No | No | 21 | 15 | No | No |

**Source:** Appendix I3

**Notes:** XBL = [DirectionBound]left; XBR = [DirectionBound]right; XBT = [DirectionBound]through; XBLTR = [DirectionBound]left-through-right; XBLT = [DirectionBound]left-through

1 Stacking distance would be exceeded if the required stacking distance is greater than the stacking distance provided.

2 **Yes** – Queue extends past available pocket length for movement (measured as a 25-foot defacto right turn lane) but only extends approximately one vehicle length into the through (or left) turning lane.

## Transport to Market

### Port of Stockton Terminal

As noted above, the Port of Stockton is a fully operational port. The addition of the GSNR facility would add approximately eight (8) daily employees, four (4) in the day shift, and two (2) each in the swing shift and night shift. GSNR operations would add on average, one daily train trip to the Port. In addition, eight (8) full-time equivalent stevedores would be required during ship loading operations. No additional haul truck trips would result from the project. No additional roadway improvements would be required. Additional on-site railway sidings would be constructed at the GSNR site. However, these sidings would not create additional roadway crossings or conflicts with vehicular traffic. The project facility would be located on a parcel of partially developed land within the existing West Complex, is served by existing roadways, and would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment Material transfer from trains to the proposed storage facility would occur on new track sidings that would not affect roadways within the Port. As discussed in Impact TRF-1, the addition of up to one additional train trip per day to the Port of Stockton would not significantly affect existing on or off-site rail crossings. Impacts would be **less than significant**.

Impact TRF-4 The project would not result in inadequate emergency access.

## Feedstock Acquisition

### Sustainable Forest Management Projects

As noted above, the acquisition of feedstock would occur in strict accordance with land management agreements, best available science, and best available control technologies, and pursuant to the stewardship agreements between GSFA and the U.S. Forest Service and state law, where applicable. As GSNR will operate in conjunction with LTOs and Third Party Operations for feedstock acquisition, where adherence to U.S. Forest Service and state laws (e.g., Road Use Permits) would be required, the project would not result in inadequate emergency access. Impacts would be **less than significant**.

## Wood Pellet Production

### Lassen Facility

As previously discussed, access to the project site would be provided via driveways from SR-299, utilizing the existing SR-299/Babcock Road intersection for truck access and the existing SR-299/4th Street intersection for employee access. In the event of an emergency, emergency vehicles would be able to access the site from SR-299 at Babcock Road, 4th Street, along with additional access points at Roosevelt Avenue, Adams Avenue, and Washington Avenue. All on-site improvements will be designed with adequate width, turning radius, and grade to facilitate access by County's firefighting apparatus, and to provide alternative emergency ingress and egress. The site plan would be subject to plan review by the County's Fire Department to ensure proper access for fire and emergency response is provided and required fire suppression features are included. Therefore, the project's impact due to inadequate emergency access would be **less than significant.**

### Tuolumne Facility

As previously discussed, access to the project site would be provided from the SR-120-SR-108/La Grange Road-CR J59 intersection, and at driveways along La Grange Road, utilizing the existing southerly driveway to the SA site for

truck access and the existing northerly driveway for employee access. The northerly driveway would be paved and improved to meet the County's access standards. All project access improvements would be reviewed by Tuolumne County. This approach would ensure compliance with all applicable design requirements. As mentioned above, the project has two main access roadways into the site, and in the event of an emergency, both driveways would enable vehicles to enter/exit the project site. In the event of an emergency during switching, in which the northern driveway may be blocked for up to eight (8) minutes, access to the site would continue to be available at the southern driveway. The nearest fire station (Cal Fire Green Springs Station) is located south of the site and southeast of the train tracks, which would further enable emergency access to the site in the event a train is crossing La Grange Road and/or the northern driveway. All on-site improvements will be designed with adequate width, turning radius, and grade to facilitate access by County's firefighting apparatus, and to provide alternative emergency ingress and egress. The site plan would be subject to plan review by the County's Fire Department to ensure proper access for fire and emergency response is provided and required fire suppression features are included. Therefore, the project's impact due to inadequate emergency access would be **less than significant**.

#### Transport to Market

##### Port of Stockton Terminal

The Port of Stockton is a fully operational port. The addition of the GSNR facility, which would operate with approximately eight (8) daily employees and an additional eight (8) full-time equivalent stevedores required for ship loading, and add approximately one daily train trip, would result in a negligeable impact on day-to-day port traffic operations, and would continue to provide emergency access throughout the entirety of the port, the West Complex, and the proposed GSNR facility. Impacts would be **less than significant**.

### 3.14.4.3 Cumulative Impacts

#### Feedstock Acquisition

##### Sustainable Forest Management Projects

Other vegetation management projects, as described in Section 3.0, would occur within Northern California, and would utilize existing roadway networks to access feedstock areas. Although feedstock operations are temporary in nature, and such projects would not require new or expanded infrastructure, variability in location and timing of feedstock acquisition projects, and the possibility of overlap, could result in greater than 110 trips per day. Per the OPR Technical Advisory: "…a project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa…" As VMT is cumulative in nature, the proposed project could result in a considerable contribution to a cumulative VMT impact as described in Impact TRF-2.

#### Wood Pellet Production

##### Lassen Facility

As described in Section 3.0, no other cumulative projects have been identified near the Lassen Facility that would result in additional strain on the roadway network. However, the Lassen Facility is located in a high VMT generating area within Lassen County, and impacts related to VMT were found to be significant and unavoidable. As noted

above, VMT is cumulative in nature, and the VMT impacts related to operation of the Lassen Facility were found to be potentially significant. Therefore, the proposed project could result in a considerable contribution to a cumulative VMT impact as described in Impact TRF-2.

#### Tuolumne Facility

As described in Section 3.0, cumulative projects in the project vicinity may add vehicular traffic onto nearby roadways. The addition of cumulative project traffic was incorporated into the Opening Year (2025) operational analysis (see Attachment Xb), and the results of the queuing analysis provided in Chapter 3.14.4.2 under Threshold C incorporate the addition of cumulative traffic. The project was not found to have an impact in hazardous conditions (e.g., queuing), and would therefore not contribute to a cumulatively considerable impact associated with queuing and hazardous design features. Additionally, as noted above, VMT is cumulative in nature, and the VMT impacts related to operation of the Tuolumne Facility were found to be less than significant. Therefore, the proposed project would not result in a considerable contribution to a cumulative VMT impact.

### Transport to Market

#### Port of Stockton Terminal

As described in Section 3.0, other cargo projects are planned within the Port of Stockton. The Port has planned for such expansion in its West Complex Development Plan (WCDP), and accompanying EIR. The WCDP EIR concluded that buildout of the West Complex could result in significant impacts to additional trip generation and increased traffic. The Port implements mitigation and travel demand measures to promote trip reduction and operational impacts to levels of service.

However, the Denmar Addendum to the WCDP EIR (April 2021) notes that a substantial area within the West Complex remains undeveloped and the current developments are Port-dependent bulk, commercial, industrial, and/or warehousing operations, which have generated lower volumes of vehicle trips than anticipated in the WCDP EIR. The Denmar Addendum further notes that as of 2019, only 10,000 daily vehicle trips were recorded compared to the projected 40,000 new daily vehicle trips analyzed in the WCDP EIR for the year 2020. The project would have a negligeable impact to the transportation network with the addition of eight (8) employees, and an additional eight (8) full-time equivalent stevedores required for ship loading, and one added daily train trip to the site and would not significantly contribute to a cumulative transportation impact.

## 3.14.4.4 Mitigation Measures

### Feedstock Acquisition

#### Sustainable Forest Management Projects

The following mitigation measure **MM-TRF-1** would reduce VMT impacts for the feedstock acquisition projects.

MM-TRF-1 Provide Employee Sponsored Vanpool for Sustainable Forest Management Projects. GSNR would be required to provide, or cause to be provided, vanpooling services consistent with CAPCOA Measure T-11 for workers traveling to jobsites when applicable (i.e., when 5 or more employees with similar work hours live close enough to one another for van pooling to be practicable). A

Transportation Manager shall be designated to coordinate vanpooling for each feedstock acquisition project and provide a report detailing recorded annual vanpool usage to the County.

## Wood Pellet Production

### Lassen Facility

The following mitigation measure **MM-TRF-2** would verify consistency with Lassen County General Plan Policy CE-6 and CE-10:

MM-TRF-2 Assessment and maintenance of Babcock Road per GP Policies CE-6 and CE-10.

#### Initial Assessment

The project will be required to conduct an initial pavement assessment of Babcock Road from SR-299 to the project site, prior to commencement of construction of the Lassen Facility.

#### Biennial Pavement Assessments

Pavement within the designated area of Babcock Road will thereafter be evaluated biennially, commencing at the start of construction of the Lassen Facility, and the results of these analyses will be retained by GSNR.

#### Assessment Criteria

Each assessment required by the Mitigation Measure shall address the following elements:

- **Pavement Distress Evaluation:** quantification of the distress types, extents, and severities in accordance with the ASTM D6433 standard. A 100% assessment of the construction routes will be performed. If the existing surface is not Asphalt Concrete (AC) or Portland Cement Concrete (PCC), an alternative evaluation method such as the Pavement Surface Evaluation and Rating (PASER) methodology will be used.
- **Pavement Condition Index (PCI):** PCI values will be calculated using collected distress data and reported for both AC and PCC roadways.
- **Photo Survey:** photos of the surface will be collected and provided to the County as part of the analysis.
- **Road Roughness:** measurement of the International Roughness Index (IRI) for each construction route.

#### Rehabilitation

If, through this assessment, the road is found to require resurfacing, repaving, or reconstruction in order to maintain its pre-project condition, GSNR will be required to resurface, repave, or reconstruct this section of Babcock Road, consistent with the County of Lassen requirements for Road District Four and consistent with Lassen County Code Section 10.32.050 – *Minimum Design Standards for County Road.* The road will be rehabilitated to a condition that allows for carrying 20-year Equivalent Single Axel Load (ESAL) values. (Traffic volumes along this segment

of Babcock Road will be determined from the traffic report contained in this EIR. Forward-looking projections of operational traffic will be also considered to determine the 20-year ESAL count and ensure that the rehabilitated pavement sections are structurally adequate for Project and non-Project traffic.) The post-construction report will be signed and stamped by a California-Licensed Professional Engineer.

The following mitigation measure **MM-TRF-3** would limit the potential for hazardous roadway conditions related to site access to/from the Lassen Facility:

MM-TRF-3 Installation of warning signage along SR-299.

GSNR would be required to install CA MUTCD W2-1 warning signage per applicable standards in advance of Babcock Road and 4th Street along both directions of SR-299.

The following mitigation measure **MM-TRF-4** would reduce VMT impacts for the Lassen Facility and the project asa a whole:

MM-TRF-4 Provide Electric Vehicle Charging Infrastructure and Employee Sponsored Vanpool for the Lassen Facility, Tuolumne Facility, and Port of Stockton. GSNR would be required to provide, or cause to be provided, vanpooling services consistent with CAPCOA Measure T-11 for workers traveling to the Lassen Facility, Tuolumne Facility, and the Port of Stockton facility when applicable (i.e., when 5 or more employees with similar work hours live close enough to one another for van pooling to be practicable). A Transportation Manager shall be designated to coordinate vanpooling at each facility and maintain a record of annual vanpool usage.

Additionally, GSNR would be required to install EV charging at the Lassen Facility, Tuolumne Facility, and the project facility at the Port of Stockton, consistent with CAPCOA Measure T-13. Per Table A5.106.5.3.2 of the 2019 California Green Building Standards, 10 percent of total parking spaces are required to be EV charging spaces to meet Tier 2 standards. The project proponent would be required to exceed the 10 percent EV charging space requirement, consistent with CAPCOA Measure T-13.

#### Tuolumne Facility

No mitigation measures are required as impacts would be less than significant.

### Transport to Market

#### Port of Stockton Terminal

No mitigation measures are required as impacts would be less than significant.

## 3.14.4.5 Significance After Mitigation

Impact TRF-1 The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

The proposed project components at the feedstock locations, the wood pellet production facilities in Lassen and Tuolumne Counties, and the transport to market at the Port of Stockton, would not result in a significant impact, with the exception of consistency of the Lassen Facility to Lassen County General Plan Policy CE-6 and CE-10. With implementation of mitigation measure **MM-TRF-2**, the potential impact is **less than significant**.

Impact TRF-2 The project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

The proposed project at the pellet production facility in Lassen County and for feedstock acquisition activities would potentially result in a significant impact. Implementation of Mitigation Measures **MM-TRF-1** and **MM-TRF-4** would reduce VMT impacts. However, reductions would not substantially reduce VMT, and implementation may not be feasible in all instances. No additional feasible mitigation measures are available for reduction of VMT impacts, due to the rural nature of the project location, and the need for a workforce from a wide geographic area. Therefore impacts would continue to be **significant and unavoidable**. For the project components at the wood pellet production facility in Tuolumne County, and the transport to market at the Port of Stockton, impacts would be less than significant.

Impact TRF-3 The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

The proposed project components at the feedstock locations, the wood pellet production facilities in Tuolumne County and the transport to market at the Port of Stockton, would not result in a significant impact. Additional truck traffic at the Lassen Facility could result in potentially significant impacts related to adequate warning of passenger traffic. Implementation of Mitigation Measure **MM-TRF-3** would reduce this potential impact to **less than significant**.

Impact TRF-4 The project would not result in inadequate emergency access.

The proposed project components at the feedstock locations, the wood pellet production facilities in Lassen and Tuolumne Counties, and the transport to market at the Port of Stockton, would not result in a significant impact. No mitigation is required, as the potential impact is **less than significant**.

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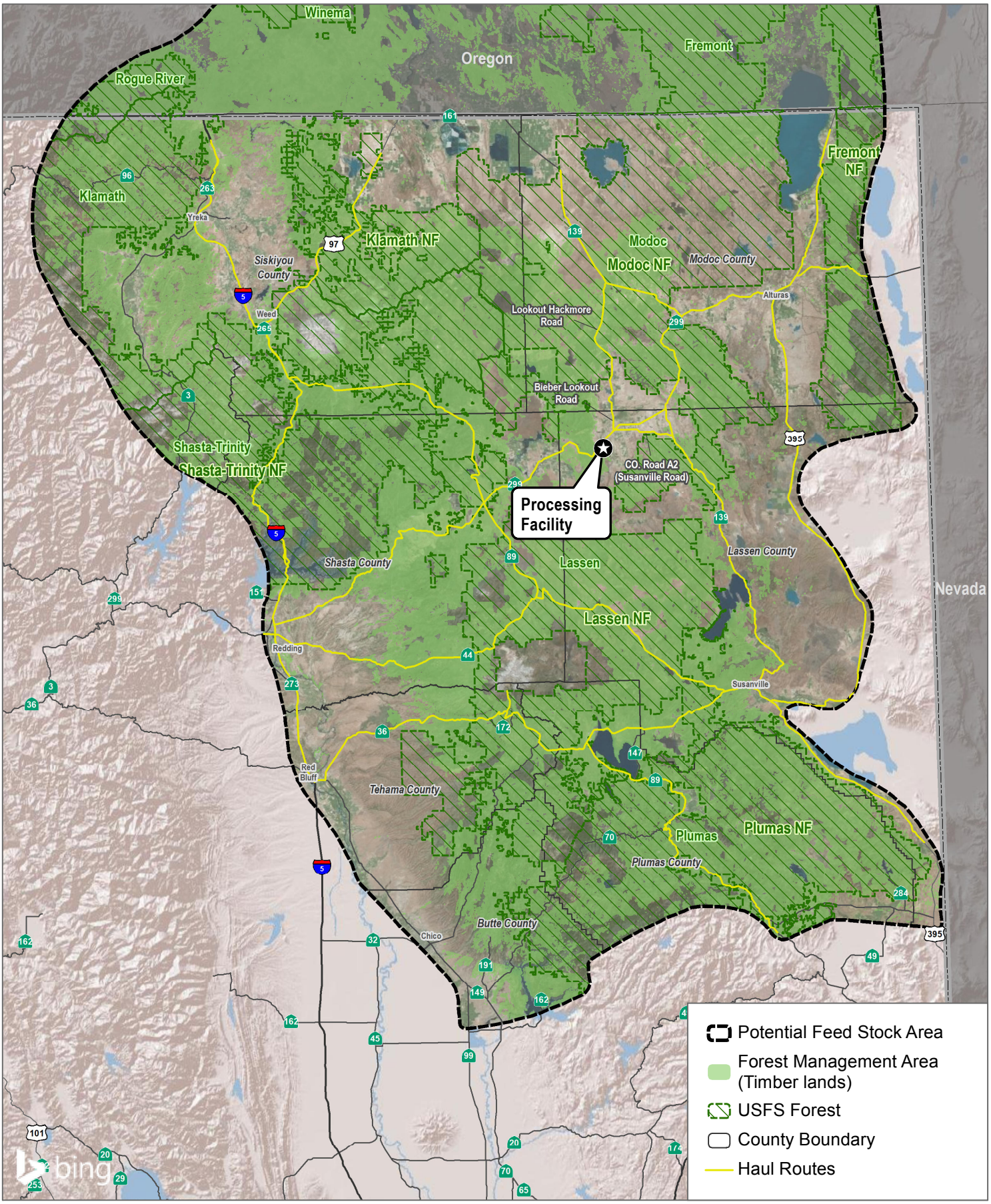


SOURCE: Bing Maps 2022

**FIGURE 3.14-1**

Feed Stock and Haul Routes - Lassen Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

DUDEK

0 10 20 Miles

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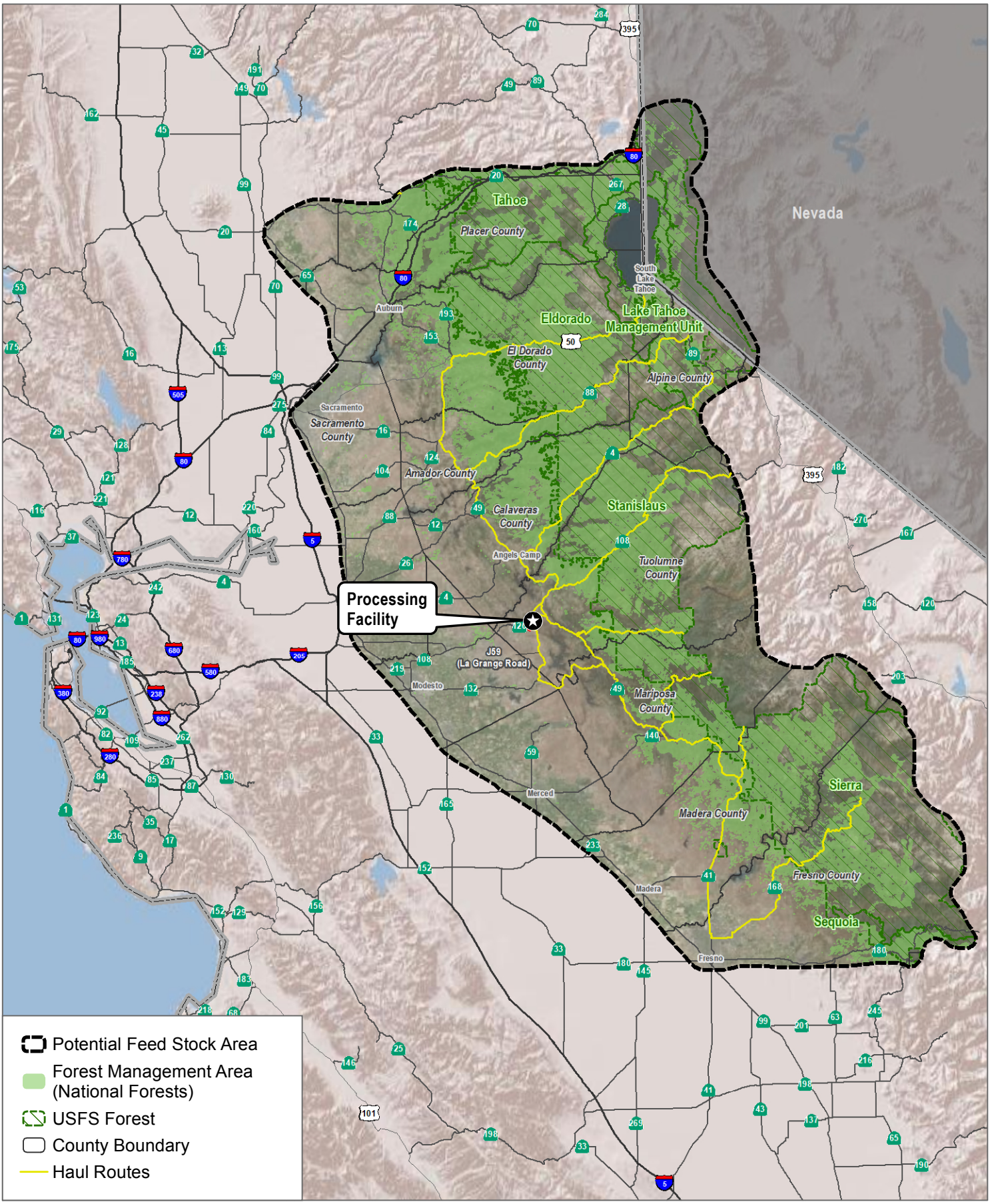


SOURCE: Bing Maps 2022

DUDEK

0 12.5 25 Miles

**FIGURE 3.14-2**

Feed Stock and Haul Routes - Tuolumne Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 3.15 Utilities and Service Systems

This section of the EIR evaluates potential impacts regarding utilities and service systems associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing water infrastructure, wastewater and storm infrastructure, solid waste, electrical power, natural gas, and telecommunications facilities at feedstock source locations (Sustainable Forest Management Projects), proposed pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California (Port), and evaluates the potential for project-related utilities and service systems impacts, considering proposed project design features that could reduce or eliminate associated impacts. Several scoping comments were received regarding ground water supplies, electrical service provisions, and the production of solid waste or compost as a result of project operations, in response to the Notice of Preparation (NOP) (see Appendix A). These issues are addressed in the appropriate environmental chapters (e.g. Hydrology and Water Quality, Energy, Biology etc.).

## 3.15.1 Environmental Setting

### 3.15.1.1 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests located within the Working Area (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area of the two wood pellet production facilities.

### 3.15.1.2 Northern California (Lassen Facility) Site

**Table 3.15-1. Lassen Facility Utility Providers**

| Utility | Agency/Provider |
|---|---|
| Water Supply | Domestic water well |
| Wastewater Collection and Conveyance | On-site collection (septic system) |
| Wastewater Treatment | On-site treatment (septic system) |
| Stormwater Conveyance | On-site treatment |
| Solid Waste Collection | N/A (self-haul) |
| Electrical Service | Pacific Gas & Electric Company |
| Natural Gas | On-site propane storage |

#### Water Supply

The project site is located within the boundaries of the Upper Pit River watershed. This watershed covers 2,891,575 acres and runs through the northeast portion of Lassen County (County) as well as portions of Modoc, Shasta, and Siskiyou Counties. The Upper Pit River Watershed Integrated Regional Water Management Plan was adopted in 2018 to ensure better water quality, sustainable water uses and reliable water supplies, as well as enhanced environmental stewardship (Upper Pit River Watershed IRWMP 2017). Due to the rural nature of the project site, it

is not located within a public water supply system or district service area. Development within the project area relies upon groundwater wells for domestic water.

## Groundwater

Groundwater acts as a significant contributor to the County's water supplies, specifically for industrial and domestic uses in the unincorporated areas of the County. There are a total of 20 groundwater basins within the Upper Pit River Watershed (Upper Pit River Watershed IRWMP 2017). Lassen and Modoc Counties overlie the Big Valley Groundwater Basin (BVGB) which, according to the Department of Water Resources (DWR), is a medium priority basin. As such, a groundwater sustainability plan (GSP) under the Sustainable Groundwater Management Act (SGMA) was adopted for the BVGB in 2022, and revised in 2024, to ensure long-term sustainability. The GSP concludes that the BVGB encompasses an area of approximately 144 square miles, with 104 square miles located in Lassen County (Lassen County and County of Modoc 2022). The County's General Plan Energy Element suggests that the drilling of wells within the Big Valley Basin tend to have high yields (Lassen County 1993). However, the 2017 IRWMP states that according to the DWR semi-annual groundwater monitoring data of 13 domestic and agricultural wells within the Big Valley Groundwater Basin over the past 30 years determined that groundwater levels in the basin were at that time at or near historically low levels (Upper Pit River Watershed IRWMP 2017). According to the Water Supply Assessment (WSA) prepared for the Lassen site, groundwater levels within the BVGB have generally risen overall in recent years in response to significant recharge in water years 2022 and 2023 (Appendix G2, Lassen Water Supply Assessment; Appendix G3, Lassen Groundwater Well Assessment). Refer to Section 3.9, Hydrology and Water Quality, Appendix G2, Lassen Water Supply Assessment, and Appendix G3, Lassen Groundwater Well Assessment, for a discussion on groundwater at the Lassen site.

There is one existing well located in the central portion of the project site. The well is active and is currently used to fill water trucks for dust suppression. The existing well would be repurposed for any water utility requirements for the process and for use by personnel during operation of the project.

## Stormwater

The IRWMP does not address stormwater or stormwater management in the due to the low development pressure and scarcity of resources in the region (Upper Pit River Watershed IRWMP 2017).

Stormwater on the project site is currently conveyed to five upland ditches located throughout the project site.

## Wastewater

As of 2016 approximately 6,200 out of 8,500, or 73% of the properties in the unincorporated area of the County are served by onsite waste treatment systems (OWTS) (Lassen County Environmental Health Department 2016).

The project site does not contain any existing wastewater collection or conveyance facilities, nor does it contain on-site treatment such as a septic system.

## Solid Waste

Solid waste generated by project construction and operation would be collected and transported to either Westwood Landfill or Bass Hill Landfill. Both Westwood Landfill and Bass Hill Landfill are located approximately 60 miles south of the project site, west and east of the City of Susanville, respectively. Existing landfill capacity and disposal

amounts of these two facilities are provided in Table 3.15-2, *Landfill Capacities (Lassen Facility)*, with both facilities exemplifying available capacities (CalRecycle 2023a, 2023b).

**Table 3.15-2. Landfill Capacities (Lassen Facility)**

| Facility | Maximum Permitted Capacity (cubic yards) | Maximum Daily Permitted Throughput (tons) | Current Remaining Capacity (cubic yards) | Remaining Capacity Date | Cease Operation Date |
|---|---|---|---|---|---|
| Westwood Landfill | 89,369 | 10 | 62,207 | 5/31/2006 | 1/1/2027 |
| Bass Hill Landfill | 2,150,000 | 300 | 603,404 | 7/1/2013 | 12/30/2019 |

**Source:** CalRecycle 2023a, 2023b.
**Note:** Although Bass Hill Landfill had a predicted Cease Operation Date of 12/30/2019, considerable capacity remains due to lower-than-expected use, and the landfill remains active.

### Electrical Power and Natural Gas

Existing electrical infrastructure on the project site is minimal, serving the two existing structures (pump house and water tower). Pacific Gas & Electric Company (PG&E) is currently the electrical provider. PG&E provides electric services to 5.1 million customers, including 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines over a 70,000-square-mile service area in northern and central California (PG&E 2023).

Electrical service will be provided from the nearest substation located approximately four miles northeast of the project site. Construction of transmission lines from the substation along existing public rights-of-way to the facility is part of the proposed project. This substation is presently operated by Surprise Valley Electrification Corporation (SVEC), a rural electricity cooperative. Use of this substation for the proposed project will require either a wheeling or similar arrangement between PG&E and SVEC.

The project site is not served by natural gas.

## 3.15.1.3 Central Sierra Nevada (Tuolumne Facility) Site

**Table 3.15-3. Tuolumne Facility Utility Providers**

| Utility | Agency/Provider |
|---|---|
| Water Supply | Domestic water well |
| Wastewater Collection and Conveyance | On-site collection (Septic System) |
| Wastewater Treatment | On-site treatment (Septic System) |
| Stormwater Conveyance | On-site detention pond |
| Solid Waste Collection | N/A (self-haul) |
| Electrical Service | Pacific Gas & Electric |
| Natural Gas | Local supplier – On-site propane storage |

## Water Supply

According to the Tuolumne Utilities District Urban Water Management Plan (UWMP), the project site is located within the service area of the Tuolumne Utilities District (TUD), which is the largest out of two water provider services in Tuolumne County (County). The TUD contains 17 retail municipal water systems (TUD 2021). However, the TUD's existing water systems do not reach the project area. The project site is currently served by an on-site groundwater well.

## Groundwater

The TUD supplies water to approximately 32,800 residents within the county (County of Tuolumne 2018). However, for rural areas of the County that rely on smaller water systems or are not connected to a municipal water system, including the project site, groundwater is the only water supply source available. The majority of small water systems in the County rely on individual small capacity wells, most of which are regulated by the State Water Quality Control Board. Due to the prevalence of fractured rock that underlies most areas served by private wells, groundwater conditions have been proven to be rather inconsistent. As a result of fractured rock formations as well as weather fluctuations, wells can be less reliable during periods of drought and difficult to establish in some areas of the County. The Tuolumne-Stanislaus Integrated Regional Water Management Plan concluded that the existing data relating to groundwater is insufficient to quantify an amount of total available sustainable groundwater supply (T-Stan 2017). The project site is not located within a groundwater basin subject to SGMA. The closest groundwater basin is the San Joaquin Valley – Modesto Groundwater Basin (DWR Basin No. 5-022.02) located approximately 6 miles west of the Project site (Appendix G5, Tuolumne Groundwater Well Assessment). According to the WSA prepared for the Tuolumne site (Appendix G4, Tuolumne Water Supply Assessment) and a review of well completion reports for wells drilled near the Project site, well yields are reported to range from 1 gallon per minute (gpm) to 60 gpm, with the exception of one well located at the Project site, Well 1, which had an estimated yield of 400 gpm. Refer to Section 3.9, Hydrology and Water Quality and Appendix G4, Tuolumne Water Supply Assessment, for a discussion on groundwater supply at the Tuolumne site.

As previously stated, the project site is not served by the TUD and would rely on private wells for water supply. There are three existing wells located on the project site, hereafter referred to as Wells 1, 2, and 3 (see Figure 3.9-9, Tuolumne On-Site Wells). Well 1, located in the southeast portion of the project site, is currently active. Well 2, located in the southwest portion of the project site, is inactive and has been deemed non-potable. Well 3, is located on the southwestern portion of the site and is assumed to provide water to the residences located on the parcel west of the project site. Two water tanks on the property are no longer in use. There is an off-site water tank, located on the parcel to the east that provides fire protection water to the project site. This tank is supplied by Well 1.

## Storm Water

The County contains several upper watershed reservoirs that collect stormwater. However, the County's General Plan states that localized flooding of creeks and tributaries, particularly in developed areas and along roadways has been a challenge to manage and contain throughout the County. Furthermore, it is noted that rural areas with low water fords tend to flood with stormwater and prevent access. The General Plan recognizes the need for improvement to existing stormwater conveyance systems to reduce the potential for catastrophic flooding in developed areas (County of Tuolumne 2018).

Existing stormwater infrastructure on site consists of four humanmade detention basins to collect and store run off. There is one in the southern portion of the site, one in the northeastern portion of the site, and two located near

the mid-west portion of the site. One ephemeral drainage is located near the southern portion of the project site, and one intermittent drainage occurs in the northeast corner of the project site.

### Wastewater

There are a total of five wastewater collection and treatment systems in the County. They include: TUD, GCSD, Twain Harte CSD, Jamestown Sanitary District, and the Tuolumne Sanitary District (County of Tuolumne 2018).

The project site is not currently served by a wastewater provider and contains one existing septic tank located west of the existing bark separating structure.

### Solid Waste

Tuolumne County no longer has any operating landfills. However, there are several recycling centers, transfer stations, as well as multiple waste services companies located throughout the County. Solid waste generated by project construction and operation would likely be collected and transported to Highway 59 Landfill located in Merced County, approximately 30 miles south of the project site (County of Tuolumne 2018). The existing landfill capacity and disposal amounts of the facility are provided in Table 3.15-4, *Landfill Capacity (Tuolumne Facility)*, showing available capacity.

**Table 3.15-4. Landfill Capacity (Tuolumne Facility)**

| Facility | Maximum Permitted Capacity (cubic yards) | Maximum Daily Permitted Throughput (tons) | Current Remaining Capacity (cubic yards) | Remaining Capacity Date | Cease Operation Date |
|---|---|---|---|---|---|
| Highway 59 Landfill | 30,012,352 | 1,500 | 28,025,334 | 9/1/2005 | 1/1/2030 |

**Source:** CalRecycle 2023c.

### Electrical Power and Natural Gas

PG&E provides electrical services to the majority of the County. As previously stated in Section 3.15.1.2, PG&E covers a 70,000 square mile service area in northern and central California. The project site is currently served by PG&E. The existing infrastructure consists of overhead powerlines on the eastern boundary which serve the existing on-site structures.

## 3.15.1.4 Port of Stockton

The project site is served by the following public utilities as identified in Table 3.15.1.4-1, *Port of Stockton Utility Providers* and discussed in detail below.

**Table 3.15-5. Port of Stockton Utility Providers**

| Utility | Agency/Provider |
|---|---|
| Water Supply | California Water Service Company |
| Wastewater Collection and Conveyance | City of Stockton |
| Wastewater Treatment | City of Stockton |

**Table 3.15-5. Port of Stockton Utility Providers**

| Utility | Agency/Provider |
|---|---|
| Stormwater Conveyance | Port of Stockton |
| Solid Waste Collection | Republic Services & Waste Management |
| Electrical Service | Pacific Gas & Electric |
| Natural Gas | Pacific Gas & Electric |

## Water Supply

California Water Service Company (Cal Water) is one of five water purveyors in the City of Stockton (City) and provides water services to the project site. Cal Water, which is regulated by the California Public Utilities Commission, provides water supply services to approximately 1.8 million Californians in 25 districts. Cal Water's Stockton District (District) was first formed in 1927 when the existing water system at the time was purchased from PG&E. According to the District's Urban Water Management Plan (UWMP), released in 2021, the District serves a population of approximately 173,900, delivering water to residential, commercial, industrial, and governmental customers. 57 percent of the District's service connections are residential customers while non-residential customers account for 37 percent. The remaining 6 percent is characterized as system water losses (Cal Water 2021).

Water is currently supplied to the West Complex from a 12-inch water main that crosses the San Joaquin River at Navy Drive Bridge (connecting to the main Port area). Water is stored in a 300,000-gallon water tower and then distributed via pipelines ranging from 6 to 14 inches (Port of Stockton 2004).

## Surface Water

Purchased water is the primary water supply source in the District. Cal Water purchases all surface water from the Stockton East Water District (SEWD or District), which has fulfilled approximately 84 percent of the District's demands within the past decade (Cal Water 2021). SEWD sources their supplies from the New Hogan Reservoir on the Calaveras River and the New Melones Reservoir on the Stanislaus River. As a result of Water Supply Contracts with the United States Bureau of Reclamation (USBR), SEWD is guaranteed 56.5 percent of the yield from the New Hogan Reservoir and an entitlement of 75,000 acre-feet per year (AFY) from the New Melones Reservoir. These supplies serve both agricultural and urban demands within the SEWD service area. The SEWD treatment plant is located on the eastern edge of the City and treats raw water. Treated water is then pumped from the plant via transmission mains to the district and other urban water purveyors in the area.

As discussed in Section 3.13, Population and Housing, the City has experienced significant growth within the past ten years. As a result of the rapid growth in the City, the District's share of SEWD treatment plant output is expected to decline in the future. However, in 2012, the City's Delta Water Supply Project (DWSP) came on-line and increased the District's percentage of SEWD water supply to 58.1 percent of the total available water from the SEWD plant. The remaining amount of water supply owned by SEWD is used for groundwater recharge or for surface irrigation of agricultural crops in the SWD service area. Table 3.15-6, *Actual and Forecasted Water Supplies* displays the District's current and projected water supplies, including surface water. To meet year-round demands, the District intends to maximize the use of treated surface water purchased from SEWD (Cal Water 2021). Table 3.15-7 further examines the District's projected water supply and demand during normal, single dry, and multiple dry years.

## Table 3.15-6. Actual and Forecasted Water Supplies

| Sources | Projected Water Supplies (AF) | | | | | |
|---|---|---|---|---|---|---|
| | 2020[1] | 2025 | 2030 | 2035 | 2040 | 2045 |
| Purchased or Imported Water (Stockton East Water District; Calaveras and Stanislaus Rivers) | 22,622 | 22,393 | 22,248 | 22,208 | 22,140 | 22,177 |
| Groundwater (not desalinated)[2] | 1,484 | 1,340 | 1,340 | 1,340 | 1,340 | 1,340 |
| **Total** | **24,106** | **23,733** | **23,588** | **23,548** | **23,480** | **23,517** |

**Source:** UWMP Table 6-8 (Cal Water 2021).
**Notes:**
1 Actual for Calendar year 2020
2 Groundwater is sourced from the Eastern San Joaquin Subbasin. Groundwater supply values are based on general rate case filings for 2021.
All totals are based on reasonably available volume.

## Table 3.15-7. Projected Water Supply and Demand during Normal, Single Dry, and Multiple Dry Years (AF)

| | 2025 | 2030 | 2035 | 2040 | 2045 |
|---|---|---|---|---|---|
| **Normal Years** | | | | | |
| Supply | 22,393 | 22,248 | 22,208 | 22,140 | 22,177 |
| Demand | 22,393 | 22,248 | 22,208 | 22,140 | 22,177 |
| Difference | 0 | 0 | 0 | 0 | 0 |
| **Single Dry Year** | | | | | |
| Supply | 24,377 | 24,230 | 24,191 | 24,123 | 24,164 |
| Demand | 24,377 | 24,230 | 24,191 | 24,123 | 24,164 |
| Difference | 0 | 0 | 0 | 0 | 0 |
| **Multiple Dry Years** | | | | | |
| **First Year** | | | | | |
| Supply | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Demand | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Difference | 0 | 0 | 0 | 0 | 0 |
| **Second Year** | | | | | |
| Supply | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Demand | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Difference | 0 | 0 | 0 | 0 | 0 |
| **Third Year** | | | | | |
| Supply | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Demand | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Difference | 0 | 0 | 0 | 0 | 0 |
| **Fourth Year** | | | | | |
| Supply | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Demand | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Difference | 0 | 0 | 0 | 0 | 0 |

**Table 3.15-7. Projected Water Supply and Demand during Normal, Single Dry, and Multiple Dry Years (AF)**

| | 2025 | 2030 | 2035 | 2040 | 2045 |
|---|---|---|---|---|---|
| **Fifth Year** | | | | | |
| Supply | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Demand | 24,776 | 24,627 | 24,589 | 24,521 | 24,564 |
| Difference | 0 | 0 | 0 | 0 | 0 |

**Source:** UWMP Tables 7-2b, 7-3, and 7-4 (Cal Water 2021).
**Notes:** Volumes are in units of acre-feet (AF).
The Eastern San Joaquin Subbasin is not adjudicated, and this projected supply volumes, which include groundwater, do not comprise a determination of water rights or maximum allowable pumping.

## Groundwater

Groundwater accounts for 16 percent of the District's total water supply over the past decade, but even greater in earlier years. The District overlies the Eastern San Joaquin Subbasin (Basin). The Basin spans approximately 764,800 acres and is bounded by the San Joaquin-Sacramento, San Joaquin-Amador, and Calaveras-Amador county lines. The Basin is drained by the San Joaquin River and several of its tributaries. Although the Basin is not adjudicated, Department of Water Resources' (DWR) most recent evaluation determined that Basin is considered to be critically over-drafted; annual overdraft is estimated at 70,000 acre-feet per year (AFY).

The District owns and operates wells that extract from the Victor Formation and Laguna Formation aquifers that underly the eastern valley floor. Although there are four major aquifer formations within the basin, all wells in the District only extract from the two previously mentioned formations. The District has a total of 41 wells within their service area, however, only 25 wells were active while the remaining amount are either inactive or on standby. In addition to the wells, the District has eight surface storage structures that allow the wells to pump to storage during non-peak demand periods and provide peak day demand. Table 3.15-8 lists the amount of groundwater pumped by the District from 2016-2020. The UWMP concludes that the groundwater production along with the purchased water supply has been sufficient to meet annual average day and maximum day demands in current and all prior operation years. Furthermore, as presented in Table 3.15-7, projected future demands of the District in normal and multiple dry year periods through the year of 2045 are expected to be fulfilled (Cal Water 2021).

The UWMP notes that Cal Water has also established interconnections with neighboring water agencies in the event of an isolated interruption of water supply. Cal Water has a total of seven emergency interties. Five of these interties are with the City and two (2) are with SEWD (Cal Water 2021). Cal Water's 2020 Urban Water Management Plan (UWMP) and SEWD's 2020 UWMP both address water reliability, drought and climate change, and future use of recycled water. Cal Water state's it will meet the project's future water demands from existing supply sources through Year 2045 (Cal Water 2021).

**Table 3.15-8. Historical Groundwater Supply (AF) from 2016 - 2020**

| Groundwater Basin | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Eastern San Joaquin Subbasin | 4,681 | 2,920 | 1,521 | 924 | 1,484 |

**Notes:** All or part of the groundwater described below is desalinated.
Volumes are in units of acre-feet (AF)

### Storm Water

The West Complex is served by its own stormwater system. The developed areas on the Island are served by a combination of underground pipes and open drainage ditches, while the undeveloped areas of the Island are served exclusively by ditches. Stormwater is directed to a collection and pumping area near the southwest corner of the Island. This facility includes three pumps with a capacity of 37,400 gallons per minute. An approximate 5-acre stormwater overflow area just north of the pumphouse collects any overflow runoff until it can be pumped into Burns Cutoff.

### Wastewater

Sanitary sewer service at the Port is provided by the City of Stockton. Wastewater from the Project Area is conveyed by gravity to a lift station, where it is pumped across the San Joaquin River to the City of Stockton's Regional Wastewater Control Facility (RWCF) through a 12-inch force main. The City's sewer system includes approximately 1,000 miles of gravity sewers and force mains (pressure pipelines) ranging from less than 6-inches to 72-inches in diameter and 35 sewer pump stations (City of Stockton 2022a). The sewer system generally flows from the north, east, and south to the Stockton Regional Wastewater Control Facility (RWCF), which provides secondary and tertiary treatment before discharging to the San Joaquin River. The facility currently collects and treats an average of 33 mgd of wastewater daily from approximately 116,000 sewer connections throughout the City and nearby San Joaquin County areas (City of Stockton 2022b).

### Solid Waste

Solid waste collection services in the City are provided by Republic Services and Waste Management. The collected solid waste is transported and disposed of primarily at either the Forward Landfill on South Austin Road in Manteca, or the North County Landfill on East Harney Lane in Lodi. The City generated approximately 372,729 tons of solid waste in 2019 (CalRecycle 2019). Existing landfill capacity and disposal amounts of these two facilities are provided in Table 3.15-9*, Landfill Capacities (Port of Stockton Site)* with both facilities currently showing available capacities.

**Table 3.15-9. Landfill Capacities (Port of Stockton Site)**

| Facility | Maximum Permitted Capacity (cubic yards) | Maximum Daily Permitted Throughput (tons) | Current Remaining Capacity (cubic yards) | Remaining Capacity Date | Cease Operation Date |
|---|---|---|---|---|---|
| Forward Landfill, Manteca | 59,160,000 | 8,668 | 24,720,669 | 1/31/2020 | 1/1/2036 |
| North County Landfill & Recycling Center, Lodi | 41,200,000 | 825 | 35,400,000 | 12/31/2009 | 12/31/2048 |

**Source:** CalRecycle 2023d, 2023e.

### Electrical Power and Natural Gas

PG&E provides electricity to the majority of the city, including the Port of Stockton. The Port owns and maintains the electrical utility system in the West Complex, which receives wholesale electricity from PG&E (Port of Stockton 2022).

PG&E also supplies the City with natural gas. In 2020, natural gas consumption for San Joaquin County totaled approximately 183,949,868 therms of which just 95,147,580 therms were consumed by non-residential uses and the remainder by residential uses (CEC 2022).

## 3.15.2 Regulatory Setting

### 3.15.2.1 Federal

#### Clean Water Act

The federal Clean Water Act (CWA) established the basic structure for regulating discharges of pollutants into the waters of the U.S. The CWA made it unlawful for any person to discharge any pollutant from a point source into navigable waters unless a permit was obtained under its provisions. The CWA assists in the development and implementation of waste treatment management plans and practices by requiring provisions for treatment of waste using best management practices (BMPs) technology before there is any discharge of pollutants into receiving waters, as well as the confined disposal of pollution, so that it will not migrate to cause water or other environmental pollution. Additionally, CWA funds the construction of sewage treatment plants under the construction grants program.

#### National Pollutant Discharge Elimination system

The Water Permits Division within the U.S. EPA Office of Wastewater Management leads and manages the National Pollutant Discharge Elimination System (NPDES) permit program. As authorized by the federal CWA, the NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the U.S. The NPDES permit program oversees stormwater management and sewer and sanitary sewer overflows.

#### Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (40 CFR 268, Subpart D), contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs that include federal landfill criteria. The federal regulations address the location, operation, design, and closure of landfills, as well as groundwater monitoring requirements.

### 3.15.2.2 State

#### Urban Water Management Planning Act

The Urban Water Management Planning Act was established in Division 6, Part 2.6 of the California Water Code. The act was developed due to concerns for potential water supply shortages throughout the state. It requires information on water supply reliability and water use efficiency measures. Urban water suppliers are required as part of the act to develop and implement Urban Water Management Plans (UWMPs) to describe their efforts to

promote efficient use and management of water resources. UWMPs are required to be updated every five years. Cal Water has complied with the Urban Water Management Planning Act through the adoption of its 2020 UWMP.

### Senate Bill X7-7

In November 2009, the Legislature enacted, and the Governor signed, Senate Bill X7-7, which created a statewide goal of achieving a 20% reduction in urban per capita water use in California by 2020. Under this statute, urban water suppliers are required to establish water conservation targets for the years 2015 and 2020. The City of Stockton's current Urban Water Management Plan (discussed in Local Regulations, below) includes these targets.

### General Waste Discharge Requirements for Sanitary Sewer System

The General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems were adopted by the State Water Resources Control Board (SWRCB) in May 2006. These WDRs require local jurisdictions to develop a sewer system management plan (SSMP) that addresses the necessary operation and emergency response plans to reduce sanitary sewer overflows. The WDRs require that the local jurisdiction approve the SSMP. The most recent SSMP for the City of Stockton is for the period of 2016 to 2020 which was adopted on March 26, 2016.

### Solid Waste Regulations

The California Integrated Waste Management Act (AB 939), enacted in 1989 and subsequently amended, required local jurisdictions to divert at least 50% of their solid waste from landfills by 2000. The 50% recycling of solid waste placed the City of Stockton in compliance with AB 939. More recent legislation, AB 341, increased the recycling requirement to 75% of solid waste by 2020. Beginning April 1, 2016, the state's Mandatory Organic Waste Recycling law (AB 1826) phased in requirements for including multifamily properties of five (5) or more units, based on the amount and type of waste the business produces weekly, with full implementation in 2019.

## 3.15.2.3 Local

### Lassen County

#### Lassen County General Plan

Goal N-3. Water supplies of sufficient quality and quantity to serve the needs of Lassen County, now and in the future.

Policy NR13. The County recognizes the critical importance and future value of its water resources and shall support the conservation of water supplies and protection of water quality.

Policy NR14. The County supports efforts by state and Federal agencies, including the California Department of Water Resources, to monitor the quantity and quality of the County's water supplies and to protect the water resources of the County when such efforts are demonstrated to be based on sound, scientific assessment of potentially adverse impacts to those resources.

Policy NR15. The County advocates the cooperation of state and Federal agencies, including the State Water Resources Control Board and its regional boards, in considering programs and actions to protect the quality of ground water and surface water resources.

Policy NR17. The County supports measures to protect and insure the integrity of water supplies and is opposed to proposals for the exportation of ground water and surface waters from ground water basins and aquifers located in Lassen County (in whole or part) to areas outside those basins.

### Implementation Measure

- **NR-H.** The County will maintain ground water ordinances and other forms of regulatory authority to protect the integrity of water supplies in Lassen County and regulate the exportation of water from ground water basins and aquifers in the county to areas outside those basins.

Policy NR19. The County supports control of water resources at the local level, including the formation of local ground water management districts to appropriately manage and protect the long-term viability of ground water resources in the interest of County residents and the County's resources.

Goal N-6. Eliminate the threat of flood events which may result in the loss of lives and major damage to property and resources.

Policy NR24. The County encourages feasibility studies, planning projects and, when appropriate, the development of new, well-planned reservoirs, flood channels and other facilities and programs which can serve to control flooding and help reduce flood-related damage.

## Energy Element

### 4.3.2.1. Biomass

Policy 6. Biomass plants shall be sited near primary fuel sources to minimize the costs and environmental impacts associated with hauling fuel from long distances. The County encourages the Forest Service and timber management agencies to prioritize and expedite the harvest of salvage timber (e.g., bug-and-fire-damaged trees) for biomass fuel.

A. Implementation Measures

B. Biomass harvest activity shall be subject to U.S. Forest Service, Bureau of Land Management, and/or

C. California Department of Forestry review and permitting where applicable.

D. Updated reports on the regional availability and sustainability of biomass fuels shall be required and considered by the County prior to the approval of additional biomass plants.

E. All biomass harvest operations and biomass plants shall have the necessary permits and adhere to mitigation measures outlined by the Regional Water Quality Control Board.

Specific development and operating conditions of approval shall be set forth in any approved Use Permit for a biomass facility.

The County will communicate its policies regarding biomass harvest practices to applicable Federal and State resource management agencies.

### Lassen County Environmental Health Division Local Area Management Plan – Onsite Wastewater Treatment Systems

In accordance with California Assembly Bill AB 885, the State Water Control Board adopted the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems. Tier 2 of this Policy allows for local agencies to develop management programs that address conditions specific to that jurisdiction. These Local Agency Management Programs (LAMPS) require approval by the regional quality control board. The Lassen County LAMP was adopted in 2013 and is intended to support the continued use of onsite wastewater treatment systems (OWTS) and to expand the local program with the permitting and regulation of alternative OWTS while protecting public health and water quality. The proposed project would be required to comply with applicable regulations and policies presented in the LAMP.

### Lassen County Code

#### Section 7.28.030

Section 7.28.030 of the Lassen County Code states that no person, firm, corporation, governmental agency or any other legal entity shall, within the unincorporated area of Lassen County, construct, repair, modify or destroy any well unless a written permit has first been obtained from the health officer of the county, as provided in this chapter.

#### Section 18.102.050

Section 18.102.050 of the Lassen County Code states that a minimum of one acre is required for property utilizing individual septic system and individual well; minimum lot width one hundred fifty feet.

## Tuolumne County

### Tuolumne County General Plan

#### Utilities Element

Policy 3.B.1. Require that development is consistent with the applicable water purveyor standards and specifications, including as applicable, the proper design and sizing of water distribution lines, storage tanks, and other aspects of the water infrastructure system both on and off the site of development.

Policy 3.E.4. Require development to connect to a public sewer system if it is reasonably available. ["Reasonably available" is defined in County Code Section 12.08.150(A) as within 300 feet.]

Policy 3.F.1. Require proposed solid waste facilities and all other new development to comply with the Tuolumne County Integrated Waste Management Plan and all adopted elements thereof.

#### Water Supply Element

Policy 14.A.5. Manage groundwater resources consistent with the requirements of the Sustainable Groundwater Management Act, in response to the probability that the State will extend regulations to the County of Tuolumne.

Policy 14.A.7. Encourage the beneficial capture and utilization of stormwater to promote healthy watersheds, fire-safe landscapes, and groundwater recharge.

Policy 14.C.8. Encourage water resources to be protected from pollution, conserved, and recycled whenever possible to provide for continued economic, community, and social growth.

## Tuolumne County Code

### Title 7, Integrated Waste Management

Title 7 of the Tuolumne County Code establishes an integrated solid waste management system intended to preserve the public health, safety, welfare, convenience and necessity and provide for a stable revenue source with which the county and authorized service providers may furnish adequate management of solid waste. The Title also provides for a combination of franchise agreements and permits which replace the existing permit system for the collection of refuse as was provided for in Chapter 8.04. The project is required to comply with all applicable code requirements described therein.

### Chapter 8.05

Chapter 8.05 of the Tuolumne County Code establish minimum standards for the storage of generally nontoxic/nonhazardous wastes and removal of wastes within the unincorporated areas of Tuolumne County. The project is required to comply with all applicable code requirements.

### Chapter 13.04, Onsite Wastewater Treatment Systems and Chapter 13.08, On-Site Sewage Treatment and Disposal

Chapter 13.04 and 13.08 of the Tuolumne County Municipal Code introduces code requirements for onsite sewage treatment and disposal systems, including septic systems and leach fields. The code describes sizing and design standards, permits, required inspections and maintenance. Relevant minimum criteria are summarized below. However, Chapter 13.04 and 13.08 include more items than listed below. The project is required to comply with all applicable code requirements.

- All onsite treatment and disposal systems must be permitted with and inspected by the Tuolumne County Environmental Health Division (EHD).
- All onsite treatment and disposal systems must be designed and constructed by a registered environmental health specialist (REHS) and a qualified engineering consultant.
- Septic tanks must be at least 50 feet from private water wells, lakes, reservoirs, perennial streams, and surface water supplies used for public water supply; and at least 150 feet from public water wells.

### Chapter 13.16, Water Wells

Chapter 13.16 of the Tuolumne County Municipal Code introduces regulations for the construction, reconstruction, modification, abandonment and destruction of domestic and agricultural wells, cathodic protection wells, industrial wells, geothermal heat exchange wells, monitoring and observation wells, test wells and test holes and exploration holes in such a manner that the groundwater of the county will not be contaminated or polluted and that water obtained from wells will be suitable for beneficial use and will not jeopardize the health, safety or welfare of the people of the County. The project is required to comply with all applicable code requirements listed therein.

## City of Stockton

### Wastewater Master Plan Update

The City adopted its Wastewater Master Plan Update in October 2022 (Master Plan Update) based on completion of the City's Envision Stockton 2040 General Plan. The plan describes the major elements of the wastewater collection system and treatment facilities needed to serve development anticipated according to the 2040 General Plan. The Master Plan Update also evaluates existing wastewater collection system infrastructure, to address potential impacts of near-term and long-term planned growth, and to develop a comprehensive road map for the City's wastewater system Capital Improvement Program. The wastewater system was divided into ten (10) existing sub-collection systems and four (4) future sub-collection systems. According to the Master Plan Update, modeled system deficiencies for 2040 conditions are only slightly more severe than those shown above for existing conditions (City of Stockton 2022a).

### Storm Drain Master Plan and Supplement

The City adopted its Storm Drain Master Plan in 2008 and has recently completed an update to the Storm Drain Master Plan that was adopted in March 2023. The plan defines a process and criteria for future detailed sub-watershed storm drain planning in growth areas within the City's 2035 General Plan boundary. A supplement to the Storm Drain Master Plan was prepared in 2017 based on anticipated development in the Stockton General Plan 2040. The supplement evaluated the future needs of the City's storm drainage system overall, including detention basins and pump stations (West Yost Associates 2017). The supplement did not compare storm drainage system requirements for buildout under the General Plan 2040 as compared to buildout under the 2035 General Plan.

### City of Stockton General Plan

The City's 2040 General Plan goals and policies and implementing actions from Land Use, Safety, and Community Health Elements are relevant to this project (City of Stockton 2018).

Goal LU-5. Protected Resources. Protect, maintain, and restore natural and cultural resources.

Policy LU-5.4. Require water and energy conservation and efficiency in both new construction and retrofits.

Action LU-5.4.A. Require all new development, including major rehabilitation, renovation, and redevelopment, to adopt best management practices for water use efficiency and demonstrate specific water conservation measures.

Action LU-5.4.B. Require all new development, including major rehabilitation, renovation, and redevelopment, to incorporate feasible and appropriate energy conservation and green building practices, such as building orientation and shading, landscaping, and the use of active and passive solar heating and water systems.

Goal LU-6. Effective Planning. Provide for orderly, well-planned, and balanced development.

Policy LU-6.3. Ensure that all neighborhoods have access to well-maintained public facilities and utilities that meet community service needs.

Action LU-6.3.A. Require development to mitigate any impacts to existing sewer, water, stormwater, street, fire station, park, or library infrastructure that would reduce service levels. [See also Chapter 15.0, Public Services.]

Action LU-6.3.B. Ensure that public facilities, infrastructure, and related land area and other elements are designed and right-of-way is acquired to meet 2040 planned development requirements to avoid the need for future upsizing or expansion, unless planned as phased construction.

Goal LU-4. Clean Air. Improve local air quality.

Policy SAF-4.1. Reduce air impacts from mobile and stationary sources of air pollution.

Action SAF-4.1.A. Require the construction and operation of new development to implement best practices that reduce air pollutant emissions, including through installation of Energy Star-certified appliances.

Goal CH-5. Sustainability Leadership. Exhibit leadership in sustainability for the Central Valley and beyond.

Policy CH-5.2. Expand opportunities for recycling, re-use of materials, and waste reduction.

Action CH-5.2.B. Continue to require recycling in private and public operations, including construction/demolition debris.

### City of Stockton Municipal Code

#### Title 8 - Chapter 8.28

Chapter 8.28 of Title 8 Health and Safety provides the City's requirements for construction and demolition debris waste reduction measures. This chapter sets a requirement that 50% or more (by weight) of the amount of construction and demolition debris generated at project sites be reused, recycled or otherwise processed to divert such materials from disposal in landfills. Any party that undertakes a construction, demolition, or renovation project by applying for City permits is responsible for meeting the construction and demolition debris waste diversion requirement (Ord. 010-08 C.S. Section 2, prior code Section 7-081).

## 3.15.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to Utilities and Service Systems are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to Utilities and Service Systems would occur if the project would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

- Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

# 3.15.4 Impact Analysis

## 3.15.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to utilities and service systems. Potential impacts to public utilities are determined by comparing project demand to available utilities and service systems capacity. In determining the level of significance, this analysis assumes that the proposed project would comply with relevant State and local ordinances and regulations, as well as the General Plan policies presented above.

## 3.15.4.2 Project Impacts

Impact UTIL-1 The project would require the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities resulting in environmental effects.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Due to their nature and location, feedstock acquisition projects would not connect to any existing utility systems. Water for dust control would be provided by truck. The project would not require the relocation or construction of new or expanded facilities and therefore would have **no impact**.

### Wood Pellet Production

#### Lassen Facility

For the proposed Lassen facility, pellet processing would require approximately 260 gallons per minute (gpm) and all other operational aspects would require a total of 360 gpm (and a 32 gpm average). A central water system is not available at the site. Production water would be provided by the existing groundwater well. The project is anticipated to require approximately 20 AF for construction over a one-year period and approximately 47 AFY for operation. The operational water demand of 47 AFY is anticipated to remain constant over the life of the project. This estimate is based on the volume of water required to produce 700,000 metric tons of pellets per year (15,159,017 gallons per year), plus the sanitary and drinking water demands of 60 employees at 10 gallons per employee per shift (156,000 gallons per year). This equates to an amortized pumping rate of approximately 29 gpm, assuming the well is pumped 24 hours per day seven days per week, or approximately 123 gpm, assuming

the well is pumped eight hours per day five days per week. Based on these estimates, the total project water demand is estimated to be approximately 913 AF over a 20-year period, or 47 AFY (Appendix G2). The existing onsite well would be used to meet the project demand for water used in the pellet production process. An additional well of typical domestic size, with an appropriate seal, will be drilled to fulfill the employees' sanitary and drinking water demands. (Water usage from this well is included in the operational water demand figure noted above). Project impacts relating to groundwater supply are discussed in Section 3.9, Hydrology and Water Quality.

A wastewater system is not available at the project site. Wastewater demand for the site is limited to employee demand, as the pellet process does not result in wastewater discharge. The process water for pellet production is converted to steam and then captured and recycled into the pellet making process. The site would require construction of a septic system to meet demand of 0.26 gpm. The impacts of the septic system are discussed in Section 3.6, Geology and Soils.

A stormwater drainage system would be installed to direct run off to an on-site detention basin. The construction of the detention basin has the potential to result in significant environmental effects. The basin is included in the project description (see Figure 2-5, Project Site (Lassen)), and the impacts are addressed in the construction impact analysis for the Lassen site throughout this EIR, including but not limited to air quality, biological resources, cultural resources, greenhouse gas emissions, hydrology, noise, and wildfire.

### Electrical Power

The site is currently served by electrical power via overhead utility lines. To support project operations, an electrical load of 12 kV would be required. The existing infrastructure will require upgrades to accommodate the required electrical load. The project will require electrical transmission upgrades to serve the project site. Electrical power will be supplied from an existing substation located on Susanville Road between Highway 299 and Valley Cutoff Road, approximately 4 miles northeast of the project site. (As noted above, this substation is presently operated by SVEC, and use of this substation for the proposed project will require either a wheeling or similar arrangement between PG&E and SVEC). Existing electrical transmission lines running along the public roads between the substation and the project site would be upgraded to meet the demands of the proposed facility. The proposed transmission upgrades would be approximately 4.5 miles in length and would utilize existing utility poles that run parallel to State Route (SR) 299 and Susanville Road (see Figure 3.15-1, Proposed Transmission Upgrades – Lassen Facility). Some utility poles may be replaced if they are in disrepair and not suitable for repowering.

Annual electricity demand for the facility is estimated at 142,677,840 kWh/yr, further discussed in Section 3.5 Energy.

The construction of a new upgraded transmission line would not result in significant impacts to the resource areas of aesthetics, geology and soils, land use and planning, noise, population and housing, public services, and transportation. Impacts to these resources would be considered less than significant for the reasons discussed hereafter.

Construction of the transmission upgrades would not create a significant impact to aesthetic resources because the transmission upgrades would utilize the existing transmission line adjacent to SR 299 and Susanville Road. As stated in Section 3.1, Aesthetics, SR 299 is classified as a County Scenic Corridor by Lassen County. However, upgrading the electricals line on existing poles would not substantially damage the scenic nature of SR 299, nor would it degrade the existing visual character or quality of public views. Furthermore, the transmission upgrades would not include any elements that could create a new source of light or glare.

Geology and soil conditions would not be impacted by transmission upgrades. Installation of a new or replacement electrical line on existing poles would require limited ground disturbing activities (limited to locations where individual pole replacement may be necessary). The corridor along SR 299 where the transmission line would be installed are not on or near any known active earthquake faults. The limited ground disturbance would not result in significant geotechnical-related impacts, such as expansive soils, landslides, soil erosion, liquefaction, lateral spreading, subsidence, or collapse. Similar to the project site, the electrical upgrades would not result in potentially significant impacts relating to destruction of a unique paleontological or geological resource.

Hazards and hazardous material impacts related to installation and maintenance of the transmission line would be less than significant. While installation or maintenance of the transmission line may require hazardous materials commonly used for construction activities, all such materials would be transported, used, and disposed of in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. With implementation of applicable construction BMPs and adherence to applicable hazardous materials and waste regulations, impacts involving the release of hazardous materials into the environment due to upset and accident conditions during installation and maintenance of the transmission lines would be less than significant. Although the transmission line would be located within a quarter mile of Big Valley Joint Unified School, given the nature of this element of the project and low number of hazardous emissions and materials that would be used for implementation, the potential impact would be less than significant. There is one LUST site, adjacent to SR 299, that is in open remediation, according to the State Water Resources Control Board. However, the proposed project would not construct new electrical poles and ground disturbance would be minimal. As such, the potential impact of being included on a list of hazardous materials sites is considered less than significant. Additionally, construction activities associated with installation would be temporary and would not require road closures or cause any other physical interference with an emergency response plan or evacuation plan.

The electrical upgrades would not violate any water quality standards or waste discharge requirements, decrease or interfere with groundwater recharge, alter the existing drainage pattern of the area, release pollutants in the event of a flood hazards, nor would it conflict with a water quality control plan.

The transmission upgrades would have no impact on land use. As the electrical upgrades would use an existing utility corridor adjacent to SR 299 and Susanville Road, they would not divide an existing community, nor conflict with any applicable land use plan, policy, or regulation.

Construction noise would be temporary in nature and would not occur in one location for any extended period. In addition, sensitive receptors are few in number and set back from SR 299 and Susanville Road. Noise impacts would be less than significant.

The number of construction workers required to would be minimal and would be drawn from existing utility contractors in the region. Therefore, the construction of transmission upgrades would not have a significant effect on population and housing or public services.

Transportation related impacts associated with the transmission upgrades would be less than significant. The number of trips generated by construction crews would be small and temporary in nature. Installation of the new transmission line would not involve any changes or alterations to existing roadways, including SR 299 and Susanville Road, that could create a hazard or result in inadequate emergency access.

The transmission upgrades may contribute to potentially significant construction impacts to air quality, biological resources, greenhouse gas emissions, cultural resources, and wildfire.

While criteria air pollutant and greenhouse gas emissions, as well as energy use, are relatively small for this project component, it would contribute to overall construction impacts at the Lassen site. The activities associated with the transmission upgrades have been included in the construction emissions analysis for site. Air quality and GHG mitigation measures associated with construction, such as **MM-AQ-2, MM-AQ-3, MM-AQ-4, MM-AQ-5**, and **MM-AQ-7** would be implemented where applicable.

Due to the small and temporary nature of ground disturbance, biological resources impacts related to this element of the project would primarily be related to disturbance of nesting special status or migratory birds. If installation occurs during the bird nesting season, project activities could impact nesting birds by potentially crushing eggs or killing nestlings in active nests. However, implementation of **PDF-BIO-8** would avoid these impacts by scheduling work outside the nesting season or conducting pre-activity nesting bird surveys and avoiding active nests, when feasible.

Minimal ground disturbance would occur during installation and maintenance activities associated with the new transmission line. As such, the likelihood of significant impacts to cultural, tribal cultural resources, or human remains would be low. Nonetheless, mitigation measures **MM-CUL-1** and **MM-CUL-2** would be implemented during installation of the transmission line. These mitigation measures would require that in the event of an unanticipated discovery, work in that vicinity would halt while the resources were evaluated.

While the risk of increased wildfire is low, due to the nature of the work (i.e. upgrading transmission lines), the use of vehicles and equipment in a moderate wildfire risk zone does warrant precautionary measures and best practices (CAL FIRE 2022a). This project component would be subject to the mitigation measures presented in Section 3.16, Wildfire. Installation of the transmission line would not require road closures that could impair and adopted emergency response or evacuation plan. Given that installation activities would not involve altering any slopes or creating any new wind patterns, the Project would not exacerbate wildfire spread due to slopes. As presented in Section 3.16, the stringing of a new transmission line could involve activities associated with the use of heavy machinery, vehicles, trenching, hot work etc., which would result in a potentially significant impact. Therefore, mitigation measure **MM-WIL-2**, which requires best practices and requirements for fire safety during construction would be implemented prior to and throughout construction activities associated with installation of the new transmission line.

### Tuolumne Facility

The existing onsite well would be used to meet the project's needs for water used in the pellet production process. An additional well of typical domestic size, with an appropriate seal, will be drilled to fulfill the employees' sanitary and drinking water demands. (Water usage from this well is included in the operational water demand figure noted below). Project demand for pellet processing would require approximately 110 gpm. All other project operations would require a maximum of 216 gpm. The project is anticipated to require approximately 10 AF of water for construction, over a 1-year period, and approximately 25 AFY for operations. The operational water demand of 25 AFY is anticipated to remain constant over the life of the project. This estimate is based on the volume of water required to produce 300,000 metric tons of pellets per year (8,033,731 gallons per year), plus the sanitary and drinking water demands of 51 employees at 10 gallons per employee per shift (132,600 gallons per year), as well as filling a 180,000-gallon water storage tank for fire supply. This equates to an amortized pumping rate of approximately 16 gpm, assuming the well is pumped 24 hours per day seven days per week, or approximately 65 gpm, assuming the well is pumped eight hours per day five days per week. Based on these estimates, the total project water demand is estimated to be 485 AF over a 20-year period, or 24.25 AFY. Effects on groundwater are discussed in Section 3.9, Hydrology and Water Quality.

The project is served by an existing septic system. Wastewater demand for the site is limited to employee demand, as the pellet process does not result in wastewater discharge. The facility does require process water, which is converted to steam and then captured and recycled into the pellet making process. The system may require refurbishment or expansion to meet demand of 0.18 gpm. The impacts of the septic system are discussed in Section 3.6, Geology and Soils.

A stormwater drainage system would be installed to direct run off to an existing on-site detention pond located in the southwest corner of the property or existed permitted discharge point on the west side of the property. The drainage modifications may have a potentially significant impact on biological resources as, discussed in Section 3.3, Biological Resources.

### Electrical Power

The site is currently served by electrical power via overhead utility lines. To support project operations, an electrical load of 12 kV would be required. The existing infrastructure will require upgrades to accommodate the required electrical load. The project will require electrical transmission upgrades to serve the project site. The existing transmission lines that run along the public roads between the project site and an existing electrical substation, located west of the project site, would be upgraded. The proposed transmission upgrades would be approximately 4.54 miles in length and would utilize existing utility poles adjacent to SR 108 (see Figure 3.15-2, Proposed Transmission Upgrades – Tuolumne Facility). Some utility poles may be replaced if they are in disrepair and not suitable for repowering.

Annual electricity demand for the facility is estimated at 94,807,680 kWH/yr, further discussed in Section 3.5 Energy.

The construction of a new transmission line would not result in significant impacts to the resource areas of aesthetics, geology and soils, land use and planning, noise, population and housing, public services, and transportation. Impacts to these resources would be considered less than significant for the reasons discussed hereafter.

Construction of the transmission upgrades would not create a significant impact to aesthetic resources because the transmission upgrades would utilize the existing transmission line adjacent to SR 108. As stated in Section 3.1, Aesthetics, there are no officially designated scenic highways in the project area. Upgrading the electrical lines on existing poles would not substantially damage the scenic nature of the area, nor would it degrade the existing visual character or quality of public views. Furthermore, the transmission upgrades would not include any elements that could create a new source of light or glare.

Geology and soil conditions would not be impacted by the transmission upgrades. Installation of a new or replacement electrical line on existing poles would require limited ground disturbing activities (limited to locations where individual pole replacement may be necessary). The corridor along SR 108 where the transmission line would be installed are not on or near any known active earthquake faults. The limited ground disturbance would not result in significant geotechnical-related impacts, such as expansive soils, landslides, soil erosion, liquefaction, lateral spreading, subsidence, or collapse. Similar to the project site, the electrical upgrades would not result in potentially significant impacts relating to destruction of a unique paleontological or geological resource.

Hazards and hazardous material impacts related to installation of the transmission line would be less than significant. While installation or maintenance of the transmission line may require hazardous materials commonly

used for construction activities, all such materials would be transported, used, and disposed of in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. With implementation of applicable construction BMPs and adherence to applicable hazardous materials and waste regulations, impacts involving the release of hazardous materials into the environment due to upset and accident conditions during installation and maintenance of the transmission lines would be less than significant. There are no schools located within a quarter mile of the proposed transmission line. In addition, the existing transmission line is not included on a list of hazardous materials sites. Moreover, construction activities associated with installation would be temporary and would not require road closures or cause any other physical interference with an emergency response plan or evacuation plan.

The electrical upgrades would not violate any water quality standards or waste discharge requirements, decrease or interfere with groundwater recharge, alter the existing drainage pattern of the area, release pollutants in the event of a flood hazards, nor would it conflict with a water quality control plan.

The transmission upgrades would have no impact on land use. As the electrical upgrades would use an existing utility corridor adjacent to SR 108, they would not divide an existing community, nor conflict with any applicable land use plan, policy, or regulation.

Construction noise would be temporary in nature and would not occur in one location for any extended period. In addition, sensitive receptors are few in number and set back from SR 108. Noise impacts would be less than significant.

The number of construction workers required would be minimal, and be drawn from existing utility contractors in the region. Therefore, the construction of transmission upgrades would not have a significant effect on population and housing or public services.

Transportation related impacts associated with the transmission upgrades would be less than significant. The number of trips generated by construction crews would be small and temporary in nature. Installation of the new transmission line would not involve any changes or alterations to existing roadways, including SR 108, that could create a hazard or result in inadequate emergency access.

The transmission upgrades may contribute to potentially significant construction impacts to air quality, biological resources, greenhouse gas emissions, cultural and tribal cultural resources, and wildfire.

While criteria air pollutant and greenhouse gas emissions, as well as energy use, are relatively small for this project component, it would contribute to overall construction impacts at the Tuolumne site. The activities associated with the transmission upgrades have been included in the construction emissions analysis for site. Air quality and GHG mitigation measures associated with construction such as **MM-AQ-2, MM-AQ-3, MM-AQ-4, MM-AQ-7, MM-AQ-10**, and **MM-AQ-13** would be implemented where applicable.

Due to the small and temporary nature of ground disturbance, biological resources impacts related to this element of the project would primarily be related to disturbance of nesting special status or migratory birds. If installation occurs during the bird nesting season, project activities could impact nesting birds by potentially crushing eggs or killing nestlings in active nests. However, implementation of **PDF-BIO-8** would avoid these impacts by scheduling work outside the nesting season or conducting pre-activity nesting bird surveys and avoiding active nests when feasible.

Minimal ground disturbance would occur during installation and maintenance activities associated with the new transmission line. As such, the likelihood of significant impacts to cultural resources, tribal cultural resources, and human remains would be low. Nonetheless, mitigation measures **MM-CUL-1** and **MM-CUL-2** would be implemented during installation of the transmission line. These mitigation measures would require that in the event of an unanticipated discovery, work in that vicinity would halt while the resources were evaluated.

While the risk of increased wildfire is low, due to the nature of the work (i.e. upgrading transmission lines), the use of vehicles and equipment in a high or very high wildfire risk zone does warrant precautionary measures and best practices (CAL FIRE 2022b). This project component would be subject to the mitigation measures presented in Section 3.16, Wildfire. Installation of the transmission line would not require road closures that could impair and adopted emergency response or evacuation plan. Given that installation activities would not involve altering any slopes or creating any new wind patterns, the Project would not exacerbate wildfire spread due to slopes. As presented in Section 3.16, the stringing of a new transmission line could involve activities associated with the use of heavy machinery, vehicles, trenching, hot work etc., which would result in a potentially significant impact. Therefore, mitigation measure **MM-WIL-2**, which requires best practices and requirements for fire safety during construction would be implemented prior to and throughout construction activities associated with installation of the new transmission line.

Construction of new or expanded electric power facilities at the Tuolumne and Lassen wood pellet production facilities could result in a **potentially significant** impact. However, with implementation of the project design features and mitigation measures noted above, impacts would be reduced to **less than significant**.

## Transport to Market

### Port of Stockton

The project is consistent with the buildout of the West Complex Development Plan EIR, which considered impacts to the water distribution, wastewater, and stormwater conveyance systems (Port of Stockton 2004).

The proposed project would tie into existing water service lines which serve the existing port berth. Operation of the proposed project would require approximately 675,360 gpy (2.07 AFY) for service water (non-potable) and 50,966 gpy (0.16 AFY) for potable water. All service (non-potable) water uses would have an average demand of 84 gallons per hour, or 1.4 gpm. Maximum flow demand for non-potable water would by 66 gpm (excluding fire flow). For purposes of fire flow, the maximum non-potable flow would be between 1,500 and 3,940 gpm. Potable water demand would be an average 9f 6.3 gallons per hour, or 0.1 gpm. Maximum potable flow would be 11 gpm.

Non-potable water is supplied from the San Joaquin River, while potable water is supplied via pipeline from the Port. The project facilities would tie into existing water conveyance infrastructure in the West Complex. While the West Complex Development Plan EIR notes that construction of a future loop system to improve water service is planned, this project represents a very low percentage of the anticipated demand, and well below the historic demand of the West Complex (aka Rough and Ready Island).

Sanitary sewer flow would be a maximum of 11 gpm, with an estimated annual discharge of 50,966 gpy (0.16 AFY), based on the potable water demand. The project facilities would connect to the existing sewer system. While the West Complex Development Plan has identified the need for future wastewater conveyance improvements, the project demand is quite low, and can be accommodated by the existing system.

The project would increase the amount of impermeable area. The project would tie into the existing stormwater drainage system on the Rough and Ready Island that is available to West Complex tenants. The developed areas on the island are served by a combination of underground pipes and open drainage ditches, while the undeveloped areas of the island are served exclusively by ditches. Stormwater on the island is directed to a collection and pumping area near the southwest corner of the island. An approximate 5-acre stormwater overflow area just north of the pumphouse collects any overflow runoff until it can be pumped into Burns Cutoff. The project will be required to implement low impact development features and provide adequate on-site stormwater detention, consistent with the West Complex Development Plan EIR. These requirements have been incorporated into **MM-HYD-11** and **HYD-12**, as discussed in section 3.9, Hydrology and Water Quality. On-site measures would minimize the need to expand off-site stormwater facilities.

The project would require 12,060,000 kWh per year of electricity, with an average running load of 0.7 MW (over 8,040 hours per year of operation). The proposed facility would connect to existing electrical infrastructure available to Port tenants. The existing electrical infrastructure at the Port has adequate existing capacity and will not require new or expanded facilities to serve the project's needs

The project would not require the relocation or construction of new or expanded facilities and therefore the project would have a **less than significant** impact.

Impact UTIL-2 The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

### Feedstock Acquisition

Non-potable water would be required for dust control and potentially for fire suppression. Potable water would be required for employees. As the feedstock project locations will typically be in remote areas without water infrastructure, water would be trucked in from a suitable source. Impacts to water supply would be **less than significant**.

### Wood Pellet Production

#### Lassen Facility

As described in the WSA prepared for the Lassen facility (Appendix G2), the water supply for the Lassen facility would be provided by on-site groundwater supply well. The Project site overlies the Big Valley Groundwater Basin. As an overlying landowner, the Project has the right to extract percolating groundwater for reasonable and beneficial use without limitation. Based on the results of a 24-hour pumping test conducted at existing on-site Well 1, the well has sufficient capacity to satisfy the estimated Project demand of 46.85 AFY. Additionally, based on the results of the Basin water budget analysis, the Basin is projected to be nearly in balance through 2068. Groundwater levels in Well 38N07E32A002M located near the Project site have remained stable since the beginning of the measurement record in 1959 indicating a stable groundwater supply. Implementation of the GSP will ensure that the groundwater Basin is managed sustainably for existing and future beneficial uses of the groundwater supply. The WSA concluded that local groundwater supplies are available during normal, single dry, and multiple dry years during a 20-year projection and will meet the projected water demand associated with the proposed Project, in addition to existing and planned future uses of the groundwater supply. As such, impacts to water supply would be **less than significant.** For a discussion on groundwater supply impacts, see Section 3.9, Hydrology and Water Quality of this EIR.

### Tuolumne Facility

According to the WSA prepared for the Tuolumne facility (Appendix G4), water supply for the Tuolumne facility would be provided by the existing on-site groundwater supply well. As an overlying landowner, the Project has the right to extract percolating groundwater for reasonable and beneficial use without limitation. The Project site is not located within a DWR Bulletin 118 alluvial groundwater basin. The surficial geology at the Project site consists of metavolcanic rocks. Groundwater is found within the fractures of this bedrock formation. Based on the results of a 24-hour pumping test conducted at existing on-site Well 1, the well has sufficient capacity to satisfy the estimated Project demand of 25 AFY. Additionally, based on the results of the groundwater budget analysis for the Project site contributing watershed, there is sufficient groundwater recharge and groundwater in storage to satisfy the Project water demand and the demands of all other groundwater users in the watershed during normal, single dry, and multiple dry years over a 20-year projection and will meet the projected water demand associated with the proposed Project, in addition to existing and planned future uses of the groundwater supply. Therefore, impacts to water supply would be **less than significant**. For a discussion on groundwater supply impacts, see Section 3.9, Hydrology and Water Quality of this EIR.

## Transport to Market

### Port of Stockton

The project would require both non-potable and potable water. Operation of the proposed project would require approximately 2.04 AFY for service water (non-potable) and 0.16 AFY for potable water. The

The project is consistent with the buildout of the West Complex Development Plan EIR, which considered water demand for cargo operations and estimated an increased demand of 679 AFY (Port of Stockton 2004). The proposed project would represent less than 1% of the estimated use.

Non-potable at the West Complex comes from the San Joaquin River. The project would also require potable water for personnel. According to the City's 2020 UWMP, which includes the Port of Stockton, the total potable and non-potable water supplies for Cal Water over the previous 5 years prior to the 2020 UWMP averaged approximately 23,260 AFY (see Table 4-1 of the 2020 UWMP [Cal Water 2021]). Based on the 2020 UWMP, in 2020 Cal Water produced a total of 24,106 acre-feet, of which 1,484 acre-feet was produced from local groundwater sources, and 22,622 acre-feet was purchased from the SEWD. Over the past several years, Cal Water's local groundwater has accounted for approximately 16% of the overall demand, with purchased water accounting for the remaining 84% of the overall demand. Future demand projections assume approximately the same percentage distribution between groundwater and purchased water supplies. The anticipated drinking water quantities are projected to remain relatively consistent as future demands increase slightly through the planning horizon of year 2045. The analysis of existing and projected water supplies versus demands determined that there is sufficient water supply for Cal Water to meet the proposed project's demand in addition to the existing demands for the next 20+ years (Cal Water 2021).

The UWMP also evaluated the reliability of Cal Water's water supplies in normal (average), single-dry, and multiple-dry year scenarios. Cal Water purchases treated water from the Stockton East Water District and pumps groundwater from wells located within its service area in the Eastern San Joaquin Subbasin. As indicated in Tables 3.15-3 above, Cal Water is projected to meet its projected demand for normal, single-dry, and multiple-dry years (Cal Water 2021). In addition, the 2020 UWMP includes a Water Shortage Contingency Plan in the event of a water shortage event or supply disruption, specific policies and actions would be implemented at various shortage level

scenarios to ensure necessary water resources to protect human health and safety. The project would also be constructed in compliance with the California Green Building Standards also known as CalGreen and include water conservation measures to reduce water consumption 25% by 2030. The CalGreen standards include regulations for water efficiency and conservation that are continually updated and adapted based on new legislation and changing conditions.

Impacts to water supply from the Port operations would be **less than significant**.

### Summary

Impacts to water supplies during normal, dry and multiple dry years would be less than significant.

Impact UTIL-3 The project would not result in a determination by the wastewater treatment provider, that it does not have adequate capacity to serve the project's projected demand in addition to existing commitments.

## Feedstock Acquisition

### Sustainable Forest Management Projects

The feedstock acquisition portion of the proposed project would take place in a variety of rural forested areas, likely with no access to facilities connected to a wastewater treatment system. Therefore, there would be no connections made to a wastewater treatment plant or provider by the proposed project. As such, there could not be a determination by a wastewater treatment provider determining insufficient capacity to serve the project. There would be **no impact**.

## Wood Pellet Production

### Lassen and Tuolumne Facilities

The proposed Lassen and Tuolumne facilities would not connect to any public wastewater conveyance or collection system. Both facilities would rely upon septic systems, discussed in Section 3.6, Geology and Soils. The facilities would have **no impact** on wastewater treatment providers.

## Transport to Market

### Port of Stockton

As discussed above, the Stockton RWCF has a capacity of 48 mgd. The facility currently collects and treats an average of 33 mgd. The proposed facility may generate up to 50,966 gpy of wastewater. Distributed over 336 operating days per year would yield average demand of 152 gallons per day. This represents 0.001% of the RWCF's remaining capacity. Therefore, the RWCF would have sufficient capacity to accommodate the sewer demand of the project in addition to existing commitment and impacts would be **less than significant.**

### Summary

Overall, impacts to wastewater treatment providers would be **less than significant.**

Impact UTIL-4 The project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. The project would comply with all federal, state, and local management and reduction statutes and regulations related to solid waste.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock projects would generate minimal solid waste. Material from feedstock projects would be transported to the wood pellet facilities.

## Wood Pellet Production

### Lassen Facility

The proposed project would generate minimal waste during construction, due to the lack existing structures. Solid waste from project operation would be generated by maintenance activities. The primary waste product of the pellet operation is ash from the dryer, estimated at 3,103 tons per year. The ash may be used for agricultural purposes, but excess material may be landfilled. The conversion factor of wood ash tons to cubic yards is 1.54 (EPA 2006), resulting in a maximum of 4,669 cubic yards. Due to the rural location of the project site, solid waste would not be collected by a service provider. The waste would likely be transported and disposed of at Westwood or Bass Hill landfill. As noted in the Existing Conditions discussion above, the area landfills are currently processing waste at levels below their original capacity designs. Active permits for the landfills further indicate that they have existing capacity. The Westwood landfill has an estimated remaining capacity of approximately 62,207 cubic yards. The Bass Landfill has an estimated remaining capacity of 603,404 cubic yards. The proposed project would not exceed available capacity. In addition, the proposed project would adhere to all required State and County waste management ordinances and requirements, including the development of a Construction Waste Management Plan.

### Tuolumne Facility

The proposed project would generate minimal waste during construction. Some demolition of structures would be required, which would be recycled as appropriate and properly disposed of (most likely at the Highway 59 Landfill, discussed below). Solid waste from project operation would be generated by maintenance activities. The primary waste product of the pellet operation is ash from the dryer, estimated at 1,525 tons per year. The ash may be used for agricultural purposes, but excess material may be landfilled. The conversion factor of wood ash tons to cubic yards is 1.54, resulting in a maximum of 2,348 cubic yards per year.

Solid waste generated from project operations and construction would likely be transported to the Highway 59 Landfill in Merced County. The Highway 59 Landfill has an estimated remaining capacity of approximately 28,025,334 cubic yards and is expected to remain in operation until 2030. The proposed project would not exceed available capacity. In addition, the proposed project would adhere to all required State and County waste management requirements (Chapter 8.05 and Title 7 of the Tuolumne County Ordinance) and requirements, including the development of a Construction Waste Management Plan.

### Transport to Market

#### Port of Stockton

Solid waste in the City is collected by Republic Services and Waste Management. The collected solid waste is transported and disposed of primarily at either the Forward Landfill on South Austin Road in Manteca, or the North County Landfill on East Harney Lane in Lodi. In 2019, the City generated approximately 372,729 tons of solid waste (CalRecycle 2019). As shown in Table 4.10-2, capacities of both of these facilities are currently showing ample capacity (over 24 million tons at Forward Landfill and over 35 million tons of capacity at North County) to accommodate additional solid waste.

The proposed project would generate minimal solid waste associated with construction activities, as no structures would be demolished. Furthermore, the City's Construction and Demolition Debris Waste Reduction Ordinance, Municipal Code Sections 8.28.020 through 8.28.070, requires that all permit applicants identify the debris the project would generate and recycle accordingly.

Minimal solid waste would be generated by project activities at the Port, as the pellets are transferred from rail to storage, and then to bulk cargo ships. No packaging or other materials are involved in this project phase.

As noted above, there is adequate capacity at both facilities to accommodate solid waste generated by the proposed project and the project would not generate solid waste in excess of state or local standards or impair the attainment of solid waste reduction goals. The impact would be **less than significant.**

## 3.15.4.3 Cumulative Impacts

### Feedstock Acquisition

#### Sustainable Forest Management Projects

Other vegetation management projects, as described in Section 3.0, would occur within Northern California. As discussed above, such operations would not rely on existing utility systems. Furthermore, feedstock operations are temporary in nature, and occur only during working hours. Such projects would not require new or expanded utilities. The proposed project would not have a considerable contribution to a cumulative service impact.

### Wood Pellet Production

#### Lassen Facility

As described in Section 3.0, no other cumulative projects have been identified in Big Valley that would result in substantial utilities demands. The proposed project would not result in a considerable contribution to a cumulative service impact.

#### Tuolumne Facility

As described in Section 3.0, cumulative projects in the project vicinity may require additional services. The environmental documents prepared for the cumulative projects do not identify significant impacts to utilities, either direct or cumulative. The two planned biomass plants would rely upon on-site water, wastewater, and stormwater systems, similar to the proposed project. The Chicken Ranch Rancheria New Hotel and Casino Project Solid project

would rely on expansion of existing water, wastewater, and stormwater infrastructure that serves the existing rancheria. The proposed project would not result in a considerable contribution to a cumulative service impact.

### Transport to Market

#### Port of Stockton

As described in Section 3.0, other cargo projects are planned within the Port of Stockton. The Port has planned for such expansion in its West Complex Development Plan (WCDP), and accompanying EIR. The WCDP EIR concluded that buildout of the West Complex could result in significant impacts to the non-potable and potable water system. The Port implements mitigation analyzing the cumulative water demand of major development projects and development of improvements to the utility system as needed. As discussed above, the project is not expected to have a significant impact on water utilities. The project would have minimal demand for wastewater and stormwater systems, and would not contribute to a cumulative impact. The proposed project would not result in a considerable contribution to a cumulative utilities impact.

## 3.15.4.4 Mitigation Measures

### Feedstock Acquisition

#### Sustainable Forest Management Projects

No mitigation measures are required.

### Wood Pellet Production

#### Lassen Facility

Ground disturbing activities associated with construction of new or expanded electrical facilities would be subject to the mitigation measures identified under Impact UTIL-1, which include the following: **MM-AQ-2, MM-AQ-3, MM-AQ-4, MM-AQ-5, MM-AQ-7,** PDF-BIO-8**, CUL-1, CUL-2**, and **WIL-2**.

#### Tuolumne Facility

Ground disturbing activities associated with construction of new or expanded electrical facilities would be subject to the mitigation measures identified under Impact UTIL-1, which include the following: **MM-AQ-2, MM-AQ-3, MM-AQ-4, MM-AQ-7, MM-AQ-10, MM-AQ-13,** PDF-BIO-8**, CUL-1, CUL-2,** and **WIL-2**.

### Transport to Market

#### Port of Stockton

No mitigation measures are required.

### 3.15.4.5 Significance After Mitigation

Impact UTIL-1 The project would require the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities resulting in environmental effects.

Impacts for feedstock acquisition activities and transfer to market (Port of Stockton) would be less than significant without mitigation. Construction of new or expanded electric power facilities need for wood pellet production could result in a potentially significant impact. However, with implementation of the project design features and mitigation measures noted above, impacts would be reduced to less than significant.

## 3.15.5 References

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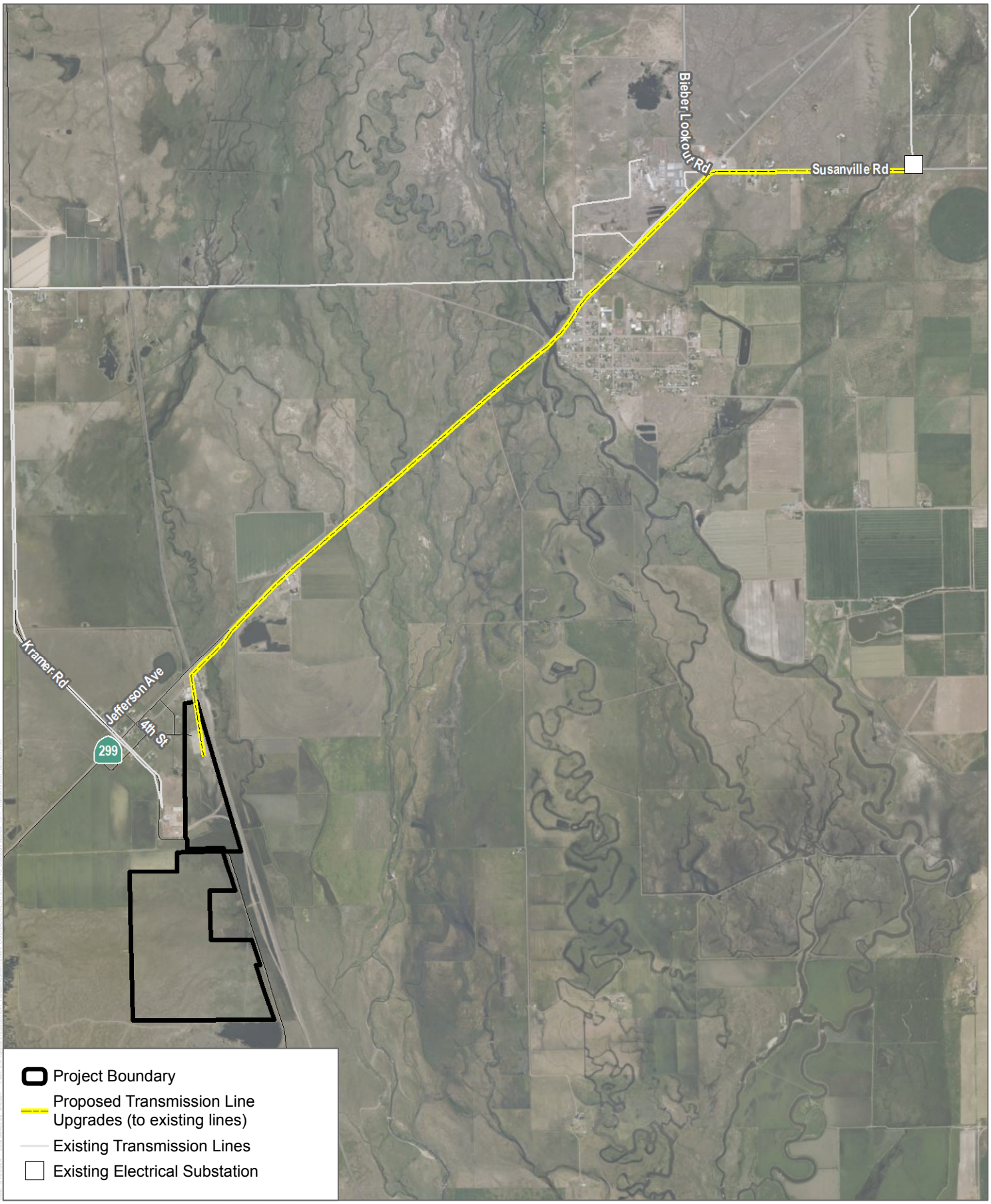


SOURCE: Bing Maps 2022, Lassen County 2015

DUDEK

0 1,500 3,000 Feet

**FIGURE 3.15-1**

Proposed Transmission Upgrades - Lassesn Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps 2021, Tuolumne County 2020, Nexus PMG 2021

DUDEK

0 2,000 4,000 Feet

**FIGURE 3.15-2**

Proposed Transmission Upgrades - Tuolumne Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 3.16 Wildfire

This section of the Draft EIR evaluates potential impacts to wildfire associated with implementation of the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project). This section describes the existing wildfire conditions at feedstock source locations (Sustainable Forest Management Projects), proposed wood pellet processing facility sites in Northern California (Lassen Facility) and the Central Sierra Nevada foothills (Tuolumne Facility), and the export terminal in Stockton, California, and evaluates the potential for project-related wildfire impacts, considering proposed project design features that could reduce or eliminate associated impacts. In response to the Notice of Preparation (NOP), comments were received regarding fire risk at the plant facilities, as well as the need to reduce wildfire events in California (see Appendix A). Note that fire risk related to wood pellet production and storage are addressed in the Hazards Section of this EIR, Section 3.8, while this section specifically addresses wildland fires.

## 3.16.1 Environmental Setting

The environmental setting discussion that follows considers the wildfire environment surrounding the project sites. This includes a discussion of fire hazard severity zones, fire history, climate and weather conditions, on- and off-site slopes, vegetation and other factors. Fire environments are dynamic systems and include many types of environmental factors and site characteristics. Fires can occur in any environment where conditions are conducive to ignition and fire movement. Areas of naturally vegetated open space are typically composed of conditions that may be favorable to wildfire spread. The three major components of the fire environment are topography, vegetation (fuels), and climate. The state of each of these components and their interactions with each other determines the potential wildfire characteristics and behavior.

### Slopes/Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower spread down-slope. Terrain that forms a funneling effect, such as chimneys, chutes, or saddles on the landscape can result in especially intense fire behavior, including faster spread and higher intensity. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by vegetation and wind. Local variations in topography can influence wind and fire behavior.

### Vegetation Communities and Land Covers

Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (leaf size, branching patterns), and overall fuel loading.

A critical factor to consider is the dynamic nature of vegetation communities. Fire presence and absence at varying cycles or regimes affect plant community succession. Succession of plant communities, most notably the gradual conversion of shrublands to grasslands with high frequency fires and grasslands to shrublands with fire exclusion, is highly dependent on the fire regime. Further, biomass and associated fuel loading will increase over time if disturbance or fuel reduction effects are not diligently implemented.

The vegetation types and land covers in the project area were identified during field assessments conducted for the project site, as detailed in Section 3.3, Biological Resources.

### Climate, Weather, and Wind

The project area is influenced by prevailing wind patterns. Prevailing winds are winds that blow from a single direction over a specific area of the Earth. Local variations in topography can influence wind patterns as well, thereby influencing potential wildfire behavior. Local variations in climate, weather, and wind are discussed below.

### Fire Hazard Severity Zones

The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for mapping fire hazard areas throughout the state pursuant to Public Resources Code section 4201 et seq, and Government Code section 51175 et seq. These maps are provided by CAL FIRE through the Fire and Resource Assessment Program (FRAP) database. The FRAP database includes data that identify areas of significant fire hazards throughout the state in State Responsibility Areas and provides recommendations for Local responsibility Areas. Geographic areas of the state are designated as either Very High, High, or Moderate Fire Hazard Severity Zones (FHSZs), which are determined by a region's land cover, vegetation, terrain, climate, fire history, and several other factors that contribute to the fire environment. These areas are also classified as Local Responsibility Areas (LRAs), State Responsibility Areas (SRAs), and Federal Responsibility Areas (FRAs), which indicate areas where the local, state, or federal government assume financial responsibility for fire prevention and protection. This information is provided to the public and local agencies to incorporate the fire hazard mapping into local planning efforts. FHSZs in the project area are presented in Figures 3.16-1 through 3.16-3 and further discussed below.

### Fire History

Fire history data provide valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. CAL FIRE's Fire and Resource Assessment Program (FRAP) database[1] summarizes fire perimeter data dating to the late 1800s, but it is incomplete because it does not include all fires under 10 acres in size and has incomplete perimeter data, especially for the first half of the twentieth century (Syphard and Keeley 2016). However, the data do provide a summary of recorded fires and can be used to show whether large fires have occurred in the project site, which is one of the indicators as to whether they may be possible in the future. Fire History in the project area is illustrated in Figures 3.16-4 through 3.16-6 and further discussed below.

## 3.16.1.1 Sustainable Forest Management Projects

Feedstock destined to the Lassen and Tuolumne facilities for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects such as hazardous fuel reduction projects, construction of shaded fuel breaks, and salvage harvests (see Chapter 2, Project Description, for a full description). The feedstock would originate from private, state, tribal, and federal timberlands located within the Working Area (see Section 2.4.1).

[1] Based on polygon geographic information system data from CAL FIRE's FRAP, which includes data from CAL FIRE, the U.S. Department of Agriculture's Forest Service Region 5, BLM, the National Park Service, contract counties and other agencies. The dataset is a comprehensive fire perimeter geographic information system layer for public and private lands throughout the state and covers fires 10 acres and greater between 1878 and 2018.

The wildfire environment throughout the feedstock acquisition area and site-specific details varies considerably within the above-described feedstock acquisition area. In general, Sustainable Forest Management Projects would likely take place within areas considered to be high or very high FHSZs, with slope, weather/climate, and vegetation conditions that may be conducive to wildfire spread.

Section 3.6, Geology, discusses the broader geological conditions within the feedstock area. Which generally consists of the Modoc Plateau, Basin and Range, Cascade Range, and Klamath Mountains provinces (Lassen feedstock area) and the Sierra Nevada, Great Valley, Coast Ranges, and Basin and Range provinces.

Table 3.3.3 in Section 3.3, Biological Resources, presents the vegetation communities and landcover types present in the feedstock areas. The CAL FIRE's FRAP vegetation layer was utilized to ascertain the habitat and vegetation categories present. Land cover within the feedstock area consists of a combination of terrestrial non-vegetative land covers, natural vegetation communities, and non-natural cover types. There are fifty (50) vegetation communities and land cover types present in the feedstock areas, broken down by five (5) categories: forest and woodland, shrubland, herbaceous, non-natural, and other. Sustainable Forest Management Projects within the feedstock area would occur within the forest and woodland cover category dominated by conifer (commercial timber) species, and would generally exclude shrubland, herbaceous, and non-natural land cover types. Woodland and forest cover types account for 70-73% of the feedstock area.

### Emergency Response

It is anticipated that USFS and CAL FIRE would be the primary fire protection services for feedstock acquisition areas of the project, within Federal and State Responsibility Areas, respectively. Local fire departments and fire protection districts would have primary responsibility for Local Responsibility Areas. Note that mutual aid agreements may affect which agency is the “first” responder, but do not change who has overall financial responsibility.

## 3.16.1.2 Northern California (Lassen Facility) Site

The proposed Lassen wood pellet processing site is located in Nubieber, California, an unincorporated community in Lassen County (see Figure 2-3, Project Location (Lassen)). The Lassen site was formerly a wood processing sawmill, and a portion of the site is currently used for timber loading. A chemical company is located adjacent to the site, and scattered rural residences are in proximity to the site. Buildings associated with the former wood processing operation are located to the north, and agricultural uses to the east, and south. Primary access to the site is from Babcock Road, which connects to State Route (SR) 299. The pellet processing facility would be located on the northern parcel, which is approximately 65 acres in size, whereas, the southern parcel would serve as a log decking, or storage area. The southern parcel is approximately 218 acres, although only the northern quarter of the site is proposed for log decking (see Figure 2-3).

### Site Description

The Lassen site is partially developed with existing humanmade structures and other features generally concentrated within the northern area of the site, as shown in Figure 2-4, Project Site (Lassen). This includes a railroad and track yard, silo, storage barns, and a warehouse. Main access to the site is from Babcock Road at the southwestern area of the site.

## Slopes/Topography

The project site is located on relatively flat to gently sloping topography.

## Vegetation and Land Cover

The majority of the undeveloped areas of the project site consist of non-native grassland with a mix of annual grasses and forbs. Mowed agricultural fields are present in the northern portion of the project site. Also included are five earthen ditches, one seasonal wetland swale, and one seasonal wetland. The seasonal wetlands as well as the earthen ditches exhibit changes in vegetation and slopes. The project site is surrounded by widely scattered rural development and open space, generally also composed of cropland, sagebrush scrub, and wet meadow.

## Climate, Weather, and Wind

The project area experiences hot, dry summers, and cool, wet winters. The summer season occurs from June to September with an average daily high temperature above 79°F. The cooler, wet season, including rain, precipitation, and snow fall, lasts from September to June. While drier conditions are experienced from June to October

The average hourly wind speed in the project area experiences mild seasonal variation over the course of the year. The windier part of the year occurs from late October to mid-June, with average wind speeds of more than 8.0 miles per hour. The windiest month of the year is March, with an average hourly wind speed of 9.4 miles per hour. The calmer time of year occurs from mid-June through October, with an average hourly wind speed of 6.7 miles per hour. The wind is most often from the west, from March to October, and from the south from October to March (Weather Spark 2023a).

## Fire Hazard Severity Zone

As shown in Figure 3.16-1, Fire Hazard Severity Zones – Lassen Facility, the portion of the Lassen Facility site north of Babcock Road is located in the Local Responsibility Area (LRA) and is not within a Very High Fire Hazard Severity Zone. The portion of the site south of Babcock Road, which will be dedicated to feedstock processing and storage activities, and the areas immediately adjacent to the west of the site, are within the State Responsibility Area and mapped as being in a High Fire Hazard Severity Zone (CAL FIRE 2008a, 2024a). Additionally, the project site is located approximately one mile to the east of land designated as a Very High Fire Hazard Severity Zone (CAL FIRE 2024a).

## Fire History

The FRAP database indicates that 10 fires that have occurred within a 5-mile radius of the Lassen Facility site. The Day Fire is the closest wildfire to have burned near the project site, which occurred in 2009, burned approximately 852 acres, and was located approximately 1.9 miles from the project site (see Figure 3.16-4, Project Area Fire History – Lassen Facility).

## Emergency Response

The majority of Lassen County is covered by state and federal jurisdiction, but some subsets of the County are covered by local fire agencies. Fire protection in the County is divided into 16 separate fire protection districts. The project site is served by the Big Valley Fire Protection District (BVFD). BVFD covers a service area of 105.3 miles

with one station in the town of Bieber. The station is located approximately 2.5 miles northeast of the project site. The department is staffed by ten active volunteer fire fighters. Services offered by the BVFD include response to both structural and wildland fires, as well as response to medical emergencies related to traffic or crowd control (BVFD 2022). BVFD is part of the Susanville Interagency Fire Center and the Lassen County Fire Chiefs Association. Mutual aid agreements additionally allow BVFD to provide assistance to the Adin Fire Departments and CAL FIRE. The BVFD fire protection equipment includes one engine, three water tender pumpers, one squad brush vehicle, and one extrication jaw. Additionally, the CAL FIRE station located in Bieber has two engines, one helicopter, and one bulldozer. If needed, the Intermountain Conservation Camp also has four 17-person fire crews that are available to provide assistance. Southern Cascades Emergency Medical Services provides ambulance services to the Big Valley district that respond from Adin. Additional first responder support is provided by the Adin Fire Protection District.

In the year of 2018 (most recent available data), the BVFD received a total of 24 calls for service. Twelve of these calls for service were to assist another agency within their mutual aid agreement. The BVFD received five calls regarding wildland fires, four calls for false alarms or 'other fires' (not structure fires), and three calls for traffic collisions (LAFCo 2020).

### 3.16.1.3 Central Sierra Nevada (Tuolumne Facility) Site

The proposed Tuolumne wood pellet processing site is located on in Tuolumne County, California, and in the western foothills of the Sierra Nevada Mountain Range (see Figure 2-7, Project Location (Tuolumne)). The Tuolumne site is located immediately southeast of the junction of State Route 108 and La Grange Road. Elevations on the Tuolumne site range from approximately 1,070 feet above mean sea level in the northwest corner of the site to 1,140 feet above mean sea level in the eastern portion of the site. The Tuolumne site occurs within the Upper Stanislaus River watershed.

The Tuolumne location is a previously developed site that was formerly a wood processing mill. A wood shaving plant owned by American Wood Fibers is located adjacent to the west side of the site, and two residences are located adjacent to the northwest corner of the site. Agricultural land is located to the north, east, and south.

#### Existing Conditions

The Tuolumne site is partially developed with existing humanmade structures and other features generally concentrated within the center of the site, as shown in Figure 2-8, Project Site (Tuolumne). This includes buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with the abandoned mill. Currently, 9.6 acres of the total 58.56 acres of the project site are paved. The site has two existing accessways: one for truck access at the southwest area of the site and one for employee access at the northwest area of the site, both from La Grange Road.

#### Slopes/Topography

The Tuolumne Facility project site is located on relatively flat to gently sloping topography.

#### Vegetation and Land Cover

The majority of the undeveloped areas of the project site consist of annual grassland with some young blue oak shrubs. Blue oak woodland is concentrated in the northwestern portion of the project site. There are two patches

of riparian woodland in the northern portion of the project site. The project site is surrounded by widely scattered rural development and open space, generally also composed of scattered oak woodland and annual grassland.

The project site also contains a variety of aquatic resources, including wetland and non-wetland waters, a vernal pool, and ephemeral and perennial drainages. Additionally, there are four humanmade detention basins constructed throughout the project site to collect and store run-off: one in the southern portion of the site, one in the northeastern portion of the site, and two located near the mid-west portion of the site.

### Climate, Weather, and Wind

Summers in the project area are hot, arid, and mostly clear and the winters are cold, wet, and partly cloudy. The summer season occurs from June to September, with an average daily high temperature above 83°F. The hottest month of the year is July, with an average high of 91°F. The cooler, wetter period of the year occurs from September to May. The average hourly wind speed does not vary significantly over the course of the year, remaining within 0.4 miles per hour of 5.3 miles per hour throughout. The wind is most often from the south from late February to late March. The wind is most often from the west from late March to mid-October. The wind is most often from the east from mid-October to late February (Weather Spark 2023b).

### Fire Hazard Severity Zones

As shown in Figure 3.16-2, Fire Hazard Severity Zones – Tuolumne Facility, the Tuolumne Facility site is located within the State Responsibility Area and mapped as being in a High Fire Hazard Severity Zone. There are scattered areas designated as Very High FHSZ located approximately 0.17-mile west and northwest of the Tuolumne Facility site (CAL FIRE 2024b).

### Fire History

The FRAP database indicates that 28 fires that have occurred within a 5-mile radius of the project site. Lighting #29 is the closest fire to have burned near the Tuolumne Facility site, which occurred in 1996, burned approximately 5,490 acres, and burned onto the northeastern corner of the project site (see Figure 3.16-5, Project Area Fire History – Lassen Facility).

## 3.16.1.4 Port of Stockton

Finished pellets would be transported by rail from both the Lassen and Tuolumne facilities to the Port of Stockton. The Port of Stockton is a port located on the San Joaquin River (see Figure 2-10, Port Location). The Port area is located within low-lying floodplains east of the San Joaquin Delta. The surrounding topography is a low lying alluvial plain dissected by numerous river systems. Based on the biological field survey, there are three vegetation communities or land covers at the Port site: disturbed habitat, riparian woodland, and urban/developed. The port area does not have slopes, vegetation, or other conditions conducive to wildfire spread.

### Fire Hazard Severity Zones

The Port of Stockton site is located adjacent to the San Joaquin River surrounded by agricultural lands and other industrial land uses. According to CAL FIRE, the Port of Stockton site is located in a Local Responsibility Area (LRA) and is designated as “Unzoned” (i.e., not within a FHSZ). CAL FIRE has determined that all of San Joaquin County

has no Very High Fire Hazard Severity Zones (CAL FIRE 2007). The closest area of high fire risk is located approximately 16 miles southwest of the site (CAL FIRE 2024c).

### Fire History

There are no fires that have occurred within a 5-mile radius of the project (Figure 3.16-6, Project Area Fire History – Port of Stockton Facility).

## 3.16.2 Regulatory Setting

### 3.16.2.1 Federal

#### U.S. Forest Service

In 2019, the Golden State Finance Authority (GSFA) and the U.S. Forest Service signed a master Stewardship Agreement (MSA) for the general purpose of achieving resilient forests within U.S. Forest Service Region 5. Individual Sustainable Forest Management Projects to reduce fuel loads and increase resiliency within the above-described feedstock acquisition area will be implemented through Supplemental Project Agreements (SPAs). (While the MSA applies to the entirety of Region 5, only Sustainable Forest Management Projects within the Working Area described in Section 2.4 are contemplated under the proposed project.) The Forest Service's strategic plan (USDA 2015) includes four outcome-oriented goals:

1. Sustain Our Nation's Forests and Grasslands.
2. Deliver Benefits to the Public.
3. Apply Knowledge Globally.
4. Excel as a High-Performing Agency

The plan further identifies three strategic objectives for the first goal:

- Foster resilient, adaptive, ecosystems to mitigate climate change.
- Mitigate wildfire risk.
- Conserve open space

#### National Fire Protection Association Codes, Standards, Practices, and Guides

National Fire Protection Association codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. National Fire Protection Association standards are recommended guidelines and nationally accepted good practices in fire protection but are not laws or codes unless adopted as such or referenced as such by the California Fire Code (CFC) or the local fire agency.

#### Federal Wildland Fire Management Policy

The Federal Wildland Fire Management Policy was developed in 1995, updated in 2001, and again in 2009 by the National Wildfire Coordinating Group, a federal multi-agency group that establishes consistent and coordinated fire management policy across multiple federal jurisdictions. An important component of the Federal Wildland Fire

Management Policy is the acknowledgment of the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy and its implementation are founded on the following guiding principles, found in the Guidance for Implementation of Federal Wildland Fire Management Policy (National Wildfire Coordinating Group 2009):

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

## National Fire Plan

The National Fire Plan, officially titled Managing the Impacts of Wildfire on Communities and the Environment: A Report to the President In Response to the Wildfires of 2000, was a presidential directive in 2000 as a response to severe wildland fires that had burned throughout the United States. The National Fire Plan focuses on reducing fire impacts on rural communities and providing assurance for sufficient firefighting capacity in the future. The plan addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. The plan provides technical, financial, and resource guidance and support for wildland fire management across the United States. The USDA Forest Service and the Department of the Interior are working to successfully implement the key points outlined in the plan (DOI and USDA 2000).

## International Fire Code

Created by the International Code Council, the International Fire Code (IFC) addresses a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage (although not a federal regulation, but rather the product of the International Code Council). The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated to protect life and property (often times these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted (International Code Council 2020). The IFC's provisions are not laws or codes unless adopted as such or referenced as such by the California Fire Code (CFC) or the local fire agency.

### National Forest Management Act of 1976

The National Forest Management Act amends the Forest and Rangeland Resources Planning Act of 1975 and recognizes that the management of the Nation's renewable resources is highly complex and the uses, demand for, and supply of the various resources are subject to change over time.

## 3.16.2.2 State

### California Government Code

Public Resources Code sections 4201 et seq. and California Government Code Sections 51175 et seq. provide guidance for classifying lands in California as fire hazard areas and requirements for management of property within those lands. CAL FIRE is responsible for classifying FHSZs based on statewide criteria and makes the information available for public review. Further, local agencies must designate, by ordinance, Very High FHSZs within their Local Responsibility Areas based on the recommendations of CAL FIRE.

Section 51182 sets forth requirements for maintaining property within fire hazard areas, such as defensible space, vegetative fuels management, and building materials and standards. Defensible space around structures in fire hazard areas must consist of 100 feet of fuel modification on each side of a structure, but not beyond the property line unless findings conclude that the clearing is necessary to significantly reduce the risk of structure ignition in the event of a wildfire. Clearance on adjacent property shall only be conducted following written consent by the adjacent owner. Further, trees must be trimmed from within 10 feet of the outlet of a chimney or stovepipe, vegetation near buildings must be maintained, and roofs of structures must be cleared of vegetative materials. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

### California Public Resources Code

California Public Resources Code Section 4290 and the implementing regulations adopted by the California Board of Forestry and Fire Protection set forth minimum fire safety standards related to defensible space within state responsibility areas approved after January 1, 1991, and within lands classified and designated as very high fire hazard severity zones, as defined in subdivision (i) of Section 51177 of the Government Code after July 1, 2021. These regulations apply to the perimeters and access to all residential, commercial, and industrial building construction. The regulations include all of the following:

1. Road standards for fire equipment access.
2. Standards for signs identifying streets, roads, and buildings.
3. Minimum private water supply reserves for emergency fire use.
4. Fuel breaks and greenbelts.

California Public Resources Code Section 4291 requires a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, to maintain defensible space around the structure, but not beyond the property line.

California Public Resources Code, Section 4292, requires that any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or forest-covered land, brush-covered land, or grass-covered land shall maintain around and adjacent to any pole or tower which supports a

switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a minimum firebreak of 10 feet in all directions from the outer circumference of a pole or tower be established. All vegetation shall be cleared within the firebreak.

### California Fire Code

The CFC is Chapter 9 of Title 24 of the California Code of Regulations. It was created by the California Building Standards Commission and is based on the IFC. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The CFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The CFC and the California Building Code use a hazards classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the CFC employs a permit system based on hazard classification. The CFC is updated every 3 years.

### California Building Code

Chapter 7A of the California Building Code establishes minimum standards for buildings in any fire hazard severity zone within State Responsibility Areas or any wildland urban interface fire area to protect life and property by increasing the ability of a building to resist the intrusion of flames or burning embers.

### California Strategic Fire Plan

The 2019 Strategic Fire Plan for California reflects CAL FIRE's focus on fire prevention and suppression activities to protect lives, property, and ecosystem services, and natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation. The Strategic Fire Plan for California provides a vision for a natural environment that is more fire resilient, buildings and infrastructure that are more fire resistant, and a society that is more aware of and responsive to the benefits and threats of wildland fire, all achieved through local, state, federal, tribal, and private partnerships (CAL FIRE 2019). Plan goals include the following:

1. Identify and evaluate wildland fire hazards and recognize life, property and natural resource assets at risk, including watershed, habitat, social and other values of functioning ecosystems. Facilitate the collaborative development and sharing of all analyses and data collection across all ownerships for consistency in type and kind.
2. Promote and support local land use planning processes as they relate to: (a) protection of life, property, and natural resources from risks associated with wildland fire, and (b) individual landowner objectives and responsibilities.
3. Support and participate in the collaborative development and implementation of local, county and regional plans that address fire protection and landowner objectives.
4. Increase fire prevention awareness, knowledge and actions implemented by individuals and communities to reduce human loss, property damage and impacts to natural resources from wildland fires.
5. Integrate fire and fuels management practices with landowner/land manager priorities across jurisdictions.

## Executive Order B-52-18

On May 10, 2018, in response to the changing environmental conditions and the increased risk to California's citizens, California Governor Brown issued Executive Order (EO) B-52-18 to support the state's resilience to wildfire and other climate impacts, to address extensive tree mortality, increase forests' capacity for carbon capture, and to improve forest and forest fire management. The Executive Order requires the California Natural Resources Agency, in coordination with the Board, CAL FIRE, and other agencies, to increase the pace and scale of fire fuel treatments on state and private lands. EO B-52-18 commits $96 million in additional state funds to for these efforts and calls for doubling the land actively managed through vegetation thinning, prescribed burning, and restoration from 250,000 to 500,000 acres per year to reduce wildfire risk.

## California Department of Forestry and Fire Protection

CAL FIRE is tasked with reducing wildfire-related impacts and enhancing California's resources. CAL FIRE responds to all types of emergencies, including wildland fires and residential/commercial structure fires. In addition, CAL FIRE is responsible for the protection of approximately 31 million acres of private land within the state and, at the local level, is responsible for inspecting defensible space around private residences. CAL FIRE is responsible for enforcing State of California fire safety codes included in the California Code of Regulations and the California Public Resources Code. Section 1254 of the California Environmental Quality Act (CEQA) Guidelines identifies minimum clearance requirements required around utility poles.

CAL FIRE also inspects utility facilities and makes recommendations regarding improvements in facility design and infrastructure. Joint inspections of facilities by CAL FIRE and the utility owner are recommended by CAL FIRE so that each entity may assess the current state of the facility and successfully implement fire prevention techniques and policies. Violations of state fire codes discovered during inspections are required to be brought into compliance with the established codes (CAL FIRE 2023).

CAL FIRE maps FHSZs based on fuel loading, slope, fire history, weather, and other relevant factors as directed by California Public Resources Code, Sections 4201–4204, and California Government Code Sections 51175–51189. FHSZs are ranked from moderate to very high and are categorized for fire protection within a Federal Responsibility Area, State Responsibility Area, or Local Responsibility Area under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively.

## Mutual Aid Agreements

There are multiple regional, state, and local agreements and operating plans currently in use that provide for mutual aid between and among federal, state, and local fire agencies. The statewide mutual aid system exists to ensure that adequate resources, facilities, and other supports are provided to jurisdictions whenever resources prove to be inadequate for a given situation. Each jurisdiction controls its own personnel and facilities but can give and receive help whenever needed.

## 3.16.2.3 Local

### Lassen County

#### Lassen County General Plan

The Lassen County General Plan Safety Element, updated in June 2023, addresses natural and human-caused hazards affecting Lassen County, including wildfire. The majority of developed areas in Nubieber are not within a wildfire severity zone. There are two small portions of southern Nubieber that fall within the moderate wildfire severity zone—one is along SR-299 and another is in agricultural and industrial land that has some development. All of Nubieber's land uses are designated as intensive agriculture in the general plan. The area surrounding Nubieber, particularly the forested areas to the west, north, and south, are in moderate to high wildfire severity zones. Historically, wildfires have occurred in the forested land west of Nubieber (Lassen County 2023).

Goal 1. Minimize risks, such as loss of life, injury, property damage, and natural resource destruction, from natural hazards.

Policy 1.1. Protect Lives. Implement applicable federal and State regulations and local ordinances designed to protect life safety.

Policy 1.2. Protect Properties. Encourage property protection measures for all communities and structures located in hazard areas

#### Lassen County Code

##### Section 9.16.070 – Enforcement Authority [Fire Warden]

Section 9.16.070 of the Lassen County Municipal Code states that the County Fire Warden is empowered to enforce all provisions of Chapter 9.16 – Fire Hazards of the County Municipal Code (see below) as well as the State SRA/VHFHSZ Fire Safe Regulations (California Code of Regulations Title 14, section 1270 et seq.). The term "County Fire Warden includes any person duly deputized as such by said county fire warden. The County Board of Supervisors first established the position of County Fire Warden in 1983 and designated the CAL FIRE Ranger in Lassen County as the Lassen County Fire Warden (Board Resolution Number 83/84-47). The current fire warden for the County is Scott Packwood.

The Fire Warden enforces the County and State Fire Safe Regulations in close coordination with the Lassen County Department of Planning and Building Services, who is responsible for the issuance of building permits in the unincorporated areas of Lassen County (all areas outside the City of Susanville, excluding certain state and federally managed property). In many instances, Lassen County performs certain inspections required pursuant to these standards on behalf of the Fire Warden (as delegated by the Fire Warden). Said delegation is provided in an August 31, 2022, letter from the Fire Warden/CAL FIRE titled "Delegation of authority to enforce the Fire Safe Regulations in any SRA within Lassen County to the Lassen County Planning and Building Services Department.

##### Chapter 9.16, Fire Hazards

Chapter 9.16 of the Lassen County Code introduces the adoption of the Public Resources Code section 4290 and its associated regulations (the State Fire Safe Regulations) in both State Responsibility Areas (SRA) and Local

Responsibility Areas (LRA). These provisions constitute the basic wildfire protection standards promulgated by the California Board of Forestry. These fire safety standards shall apply to all new development in Lassen County. These regulations have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction and development in the state responsibility area (SRA) and local responsibility area (LRA). The future design and construction of structures, subdivisions and developments in the SRA and LRA shall provide for basic emergency access and perimeter wildfire protection measures. These measures shall provide for emergency access; signing and building numbering; private water supply reserves for emergency fire use; and vegetation modification.

### Lassen County CWPP

The Lassen County Community Wildfire Protection Plan (CWPP) is a planning tool to help the community, planning professionals, Fire Safe Councils, responsible Federal, State and local fire agencies, and other interested parties assess the threat level and to identify measures that may be taken to reduce the threat that wildland fire poses to the communities in Lassen County. The CWPP provides a general overview of wildland fire in the County, as well as detailed individual Community Fire Safe Plans for each of the inhabited communities of Lassen County.

## Tuolumne County

### Tuolumne County General Plan

#### Managed Resources Element

Goal 7A. Promote the stability and productivity of the County's timberlands and timber related industries.

Policy 7.A.3. Encourage well planned timber related uses in commercial timberland areas.

#### Implementation Programs

- 7.A.h. Develop programs that encourage enhanced carbon storage in forests, use of durable wood products, and use of wood biomass for energy, while maintaining healthy forest ecosystems.

#### Fire Protection

Goal 9C. Protect and enhance the quality of life by continuing to provide the highest quality and cost-effective emergency services to the citizens of, and visitors to, Tuolumne County.

Policy 9.C.1. Provide participating first responder medical aid units with the equipment necessary to efficiently and safely provide emergency first aid, along with the training programs necessary for the safe and effective use of the equipment.

Policy 9.C.2. Provide ambulance service within the County which maintains a professional level of service to the public in a cost-efficient manner.

Goal 9E. Provide structural fire protection to persons and property within Tuolumne County consistent with the needs dictated by the level of development and in accordance with current Federal, State, and local fire protection agency regulations and policies.

Policy 9.E.2. Maintain adopted levels of fire service.

Policy 9.E.3 Require new development to be consistent with State and County regulations and policies regarding fire protection.

Goal 9G. Establish and maintain a codified fire protection risk management strategy which requires new development within Tuolumne County to incorporate or supply fire protection infrastructure and improvements necessary so that such development does not exceed the capabilities of the County's fire protection resources.

Policy 9.G.3. Determine the impact proposed development will have on the provision of fire protection services and maintain the established level of service as outlined in the current Tuolumne County Fire Department Service Level Stabilization Plan.

## Tuolumne County Code

### Chapter 15.20 Fire Safety Standards

Chapter 15.20 presents the fire safety standards required by the County. Section 15.20.110 of the Tuolumne County Municipal Code formally adopts the 2022 California Fire Code and the 2022 National Fire Code with local amendments.

### Chapter 8.14 Hazardous Vegetation Management.

Chapter 8.14 of the Tuolumne County Code introduces code requirements for Hazardous Vegetation Management. The purpose of the ordinance is to provide for the removal of hazardous vegetation situated in the unincorporated areas of the county so as to reduce the potential for fire and to promote the safety and welfare of the community. The code describes the responsible parties to remove and abate hazardous vegetation, and enforcement. The project would comply with the following sections.

A. It shall be the duty of every owner and/or responsible person of any parcel which is located within the unincorporated areas of the County to remove, or abate, all hazardous vegetation which constitutes a fire hazard and which may endanger or damage neighboring property as defined in this ordinance. The following shall be maintained: Thirty (30) feet of Reduced Fuel Zone clearance along that portion of the property line that borders or is adjacent to a habitable or occupied dwelling or building if that dwelling or building is within 100’ of the property line
B. Fuel reduction shall not require the removal of crops, productive vineyards or orchards, or marketable timber; but it may impose mowing or livestock presence on grasslands, or fire-safe management of crops and forests.

## City of Stockton

### City of Stockton General Plan

There are no wildfire goals or policies in the City of Stockton General Plan that are applicable to the proposed project.

### City of Stockton Municipal Code

#### Title 15-Chapter 15.12

Chapter 15.12 of Title 15 of the City of Stockton introduces the adoption of the 2022 California Fire Code.

## 3.16.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to wildfire are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to wildfire would occur if the project would:

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- Substantially impair an adopted emergency response plan or emergency evacuation plan?
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

## 3.16.4 Impact Analysis

### 3.16.4.1 Methodology

The proposed project would consist of three primary phases: feedstock acquisition, wood pellet production, and transport to market. The impact analyses below evaluate each of these primary phases as related to wildfire.

Wildfire hazards associated with the project are evaluated based on landscape characteristics and the project's ability to ignite or exacerbate wildfire risk. Potential existing hazards are based on review of the project location on CAL FIRE maps to determine its location within FHSZs. As illustrated in Figure 3.16-1 through Figure 3.16-3, the northern parcel of the Lassen Facility is not located in a high FHSZ in the LRA and the southern parcel is located within a high FHSZ within the SRA, the Tuolumne Facility is located within a high FHSZ in the SRA, and the Port of Stockton is located in an area that is Unzoned in the LRA, with little to no wildfire risk (CAL FIRE 2007, 2008a, 2008b, 2024a, 2024b).

### 3.16.4.2 Project Impacts

Impact WIL-1 The project would not substantially impair an adopted emergency response plan or emergency evacuation plan.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock for manufacturing of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects on California's private, state, tribal, and federal timberlands. GSNR will enter into purchase agreements with Licensed Timber Operators and other supply chain industry participants (Partner Operations) to procure feedstock from qualified Sustainable Forest Management Projects. Feedstock acquisition activities would temporarily add trucks to roads for hauling raw materials and equipment. Any temporary road closures or blockages would be coordinated with the authority having jurisdiction (County, Caltrans, etc.). Given that feedstock acquisition activities would be dispersed throughout the Working Area, which consists of rural, forested areas, and would be temporary, activities associated with feedstock acquisition are not anticipated to result in road closures or the addition of significant truck traffic such that emergency evacuation routes or emergency response capabilities would be affected. As such, feedstock acquisition would not significantly impair an adopted emergency response plan or emergency evacuation plan, and impacts would be **less than significant**. Refer also to the evaluation in Section 3.14, Transportation, regarding emergency access and evacuation.

## Wood Pellet Production

### Lassen Facility

The project would be located in a remote area of the county with agricultural fields, rural residences, and rail lines located in the vicinity. The County's General Plan Safety Element designates both directions of SR 299 as the main evacuation route out of the project area. Local roads feed into SR 299 including Babcock and Kramer Road (Lassen County 2023). SR 299 is located directly north of the Lassen Facility and provides access to the project site. The Lassen County Hazard Mitigation Plan addresses wildfire as one of the most common hazard incidents faced by the County (Lassen County 2019). In the event of a wildfire emergency requiring evacuation and emergency vehicle access, the responsible agency would establish evacuation routes and project occupants would comply with all evacuation orders. Construction of the project would require new access roads and would include a new railway spur to connect to the adjacent BNSF railway line. Construction of the project may involve temporary lane closures on Babcock Road that would be coordinated with the agency with jurisdiction, such that the project would not restrict the movements of emergency vehicles or evacuation. Refer to Section 3.14, Transportation, for a full analysis of traffic-related impacts during the project's construction.

During operation of the project, primary access to the project site would be provided from Adams Ave, Babcock Road and SR-299. Vehicular and truck traffic access into the site would be provided via these two existing roadways from SR-299. All roadwork resulting from project activities, whether located on or off site, would be undertaken in accordance with all applicable local, state, and federal roadway standards and practices. The project's design review will be coordinated with the County to ensure that the existing roads remain at all times compliant with applicable standards for the volume of traffic.

No permanent or temporary road closures that could restrict emergency vehicle movements are anticipated during operation of the Lassen Facility. The Facility would be monitored by staff at all times, and the project site would be equipped with a Knox-Box to allow emergency personnel to access the site in the event of an emergency. As such, access on Babcock and Kramer Road, SR 299, and to the project site would be unobstructed, and operation of the wood pellet processing facility would not impair any emergency access routes.

The Facility workforce would be 60 employees during a 24-hour period. The A shift (28 employees) and B shift (16 employees) would overlap for several hours, creating a peak on-site workforce of 44 employees. As discussed in Section 3.13, Population and Housing of this Environmental Impact Report (EIR), it was determined that the proposed project would not induce a significant permanent population growth in the surrounding areas of the project site as there is not a residential component to the project and employees would likely commute from around the region. As evaluated in Section 3.14, Transportation, project operations, plus existing and anticipated traffic conditions, is not anticipated to result in queueing or safety issues at nearby intersections.

All roadway, intersection, and project access work would be overseen by the applicable lead agency and their qualified traffic engineers. This approach will ensure compliance with all applicable roadway design requirements. In the event of an emergency, emergency vehicles would be able to access the site from SR-299 at Babcock Road, 4th Street, along with additional access points at Roosevelt Avenue, Adams Avenue, and Washington Avenue. All work within the street rights-of-way will be designed with adequate width, turning radius, and grade to facilitate access by County's firefighting apparatus, and to provide alternative emergency ingress and egress. The site plan would be subject to plan review by the acting CAL FIRE Ranger, who serves as the County's Fire Warden in accordance with Board Resolution Number 83/84-47, to ensure proper access for fire and emergency response is provided and required fire suppression features are included.

Thus, project operations and resulting truck and vehicle traffic are not anticipated to impair existing roads, emergency response capabilities, or evacuation routes. Further, evacuation of project occupants in the event of a wildfire would not substantially burden existing evacuation routes. Also given that project operations do not involve work that would impede public roadways, it is unlikely that the project would cause significant impacts to evacuation. Therefore, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan, and the project's impacts would be **less than significant**.

### Tuolumne Facility

The project would be located in a remote area of the county with agricultural fields located in the vicinity. The County's General Plan Transportation Element designates both directions of SR 120 and SR 108 as rural arterial roads that could serve as main evacuation route out of the project area (County of Tuolumne 2018). SR 120 and SR 108 pass directly northwest of the project site. La Grange Road feeds into these highways. The Tuolumne County Emergency Operations Plan addresses wildfire as one of the most common hazard incidents faced by the County (County of Tuolumne 2023). In the event of a wildfire emergency requiring evacuation and emergency vehicle access, the Tuolumne County Sherrif would establish evacuation routes and project occupants would comply with all evacuation orders.

Construction of the project would require improvements to the existing on-site roadways for truck access and employee access. A new rail spur connecting to the adjacent Sierra Northern Railway line as well as additional rail siding tracks on site for the storage of full and empty railcars will be added for finished product loadout. During construction, temporary closure of the driveways along La Grange Road may be necessary. The project site has multiple access points to LaGrange, and access to adjoining properties would be maintained.. While work on the road shoulder may be necessary, closure of La Grange Road is not anticipated. Additionally, the project would be required to comply with the Tuolumne County Sheriff's Department guidance relating to emergency response, further reducing the prospect of substantive interruptions.

During project operations, primary vehicular and truck traffic access to the project site would be provided via two existing roadways from La Grange Road. No permanent or temporary road closures that could restrict emergency

vehicle movements are anticipated during operations of the Tuolumne Facility. The Facility would be monitored by staff at all times, and the project site would be equipped with a Knox-Box to allow emergency personnel to access the site in the event of an emergency. As evaluated in Section 3.14, Transportation, the project, plus existing and anticipated traffic conditions, is not expected to result in queuing and/or safety issues at nearby intersections.

The Facility workforce would be up to 51 employees during a 24-hour period. The A shift (25 employees) and B shift (13 employees), would overlap for several hours, creating a peak on-site workforce of 38 employees. As discussed in Section 3.12, Population and Housing of this Environmental Impact Report (EIR), it was determined that the proposed project would not induce a significant permanent population growth in the surrounding areas of the project site as there is not a residential component to the project and employees would likely commute from around the region.

As mentioned above, the project has two main access roadways into the site, and in the event of an emergency, all the driveways would enable vehicles to enter/exit the project site. All work within the street rights-of-way will be designed with adequate width, turning radius, and grade to facilitate access by County's firefighting apparatus, and to provide alternative emergency ingress and egress. The site plan would be subject to plan review by the County's Fire Department to ensure proper access for fire and emergency response is provided and required fire suppression features are included.

Therefore, evacuation of project occupants in the event of a wildfire would not be expected to substantially burden evacuation routes. Also given that project activities do not involve work that would impede public roadways, it is unlikely that the project would cause significant impacts to emergency response or evacuations. Therefore, access on La Grange Road, SR 120 and 108, and to the project site would be unobstructed, and construction and operation of the wood pellet production facility would not substantially impair an adopted emergency response plan or emergency evacuation plan, and the project's impacts would be **less than significant**.

## Transport to Market

### Port of Stockton

The Port of Stockton is not located in a SRA, Very High FHSZ, or a wildfire hazard area. Finished wood pellets would be transported to the Port of Stockton by rail, and would use existing rail lines, with the exception of new rail spur connections within the Port. The Port of Stockton is a fully operational port, and the addition of the GSNR facility would result in a negligeable impact on day-to-day port operations, and would not significantly alter emergency access throughout the entirety of the port, the West Complex, and the proposed GSNR facility. The proposed facility would include adequate rail sidings so that additional railcars are kept on site. The addition of 2 to 4 train trips per week would not significantly affect the existing railway crossings at the Port. Therefore, activities associated with transport to market via rail lines to the Port of Stockton would not impact existing evacuation routes. As such, impacts related to transport to market would not interfere with an emergency response plan or evacuation plan in the event of a wildfire, and the project's impacts would be **less than significant**.

Impact WIL-2 The project would potentially exacerbate wildfire risks due to slope, prevailing winds, and other factors, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

## Feedstock Acquisition

### Sustainable Forest Management Projects

As mentioned above, the feedstock acquisition of wood pellets will be wood byproducts sourced from Sustainable Forest Management Projects on California's private, state, tribal, and federal timberlands. The acquisition of the wood pellets will follow all land management agreements, follow best management practices, and follow the stewardship agreements between GSFA and USFS, and state and federal laws and regulations. The various activities and techniques used to acquire the wood are described in Section 2.4; all of which have specific criteria and protocols on what and how the wood byproducts would be acquired. Feedstock would generally be sourced from hazardous fuels reduction projects, construction of shaded fuel breaks, removal of forest residuals slated for open-burning, site preparation, fire, insect or disease salvage harvests, commercial timber harvest residuals, pre-commercial thinning harvests, and mill residuals. The intent of feedstock acquisition activities would be to reduce excess fuels within forested areas, reducing overall wildfire risk.

Vegetation treatment is a primary approach to wildfire management, as it reduces available fuels which can reduce the intensity and severity of wildfire, slow fire movement and create favorable conditions for firefighting (Carey and Schuman 2003; Prichard et al. 2010). Fuel reduction has proven successful where it is targeted at protecting specific resources in limited geographic areas, such as in areas of extreme fire danger or in the WUI (Loudermilk et al. 2014). Areas that are treated often exhibit different fire behavior characteristics and reduced fire severity compared to areas that are not treated (Lydersen et al. 2014; Johnson and Kennedy 2019). Reducing fuels through mechanical treatments and prescribed fire have been found to be effective at reducing fire frequency, fire severity, and annual area burned when applied at the landscape scale over an extended period of time (Martinson and Omi 2013; Prichard et al. 2020; Tubbesing et al. 2020). Another study found simulated fuel treatments in the Lake Tahoe basin returned the forest to more historic and fire resilient conditions, reduced wildfire risk and severity, controlled wildfire carbon emissions, and in the long run, resulted in a net carbon gain (Loudermilk et al. 2014).

It has also been found that fuel treatments are most effective when wildfires are driven by typical weather situations where prevailing seasonal conditions of temperature, soil/fuel, and moisture contents are present. In circumstances where extreme weather conditions exist, such as in cases of extremely low humidity and very high winds, fuel treatments are less effective (Brown et al. 2008), particularly when persistently high winds can blow hot embers over long distances. While evidence has not yet definitively concluded that forest fuel treatments lead to a reduction in the overall size of a fire (Davis et al. 2024; Schoennagel et al. 2017), such treatments can aid in protecting public safety and homes and other structures by reducing wildfire intensity and severity in treated areas under normal fire conditions and increasing firefighting effectiveness (Kalies and Yocom Kent 2016). Where treatments have occurred, the pattern of wildfire progression may be limited in some areas to low-intensity underbrush and surface burning, which can create safe conditions for firefighters to successfully suppress fires in areas near homes or other structures, or around areas of high resource value. Fuel treatments also promote faster forest recovery post-fire by resulting in less severe wildfires that cause less damage to soils and leave some live vegetation within burn areas (Davis et al. 2024), increasing seedling regeneration (Tubbesing et al. 2020), protecting resources such as soils, wildlife, riparian function, and wetlands (Kim et al. 2013), and reducing drought related tree mortality (Restaino et al. 2019).

One published literature review found that certain treatments, such as hand or mechanical thinning followed by prescribed fire, or prescribed fire alone, are very effective at reducing wildfire severity, and that related ecological impacts are often neutral to positive (Winford et al. 2015). Another published literature review indicates that fuel treatments reduce fire severity, crown and bole scorch, and tree mortality compared to untreated areas. This finding

is most applicable to the combination of thinning (manual and mechanical treatments) and prescribed burn treatments. Increased treatment size and intensity (e.g., number of trees removed) can increase the effectiveness of the treatments. Firefighting effectiveness was also reportedly increased by treatments, due to increased visibility in treated areas, decreased heat and smoke of wildfire, increased penetration of retardant to surface fuels, safe access to the fire, and the ability to quickly suppress spot fires in treated areas (Kalies and Yocom Kent 2016).

However, because operations would occur in wildfire hazard areas and activities could result in accidental ignitions within the feedstock area, impacts would be **potentially significant**. Best practices and standard requirements for fire risk reduction during feedstock acquisition projects would be implemented per **MM-WIL-1**, such as requiring all mechanical equipment and hand tools to have federal- or state-approved spark arrestors, avoiding or stopping work during red flag warnings, requiring tree cutting crews to carry one fire extinguisher per chainsaw and each vehicle to be equipped with one long-handled shovel and one axe or Pulaski (PRC Section 4428), and prohibiting smoking in vegetated areas and require that smoking is only permitted in designated smoking areas barren or cleared to mineral soil at least 3 feet in diameter (PRC Section 4423.4).

## Wood Pellet Production

### Lassen Facility

According to CAL FIRE's FHSZ mapping, the portion of the site south of Babcock Road, which will be dedicated to feedstock processing and storage activities, and the areas immediately adjacent to the west of the site, are within the State Responsibility Area and mapped as being in a High Fire Hazard Severity Zone (CAL FIRE 2008, 2024a). However, very high FHSZ is located within approximately one mile. The project site is in a remote, largely undeveloped area. The surrounding area includes mainly agricultural uses. Project occupants during operation would include up to 28 workers on site at a time. Construction crews would also be on site temporarily during project construction.

As described in Section 3.6 Geology and Soils, the project site is relatively flat with slopes of 0 – 2%. Given the project construction would not involve altering any slopes or creating any new wind patterns, the project would not exacerbate wildfire spread due to slopes. Land use in the project area primarily consists of agriculture and rural development. The project site is composed primarily of grasslands, seasonal wetlands, and agricultural fields. Fire history depicts that wildfires have occurred in the project vicinity (Figure 3.16-4), however they have occurred approximately 2 miles or more from the project site, within the surrounding steeper terrain and open space areas. Given the flat terrain and surrounding land uses, it is not anticipated that the project would exacerbate wildfire conditions in the event of a wildfire occurring offsite.

During construction, the project would introduce new potential sources of ignition to the project site, including the use of heavy machinery and the potential for sparks during welding activities or other hot work. However, best practices would be implemented to avoid accidental ignitions, and the project would be required to comply with local and state requirements for fire safety under the oversight of Big Valley Fire Protection District (BVFD) and CAL FIRE. However, the potential for a wildfire to ignite on site during construction activities would be **potentially significant**. As outlined in **MM WIL-2**, construction fire prevention practices would be implemented at the start of and throughout all phases of construction, and combustible materials would not be brought on site until site improvements (e.g., utilities, access roads, fire hydrants, vegetation management) have been implemented and approved by BVFD and CAL FIRE. The pre-construction requirements outlined in **MM WIL-2** would reduce the risk of wildfire ignition and spread on the project site during construction activities. Vegetation management would also reduce the risk of wildfire spreading from within the active construction areas to offsite fuel beds. Provided site

improvements and vegetation management requirements are appropriately implemented and approved by BVFD and CAL FIRE, construction activities are not anticipated to exacerbate wildfire risk such that project occupants would be exposed to the uncontrolled spread of a wildfire or pollutant concentrations from a wildfire.

During O&M, the project would introduce new potential ignition sources to the project site, including vehicles, on-site buildings, machinery and processing equipment, storage of raw materials, drying of raw materials, processing of dried materials, and storage of finished pellets for loadout.

Raw materials would be stored in a designated woodyard. Materials would go through an industrial dryer to reach desired moisture content, and then conveyed to the pellet mill for processing. Finished pellets would be stored in three 2,500-metric-ton silos for loadout.

As discussed in Section 3.8, Hazards and Hazardous Materials, improper handling or storage of raw materials or processed wood pellets could ignite and result in a fire that could spread to offsite fuel beds. Absent proper controls, the impact of a pellet fire would be **potentially significant**. As discussed in Chapter 2, Project Description, and Section 3.8, Hazards and Hazardous Materials, a Fire and Explosion Protection Plan has been prepared for the facility and comprehensive fire and explosion protection features have been incorporated into project design plans, including a fire suppression system and ancillary infrastructure to support the facilities' fire water demands. Regular preventative maintenance to reduce fire risk during processing and storage of materials would be implemented, including belt speed sensors, motor current sensors, multiple levels of automated fire sprinkler systems, spark detectors with chemical suppression, and housekeeping designed to mitigate fire risk. Additionally, all dry process equipment is outfitted with bearing temperature sensors. The pellet storage silos utilize temperature sensors throughout the storage volume that trigger aeration fans to cool any hotspots that may occur. Additionally, keeping storage time in silos as short as possible would further reduce the likelihood of hotspots occurring. Additionally, a back-up fire pump, rated at 150 horsepower (hp) and a fire water tank that can provide flow for at least 2 hours would be installed in case the site loses power in order to provide a timely response to a fire incident. Further information regarding fire safety and preventative measures is detailed in Section 3.8, Hazards and Hazardous Materials. To ensure implementation of fire safety and prevention measures, a Fire Prevention Plan shall be required as mitigation measure (**MM-HAZ-2**).

### Tuolumne Facility

As shown in Figure 3.16-2, the Tuolumne Facility is located in an area designated as a high FHSZ within the SRA and scattered areas designated as Very High FHSZ are located approximately 0.17-mile west and northwest of the Tuolumne Facility site. The project site is in a largely undeveloped area, with surrounding uses primarily consisting of agricultural uses. Project occupants during operation would include up to 45 workers on site at a time. As described in Section 3.6 Geology and Soils, the project site has relatively flat slopes throughout the site. Given the project construction would not involve altering any slopes or creating any new wind patterns, the project would not exacerbate wildfire spread or risk related to slopes.

Construction, the project would introduce new potential sources of ignition to the project site, similar to the Lassen Facility, as discussed above. However, best practices would be implemented to avoid accidental ignitions, and the project would be required to comply with local and state requirements for fire safety. Further, the project would be required to comply with local and state requirements for fire safety under the oversight of Tuolumne County Fire Department (TCFD) and CAL FIRE. However, the potential for a wildfire to ignite on site during construction activities would be **potentially significant**. As discussed above, **MM-WIL-2** establishes construction fire prevention practices would be implemented at the start of and throughout all phases of construction, and combustible materials would

not be brought on site until site improvements (e.g., utilities, access roads, fire hydrants, fuel modification zones) have been implemented and approved by TCFD and CAL FIRE. These pre-construction requirements would reduce the risk of wildfire ignition and spread on the project site during construction activities. With implementation of and **MM-WIL-2** and approval by TCFD and CAL FIRE, construction activities are not anticipated to exacerbate wildfire risk such that project occupants would be exposed to the uncontrolled spread of a wildfire or pollutant concentrations from a wildfire.

Also similar to the Lassen Facility, the project would introduce new potential ignition sources to the project site during O&M, including vehicles, on-site buildings, machinery and processing equipment, storage of raw materials to be processed, drying of raw materials, processing of dried materials, and storage of finished pellets for loadout.

Raw materials would be stored in a designated woodyard. Materials would be dried to approximately 10% moisture content in the drying area, and then conveyed to the pellet mill for processing. Finished pellets would be stored in two 2,500-metric-ton silos for loadout.

As previously mentioned, improper handling or storage of raw materials or processed wood pellets could ignite and result in a fire that could spread to offsite fuel beds. Absent proper controls, the impact of a pellet fire would be **potentially significant.** As discussed in Chapter 2, Project Description, and Section 3.8, Hazards and Hazardous Materials, a Fire and Explosion Protection Plan has been prepared for the facility. As with the Lassen Facility, comprehensive fire and explosion protection features have been incorporated into project design plans, including a fire suppression system and ancillary infrastructure to support the facilities' fire water demands. Preventative maintenance at the Tuolumne Facility would reduce fire risk during processing and storage of materials, including belt speed sensors, motor current sensors, and spark detectors with chemical suppression. Additionally, all dry process equipment is outfitted with bearing temperature sensors. The pellet storage silos utilize temperature sensors throughout the storage volume that trigger aeration fans to cool any hotspots that may occur. Additionally, keeping storage time in silos as short as possible would further reduce the likelihood of hotspots occurring. Additionally, a back-up fire pump, rated at 150 horsepower (hp) and a fire water tank that can provide flow for at least two hours would be installed in case the site loses power in order to provide a timely response to a fire incident. Further information regarding fire safety and preventative measures is detailed in Section 3.8, Hazards and Hazardous Materials. To ensure implementation of fire safety and prevention measures, a Fire Prevention Plan is required as mitigation measure (**MM-HAZ-2**).

## Transport to Market

### Port of Stockton

The project site is within an existing deep-water port, the Port of Stockton. The surrounding area includes mainly industrial uses. Finished pellets would be transported to the Port of Stockton via rail, and finished pellets would be conveyed to two storage domes. As previously discussed, the project site is relatively flat, with elevations ranging from mean sea level to approximately 15 feet above mean sea level. Further, the project is not located in a wildfire hazard area. The majority of the land surrounding the project site is urban, with patches of dense vegetation dominated by rural grassland species.

As previously discussed, storage of pellets could result in self-heating and the potential for combustion. However, as discussed in Section 3.8, Hazards and Hazardous Materials, the project would include multiple levels of fire suppression systems to minimize the potential for fire or combustion. The two storage domes will utilize temperature sensors, moisture sensors, and multi-gas detectors to monitor the pellet storage piles. Reducing the

time in storage lowers the risk of fire considerably. In the event any of the dome instrumentation triggers there will be a nitrogen deluge system installed that will flood the domes with nitrogen, displacing the oxygen supply. Further explanation of this system can be found in Section 2.7.

Given that the Port of Stockton is not located in a fire hazard area, and the project construction would not involve altering any slopes or creating any new wind patterns that would affect the wildfire environment, the project would not exacerbate wildfire risk or expose project occupants to pollutants from a wildfire. Additionally, with the implementation of proper practices to reduce fire risk, the project would not exacerbate fire risk and the project would result in **no impact**.

Impact WIL-3 The project would potentially require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

## Feedstock Acquisition

### Sustainable Forest Management Projects

#### Utilities

Feedstock acquisition activities would not require the installation of permanent structures or utilities, nor connection to existing utility systems. Water would be provided by truck for dust suppression and fire safety during activities. As such, feedstock acquisition activities would not require the installation or maintenance of associated water sources, power lines or other utilities.

#### Roads

Feedstock acquisition would generally involve the use of existing roads, or previous roads left from previous forest management activities. However, certain feedstock acquisition activities may require road maintenance or up to one mile of low standard road construction per project. In addition, existing unpaved roads would be improved and maintained as part of feedstock acquisition. This would likely occur within or adjacent wildfire hazard areas. Construction or maintenance of roads would be required to comply with industry standard best practices to reduce fire risk. Nonetheless, the risk of accidental ignitions during road maintenance or construction is **potentially significant.** As discussed above, **MM-WIL-2** establishes construction fire prevention practices which would be implemented at the start of and throughout all phases of construction, including road maintenance or road construction.

#### Fuel Reduction Activities

As discussed in Section 2.4, feedstock acquisition would include hazardous fuels reduction projects, construction of shaded fuel breaks, removal of slash piles slated for open-burning, site preparation, fire, insect or disease salvage harvests, commercial timber harvest residuals, pre-commercial thinning harvests, Sites for these fuels reduction activities would be identified using the criteria and process described in Section 2.4 and in coordination with the appropriate land management agencies or land owners. Fuel breaks or hazardous fuels reduction projects would result in the removal of ladder fuels and creation of spacing between the trees and would help reduce the risk of fire as well as provide access for emergency personnel during a potential emergency. However, because

operations would occur in wildfire hazard areas and activities could result in accidental ignitions within the feedstock area, impacts would be **potentially significant**.

Per **MM-WIL-1**, best practices and standard requirements for fire risk reduction would be required during feedstock acquisition activities, such as requiring all mechanical equipment and hand tools to have federal- or state-approved spark arrestors, avoiding or stopping work during red flag warnings, requiring tree cutting crews to carry one fire extinguisher per chainsaw and each vehicle to be equipped with one long-handled shovel and one axe or Pulaski (PRC Section 4428), and prohibiting smoking in vegetated areas and require that smoking is only permitted in designated smoking areas barren or cleared to mineral soil at least 3 feet in diameter (PRC Section 4423.4).

## Wood Pellet Production

### Lassen Facility

The Lassen Facility would construct a new wood pellet processing facility, including a woodyard, green processing area, drying area, pellet mill, project storage, and loadout area as well as auxiliary structures and utility systems required for plant operations (e.g., fire suppression, water, compressed air).

#### Utilities

As described in Section 3.15 Utilities and Service systems, the project would include the addition of utilities to support the project including wastewater, stormwater systems, a septic system, and upgrades to the existing electrical infrastructure to support operations of the project. Water would be provided by the existing groundwater well. The project may also require stringing of overhead electrical utility lines, which would occur along existing utility lines adjacent existing roads. The construction and maintenance of the updated utilities would be required to be constructed in conformance with the California Building and Fire Codes. Because activities associated with installation and maintenance of utilities could involve the use of heavy machinery, vehicles, trenching, hot work etc. these activities would introduce new potential ignition sources and impacts would be **potentially significant.** As outlined in **MM-WIL-2**, best practices and requirements for fire safety during construction would be implemented prior to and throughout construction activities.

#### Roads

The facility would also build new internal roads, a separate accessway for haul trucks and employee access from Babcock Road, and a new railway spur, as well as off-site road improvements. Construction of access roads and rail spurs would be required to comply with the California Building and Fire Codes, including best practices for fire safety during construction activities to avoid accidental ignitions, and the project would be required to comply with local and state requirements for fire safety. Further, the project would be subject to additional requirements, as required by BVFD and outlined in **MM WIL-2**, such as limiting or ceasing construction work during high-wind weather events. Nonetheless, the risk of accidental ignitions during road maintenance or construction would be **potentially significant.** As outlined in **MM WIL-2**, construction fire prevention practices would be implemented at the start of and throughout all phases of construction, and combustible materials would not be brought on site until site improvements (e.g., utilities, access roads, fire hydrants, fuel modification zones) have been implemented and approved by BVFD and CAL FIRE.

## Tuolumne Facility

### Utilities

Similar to the Lassen Facility, the Tuolumne Facility would include the addition of utilities to support the project, including a stormwater system, upgrades to the septic system, and upgrades to the existing electrical infrastructure to support operations of the project (see Section 3.15 Utilities). These updated utilities and added facilities would be required to be constructed in conformance with the California Building and Fire Codes, including best practices for fire safety during construction activities to avoid accidental ignitions, and the project would be required to comply with local and state requirements for fire safety. However, activities associated with installation and maintenance of utilities would involve the use of heavy machinery, vehicles, trenching, hot work etc., and these activities would introduce new potential ignition sources and impacts would be **potentially significant.** As outlined in **MM-WIL-2** best practices and requirements for fire safety during construction would be implemented prior to and throughout construction activities.

### Roads

The facility would also build new internal roads, access roads including a new truck access from La Grange Road, a new railway spur, as well as offsite road improvements. Construction of access roads, road improvements, and rail spurs would be required to comply with the California Building and Fire Codes, including best practices for fire safety during construction activities to avoid accidental ignitions, and the project would be required to comply with local and state requirements for fire safety. Further, the project would be subject to additional requirements, as required by TCFD and CAL FIRE, such as limiting or ceasing construction work during high-wind weather events. Nonetheless, the risk of accidental ignitions during road maintenance or construction is **potentially significant.**

**MM-WIL-2** requires construction fire prevention practices to be implemented at the start of and throughout all phases of construction, and combustible materials would not be brought on site until site improvements (e.g., utilities, access roads, fire hydrants, fuel modification zones) have been implemented and approved by TCFD and CAL FIRE.

Temporary or ongoing impacts associated with installation and maintenance of such utilities have been analyzed and mitigated through this EIR, and no further temporary or ongoing impacts to the environment related to wildfire would occur.

## Transport to Market

### Port of Stockton

As described in 3.15 Utilities and Service systems, the project would include the addition of utilities to support the project including a stormwater system, sewer system, and electrical infrastructure. These updated utilities and added facilities would be required to be constructed in conformance with the California Building and Fire Codes. The Port of Stockton is not located in a fire hazard area, and as such, installation and maintenance of associated infrastructure would not exacerbate wildfire risk. The project would result in **no impact.**

Impact WIL-4 The Project would potentially expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Feedstock acquisition would involve Sustainable Forest Management Projects on California's private, state, tribal, and federal timberlands, including hazardous fuels reduction projects, construction of shaded fuel breaks, removal of slash piles slated for open-burning, site preparation, fire, insect or disease salvage harvests, commercial timber harvest residuals, pre-commercial thinning harvests, and mill residuals. Vegetation plays a vital role in maintaining existing drainage patterns and the stability of soils. Plant roots stabilize the soil, and leaves, stems, and branches intercept and slow water, allowing it to more effectively percolate into the soil. Removal of surface vegetation reduces the ability of the soil surface to absorb rainwater, and can allow for increased runoff that may include large amounts of debris and mud flows. If hydrophobic conditions exist post-fire, the rate of surface water runoff is increased since water percolation into the soil is reduced. The potential for surface runoff and debris flows therefore increases significantly for areas recently burned by wildfires (Moench and Fusaro 2012).

The feedstock area is topographically diverse, with slope gradients ranging from moderate to steep. Slope failures, mudflows, and landslides are common in areas where steep hillsides and embankments are present, and such conditions would be exacerbated where vegetative cover has been removed. Given the nature of the project, as discussed in Section 3.6 Geology and Soils and Section 3.9 Hydrology and Water Quality, feedstock acquisition activities, such as vegetation thinning, road construction/maintenance, vehicles, equipment and crews working in forested areas, could result in soil erosion, downslope or downstream flooding or landslides, changes to drainage patterns and slope stabilization. Caution must be used to avoid causing erosion, ground and slope instability, or water runoff in accordance with the Project Design Features described in Section 2.4 and all applicable federal and state regulations. As such, project feedstock acquisition would result in **potentially significant** erosion related impacts. Section 3.6 Geology and Soils and Section 3.9 Hydrology and Water Quality identify mitigation measures and project development features (PDFs) to reduce the likelihood for erosion, landslide, or downslope or downstream flooding related impacts (**MM-HYD-6**, **PDF-GEO-2**, **PDF-GEO-3**, **PDF-GEO-4**).

## Wood Pellet Production

### Lassen Facility

The Lassen Facility is located on relatively flat terrain and no recent wildfires have burned adjacent to the site, reducing the likelihood for post-fire slope instability. Compliance with existing regulations would ensure that construction and O&M of the Lassen Facility would not result in substantial erosion, landslide, or downslope or downstream flooding related impacts as a result of runoff, post-fire slope instability, or drainage changes. As a result, the project impacts would be **less than significant**.

### Tuolumne Facility

The Tuolumne Facility is located on relatively flat terrain and no recent wildfires have burned adjacent to the site, reducing the likelihood for post-fire slope instability. Erosion related impacts would be the same as that described above for the Lassen Facility. As a result, the project would not result in substantial erosion, landslide, or downslope or downstream flooding related impacts as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be **less than significant**.

### Transport to Market

#### Port of Stockton

The Port of Stockton is located on relatively flat terrain and no recent wildfires have burned adjacent to the site, nor is the site located in a wildfire hazard area, reducing the likelihood for post-fire slope instability. Erosion related impacts would be the same as that described above for the Lassen Facility. As a result, the project would not result in substantial erosion, landslide, or downslope or downstream flooding related impacts as a result of runoff, post-fire slope instability, or drainage changes. The project would result in **no impact**.

## 3.16.4.3 Cumulative Impacts

The project combined with other past, present, and reasonably foreseeable cumulative projects would not substantially impair an adopted emergency response plan or emergency evacuation plan.

### Feedstock Acquisition

#### Sustainable Forest Management Projects

The feedstock acquisition areas would primarily be located in dispersed timberland locations that are generally not densely populated areas and the acquisition efforts would be relatively short-term efforts at any one location. As a result, feedstock acquisition is unlikely to impair or physically interfere with emergency response or evacuation. As a result, the feedstock acquisition activities would not combine with cumulative projects to become cumulatively considerable and the impact would be **less than significant**.

### Wood Pellet Production

#### Lassen Facility

Lassen County updates and implements a Hazard Mitigation Plan in accordance with the Disaster Relief Act and provides the coordination, conjunction and collaboration with all County departments to maximize the County's potential to prevent, prepare for, respond to and recover from emergency response and evacuation situations. The Hazard Mitigation Plan provides specific courses of action that jurisdictions intend to follow to reduce vulnerability and exposure to future hazard events. Hazard mitigation strategies help to eliminate losses by limiting new exposures in identified hazard areas, diverting a hazard by reducing its impact, and developing an awareness of hazard area locations to plan responsibly for future development.

The project, in conjunction with other cumulative projects would be constructed to current design standards and building codes which include egress and ingress requirements and would not impair or interfere with the Hazard Mitigation Plan or the County's ability to prevent, prepare or respond to and recover from the identified hazards because existing codes are designed to minimize hazards and protect public health and safety. Therefore, the project would combine with cumulative projects and the impact would be **less than significant**.

#### Tuolumne Facility

As above, Tuolumne County also implements a Hazard Mitigation Plan. As with the Lassen Facility, the Tuolumne facility as well as other cumulative projects would adhere to current building code requirements related to emergency ingress and egress and would not impair or interfere with the County's Hazard Mitigation Plan. As noted

above, the proposed project would not impair an emergency response or evacuation plan. The cumulative impact would **less than significant**.

## Transport to Market

### Port of Stockton

The Port of Stockton site is already developed and located on an island adjacent to the San Joaquin River such that it is not part of any regional evacuation routes. There are two roads that all egress off the island and the proposed project would alter the existing road network. Therefore, the proposed project would not combine with other cumulative projects to become cumulatively considerable. The impact would **less than significant.**

The project combined with other past, present, and reasonably foreseeable cumulative projects would not exacerbate wildfire risks due to slope, prevailing winds, and other factors, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Feedstock Acquisition

## Feedstock Acquisition

### Sustainable Forest Management Projects

The geographic scope for the wildfire cumulative impact analysis associated with Sustainable Forest Management projects is the feedstock acquisition area and immediately adjacent areas because impacts related to wildfire (i.e., uncontrolled spread of wildfire or post-fire flooding or landslides) are location specific and only projects within or immediately adjacent to feedstock areas could combine to result in cumulative wildfire impacts. As discussed in Section 3.0, there are several similar past, present, and reasonably foreseeable projects that would reduce vegetation within forest and timberlands. These projects are likely to use combustion engines within wildlands, which have the potential to create sparks and subsequent fire ignitions. As such, cumulative activities could result in temporary risks associated with fire from prescribed burning, as well as from the use of vehicles and heavy machinery in wildfire hazard areas. However, best management practices to reduce wildfire-related risks would be implemented with the project (as set forth in **PDFs GEO-1**, **GEO-2**, **GEO-3**, **HAZ-1**, **HAZ-2**, **HAZ-3**, and **HAZ-4** in Section 2.4) and **MM-WIL-1.** Cumulative forest thinning or vegetation management projects would be subject to similar review and requirements per the applicable federal and state regulatory requirements. Further, vegetation reduction activities would consist of strategic removal of vegetation and the overall objective of the project and cumulative projects would be to reduce excess fuel loads in forests and timberland to promote forest resiliency and reduce vulnerability to catastrophic wildfire. Therefore, to the extent the cumulative activities reduce wildfire risk, implementation of the project, in combination with cumulative projects, would have a beneficial effect related to wildfire over the long-term and would not exacerbate fire risk and would not be cumulatively considerable.

## Wood Pellet Production

### Lassen Facility

A portion of the Lassen Facility is located in a high FHSZ, near Very High FHSZ areas. There are no cumulative projects identified relative to the proposed Lassen Facility. The project would implement fire prevention and safety protocols (**MM-WIL-2** and **PDF-HAZ-1** through **PDF-HAZ-4**) to reduce the risk of exacerbating wildfire risks. Further, any future projects would also be subject to applicable fire code requirements, including fire prevention and fire

protection such that fire risks are minimized. Therefore, considering the adherence to all fire protection and prevention requirements, the potential for the project to combine with cumulative projects to exacerbate wildfire risk would not be cumulatively considerable.

### Tuolumne Facility

The Tuolumne Facility is located in a High FHSZ in the SRA. The project would implement fire prevention and safety protocols (**MM-WIL-2** and **PDF-HAZ-1** through **PDF-HAZ-4**) to reduce the risk of exacerbating wildfire risks. The project and cumulative projects would be constructed in accordance with applicable fire protection and prevention measures. As a result, the potential impact would not be cumulatively considerable.

## Transport to Market

### Port of Stockton

The Port of Stockton is not located in a wildfire hazard risk area and is in a developed industrial area. As such, it would not combine with other cumulative projects to exacerbate wildfire risk. Impacts would not be cumulatively considerable.

The project combined with other past, present, and reasonably foreseeable cumulative projects would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

## Feedstock Acquisition

### Sustainable Forest Management Projects

Cumulative activities could result in temporary risk of increased ignition sources associated with feedstock acquisition and other vegetation reduction activities in cumulative projects, including the construction or maintenance of fuel breaks, roads, or other associated infrastructure. However, fire prevention practices would be implemented in the project (**MM-WIL-1** and **MM-WIL-2**) and cumulative projects would be subject to similar requirements. Further, vegetation reduction activities would consist of strategic removal of vegetation and the overall objective of the project and cumulative projects would be to reduce excess fuel loads in forests and timberland to promote forest resiliency and reduce vulnerability to catastrophic wildfire. Therefore, to the extent the cumulative activities reduce wildfire risk, implementation of the project, in combination with cumulative projects, would have a beneficial effect related to wildfire over the long-term and would not exacerbate fire risk and would not be cumulatively considerable.

## Wood Pellet Production

### Lassen Facility

A discussed above, there are no cumulative projects identified relative to the proposed Lassen Facility. The project would implement fire prevention and safety protocols (**MM-WIL-2**) to reduce the risk of exacerbating wildfire risks. With adherence to all fire protection and prevention requirements, the potential for the project to combine with cumulative projects to exacerbate wildfire risk would not be cumulatively considerable.

### Tuolumne Facility

As discussed above, the project would implement fire prevention and safety protocols (**MM-WIL-2**) during the installation and maintenance of associated infrastructure to reduce the risk of exacerbating wildfire risks. Cumulative projects would be subject to similar requirements. The project and cumulative projects would be constructed in accordance with applicable fire protection and prevention measures. As a result, the potential impact would not be cumulatively considerable.

## Transport to Market

### Port of Stockton

The Port of Stockton is not located in a wildfire hazard risk area and is in a developed industrial area. As such, it would not combine with other cumulative projects to exacerbate wildfire risk. Impacts would not be cumulatively considerable.

The project combined with other past, present, and reasonably foreseeable cumulative projects would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

## Feedstock Acquisition

### Sustainable Forest Management Projects

The project would implement PDFs to reduce the likelihood for erosion, landslide, or downslope or downstream flooding related impacts (**PDF-GEO-2**, **PDF-GEO-3**, **PDF-GEO-4**) during feedstock acquisition activities. Cumulative projects would be subject to similar erosion prevention requirements. Therefore, with implementation of best practices to minimize soil erosion and runoff, impacts to slope instability would not be cumulatively considerable.

## Wood Pellet Production

### Lassen Facility

A discussed above, there are no cumulative projects identified relative to the proposed Lassen Facility. The Lassen Facility is located on relatively flat terrain, and compliance with existing regulations would ensure that the project would not result in substantial erosion, landslide, or downslope or downstream flooding related impacts as a result of runoff, post-fire slope instability, or drainage changes. As a result, the project impacts would not be cumulatively considerable.

### Tuolumne Facility

The Tuolumne Facility is located on relatively flat terrain and no recent wildfires have burned adjacent to the site, reducing the likelihood for post-fire slope instability. Erosion related impacts would be the same as that described above for the Lassen Facility, and cumulative projects would be subject to erosion control measures. As a result, the project would not result in cumulatively considerable impacts related to erosion, landslide, or downslope or downstream flooding as a result of runoff, post-fire slope instability, or drainage changes.

### Transport to Market

#### Port of Stockton

The Port of Stockton is not located in a wildfire hazard risk area and is in a developed industrial area. As such, it would not combine with other cumulative projects to exacerbate wildfire risk or slope instability issues. Impacts would not be cumulatively considerable.

## 3.16.4.4 Mitigation Measures

### Feedstock Acquisition

#### Sustainable Forest Management Projects

MM-WIL-1 Feedstock Acquisition Fire Prevention Plan. Best practices and standard requirements for fire risk reduction shall be required during feedstock acquisition activities. Prior to the start of feedstock acquisition activities (e.g., prior to the use of vehicles or mechanical equipment on site), a Fire Prevention Plan shall be prepared in consultation with and for review and approval by the U.S. Forest Service, California Department of Forestry and Fire Protection (CAL FIRE), or the fire agency having jurisdiction (FAHJ). The Fire Prevention Plan shall include, but would not be limited to, the following specific measures to be implemented during feedstock acquisition activities:

- Responsibilities of the project applicant, its contractor(s), and fire agencies with respect to fire prevention and inspection of work areas;
- Designation of a Site Safety Officer responsible for overseeing the Fire Prevention Plan implementation;
- Basic fire prevention training of employees/contractors upon employment and prior to beginning work, and documentation of the training. Basic fire prevention training shall include, but would not be limited to: fire prevention, proper response and notification, initial attack firefighting (e.g., the use of fire extinguishers and hand tools), and fire reporting;
- Emergency communication, response, and reporting procedures. All fires shall be reported to the FAHJ;
- Procedures for minimizing potential ignition, including, but not limited to: vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, storage of combustible or flammable materials restrictions, proper use of gas-powered equipment, use of spark arresters;
- Identification of fire suppression equipment to be maintained in work areas and staging areas (e.g., portable fire extinguishers, water tender, shovels, Pulaski). The fire suppression equipment appropriate for the project shall be determined based on the project characteristics, but at minimum would include: one fire extinguisher per chainsaw and each vehicle shall be equipped with one long-handled shovel and one axe or Pulaski (PRC Section 4428);
- Identification of evacuation routes and procedures;
- Provisions for fire/emergency services access if roadway blockage or temporary closures occur;

- Designated worker parking and staging areas cleared of flammable vegetation; no parking or feedstock activities in non-designated areas;
- Prohibition of smoking and open fires at the project site. Prohibit smoking in vegetated areas and require that smoking is only permitted in designated smoking areas barren or cleared to mineral soil at least 3 feet in diameter (PRC Section 4423.4);
- Assurances that all internal-combustion equipment are equipped with appropriate spark arresters and that fire extinguishers are immediately available and maintained in readiness for use at all times;
- Presence of a designated fire watch personnel with appropriate firefighting equipment available at the project site at all times;
- Curtailment of all feedstock acquisition activities in the event of a fire or when fuel and weather conditions get into the "very high" and "extreme" ranges (Red Flag Warning), as determined by the National Weather Service, with specific project-related activities to be allowed during very high or extreme weather conditions at the discretion of the FAHJ;
- Information contained in the Fire Prevention Plan and location of fire-suppression materials and equipment to be included as part of the employee environmental training.

## Wood Pellet Production

### Lassen Facility

MM-WIL-2 Construction Fire Prevention Plan. GSNR shall develop a Construction Fire Prevention Plan for review and approval by the U.S. Forest Service, California Department of Forestry and Fire Protection (CAL FIRE), or the fire agency having jurisdiction (FAHJ) prior to commencement of construction activities (prior to vehicles or equipment being brought on site). At minimum, the plan will require all of the following:

- Procedures for minimizing potential ignition, including but not limited to:
  - Vegetation clearing
  - Parking requirements
  - Smoking restrictions
  - Hot work restrictions;
- **Red Flag Warning restrictions.** During Red Flag Warning events, as issued daily by the National Weather Service in State Responsibility Areas (SRAs) and Local Responsibility Areas (LRAs), and when the Forest Service Project Activity Level (PAL) is "E" on National Forest lands (as appropriate), all non-essential, non-emergency construction and maintenance activities shall cease or be required to operate under a Hot Work Procedure. The Hot Work Procedure will be in compliance with the applicable sections in NFPA 51-B "Fire prevention during welding, cutting, or other hot work" and CFC Chapter 26 "Welding and Other Hot Work";
- Fire coordinator role and responsibility;
- Fire suppression equipment on site at all times work is occurring;
- Emergency response and reporting procedures;
- Emergency contact information;

- Worker education materials; kick-off and tailgate meeting schedules;
- Other information as provided by the FAHJ (as appropriate for each project).

MM-HAZ-2 Fire Prevention Plan. GSNR shall prepare a Site Specific Fire Prevention Plan for each production and storage facility Plan (Lassen Facility, Tuolumne Facility, and Port of Stockton). Development of each Site Specific Fire Prevention Plan shall be consistent with Brown, et al., 2022, *Application of Process Hazard Analysis and Inherently Safer Design in Wood Pellet Production*, American Chemical Society ACS Omega 2022, 7, 47720−47733, and each Plan shall incorporate the following Inherently Safer Design features where applicable, at a minimum:

- Maintenance and housekeeping measures to reduce the risk of "hot spots" and potential fire risk during the production and movement of pellets.
- Identification of early detection measures, including belt speed and motor sensors, spark detectors, temperature sensors.
- Protocols to minimize the residence time of finished pellets in storage silos.
- On-site fire suppression facilities, including water storage and pumping.
- Require that pellet storage silos will be equipped with temperature monitoring systems to detect hot spots.
- Require that each pellet storage silo will also be equipped with an aeration system that will activate when elevated temperatures are detected and blow ambient air through the silo for cooling.
- Require use of an enclosed motors instead of a non-enclosed motors to ensure dust is kept out to prevent fire spots.
- Require multiple dust collectors with explosion panels will be installed throughout the process in order to reduce fire and explosion hazard associated with dry fiber handling generating dust.
- Ensure that all ductwork is designed to have a minimal number of bends to the extent feasible.

The pellet production facilities shall include the following additional measures:

- Require that magnets are located throughout the process to remove ferrous objects from the feedstock and product streams to the extent feasible.
- Ensure quick material turnaround to minimize the risk of a deep-seated fire caused by organic material decomposition.
- Ensure separation of finished product silo storage and railcar from rest of the plant.
- Require all of the following equipment protection systems/sprinkler systems:
  - The Fire Pump Building will be protected with a wet sprinkler system.
  - The Bark Hog Tower will be protected with a dry pipe sprinkler system.
  - The Green Hammer Mill Tower will be protected with a dry pipe sprinkler system.
  - The Dry Hammer Mill Structure will be protected with a dry pipe sprinkler system.
  - The Pelletizer Building will be protected with a wet sprinkler system.
- Require that each baghouse at rail loadout will be provided with fire water connections and spray nozzles.

- Require the inclusion of a Rail Loadout Dust Control System
- Require a Central Dust Control system in the balance of the production facilities.
- Require that well water be treated as necessary to minimize dissolved material in water to reduce scaling and clogging of water deluge systems/plugged nozzle or lines with water scale/hardness.

Each plan shall be reviewed and approved by the Fire Marshall with authority over each site (Lassen County, Tuolumne County, and the Port of Stockton) and comply with all applicable current standards and codes set by the National Fire Protection Agency and the International Building Code as well as any additional requirements deemed necessary by the applicable local fire authority.

PDF-HAZ-1 through PDF-HAZ-4 shall also be implemented to reduce potentially significant impacts to less than significant levels.

#### Tuolumne Facility

Mitigation Measures **MM-WIL-2 and MM-HAZ-2,** and **PDF-HAZ-1** through **PDF-HAZ-4** shall be implemented to reduce potentially significant impacts to less than significant levels.

### Transport to Market

#### Port of Stockton

No mitigation measures are required as impacts would be less than significant.

## 3.16.4.5 Significance After Mitigation

With implementation of **MM-WIL-1**, **MM-WIL-2**, and **MM-HAZ-2**, Impact WIL-2 would be reduced to **less than significant.** Given that the project would involve removing fuels that could aid in wildfire spread, and feedstock acquisition activities would follow the best practices to avoid the risk of fire ignitions, as incorporated into **MM-WIL-1**, the impacts of the feedstock acquisition related to exposing project occupants to pollutants from a wildfire or the uncontrolled spread of a wildfire would be less than significant with mitigation incorporated. **MM-WIL-2** and **MM-HAZ-2** would require fire risk reduction measures at the pellet facilities that would risk of project-related wildfire hazards to less than significant.

**PDF-GEO-2**, **PDF-GEO-3**, and **PDF-GEO-4** would reduce slope instability during feedstock acquisition to **less than significant**.

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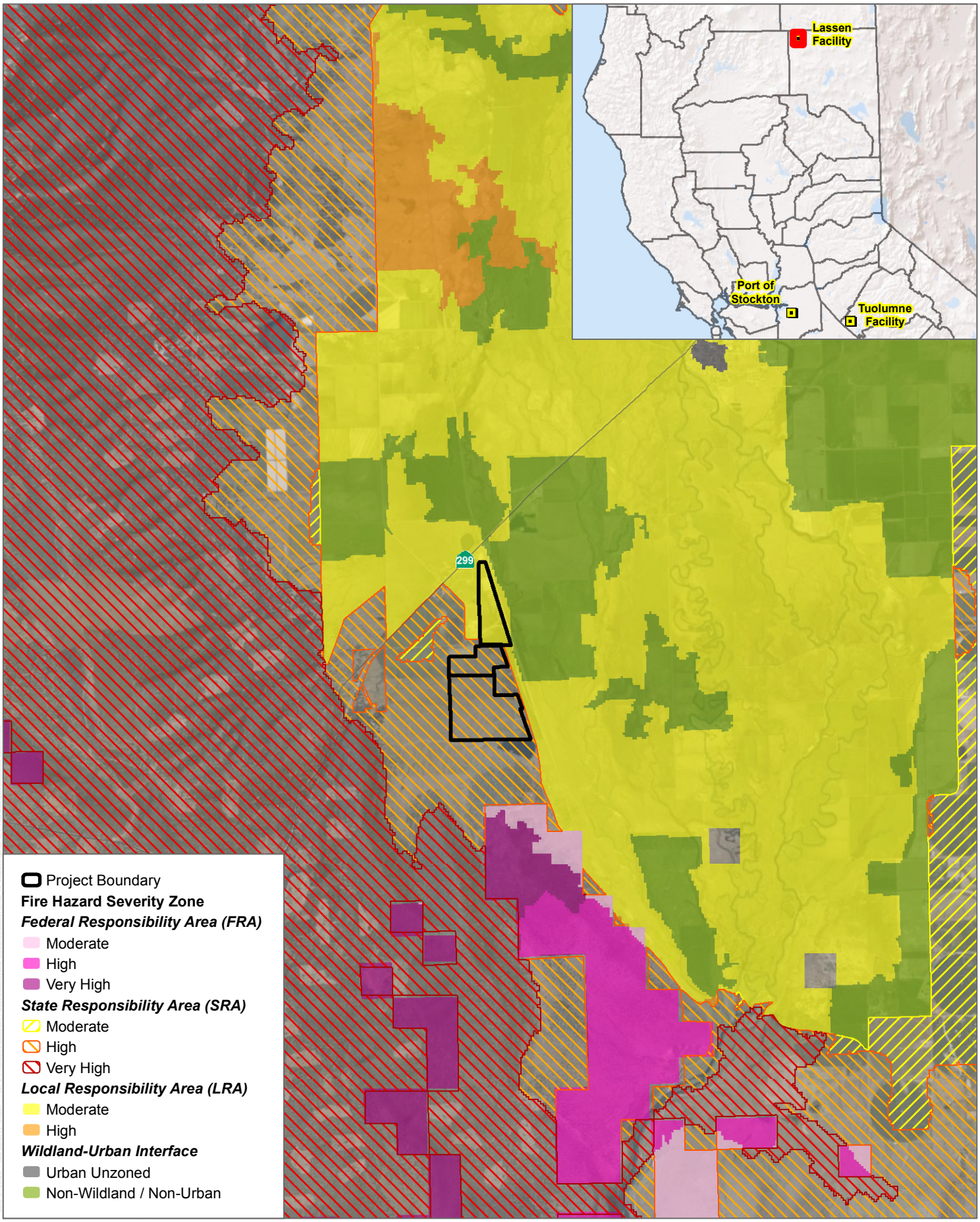


SOURCE: Bing Maps 2022, CALFIRE 2024

DUDEK

0 0.5 1 Miles

**FIGURE 3.16-1**

Fire Hazard Severity Zones - Lassen Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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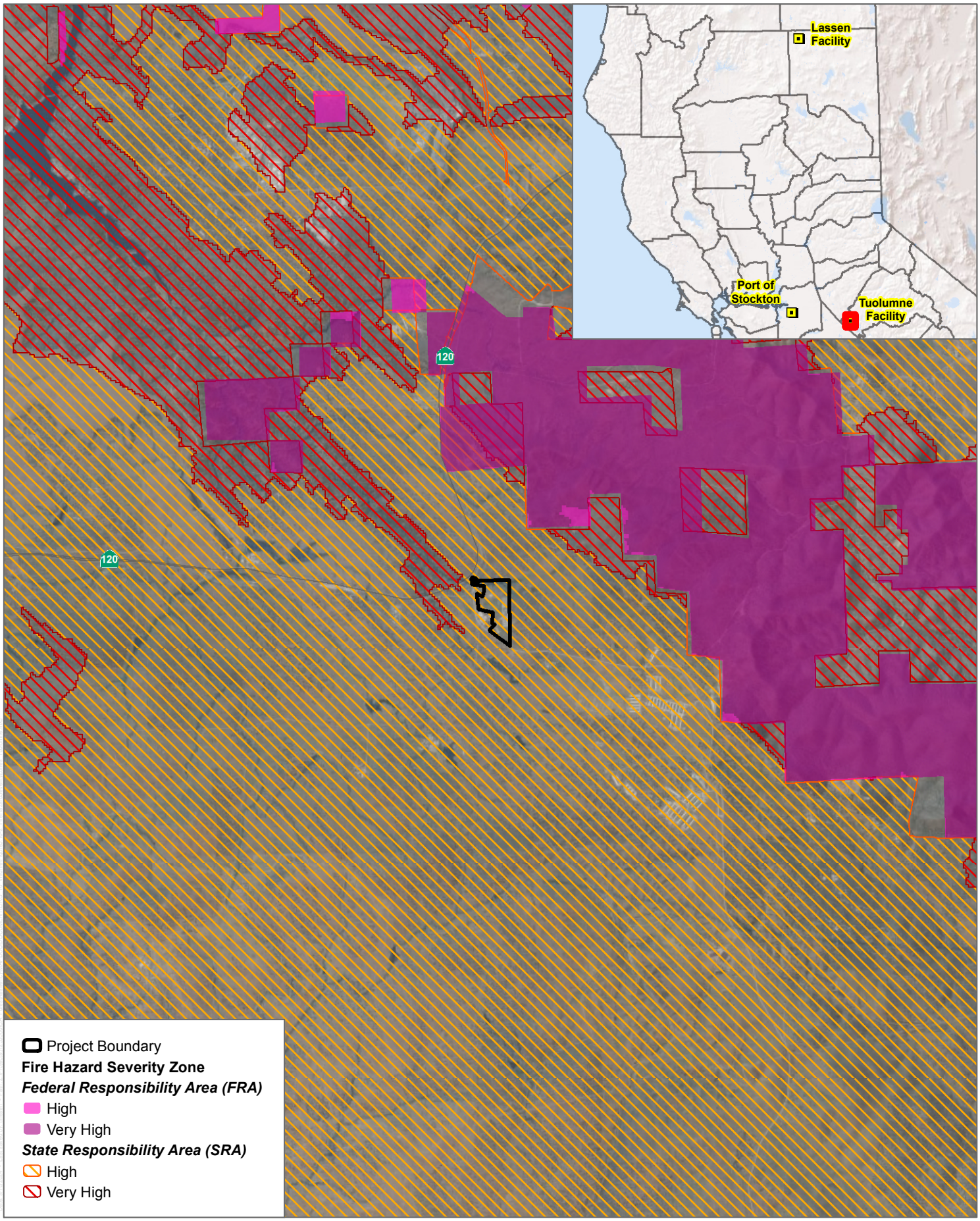


SOURCE: Bing Maps 2022, CALFIRE 2024

DUDEK

0 0.5 1 Miles

**FIGURE 3.16-2**

Fire Hazard Severity Zones - Tuolumne Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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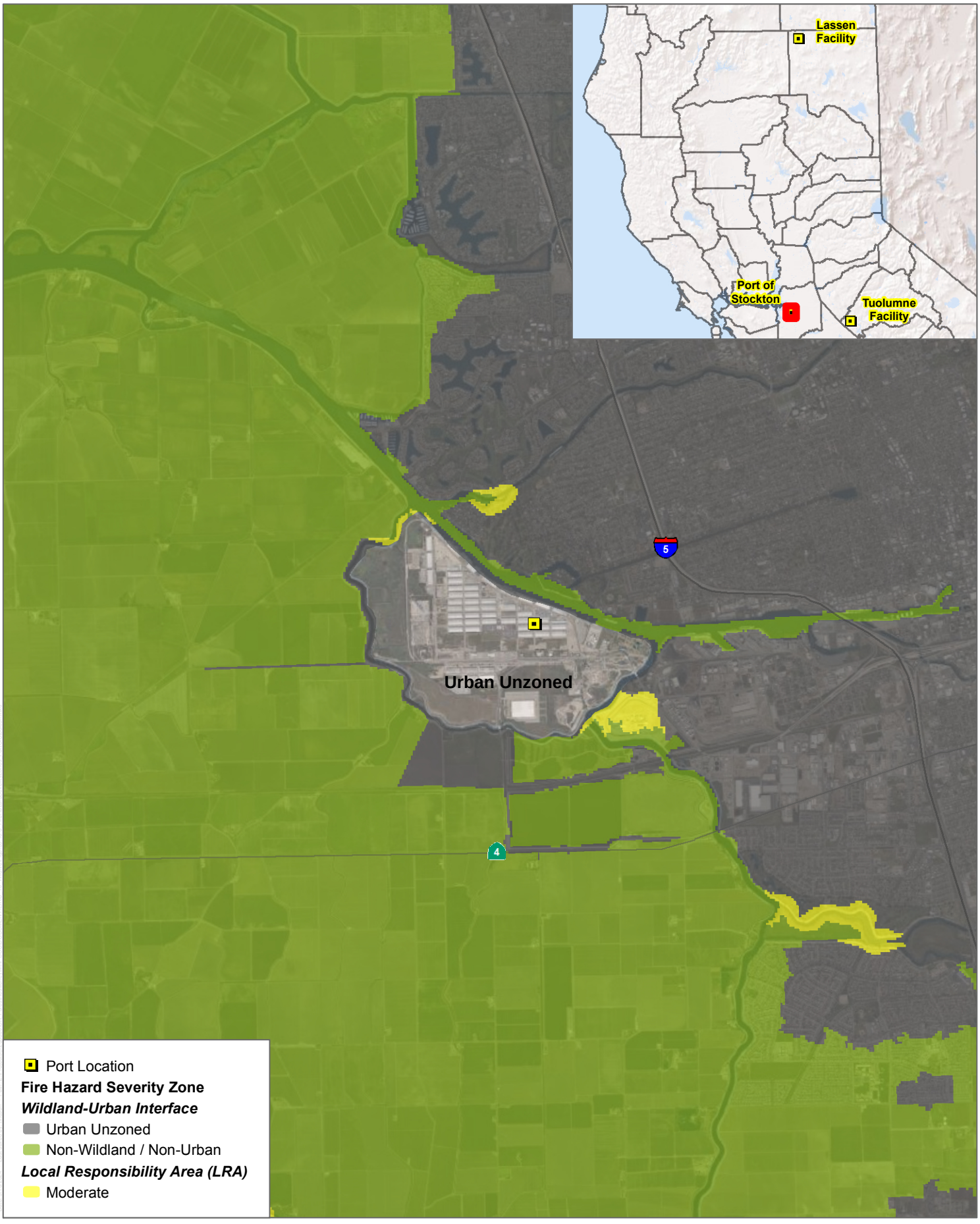


SOURCE: Bing Maps 2022, CALFIRE 2024

DUDEK

0 0.5 1 Miles

**FIGURE 3.16-3**

Fire Hazard Severity Zones - Port of Stockton Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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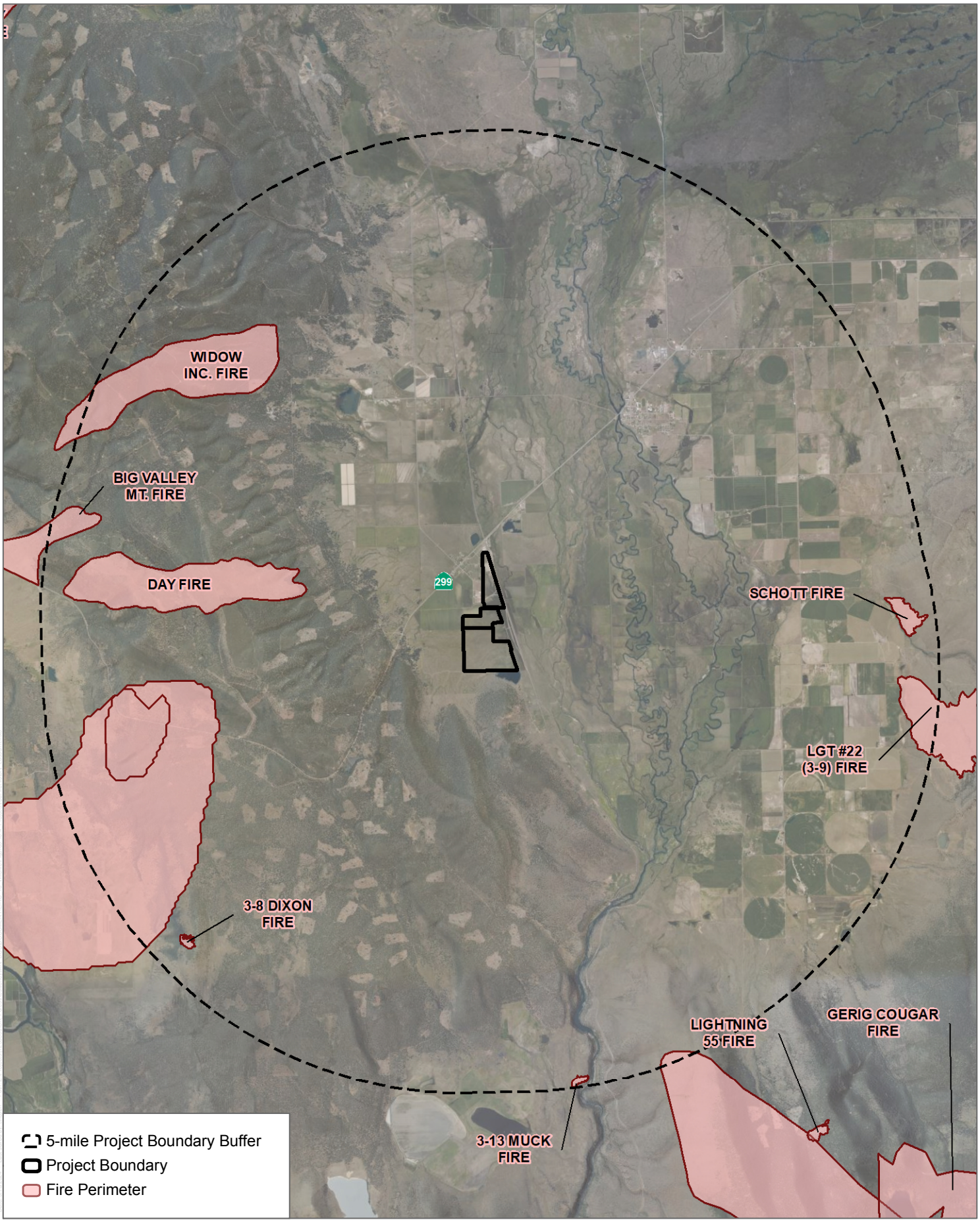


SOURCE: Bing Maps 2022, CALFIRE 2022

DUDEK

0 0.75 1.5 Miles

**FIGURE 3.16-4**

Project Area Fire History - Lassen Processing Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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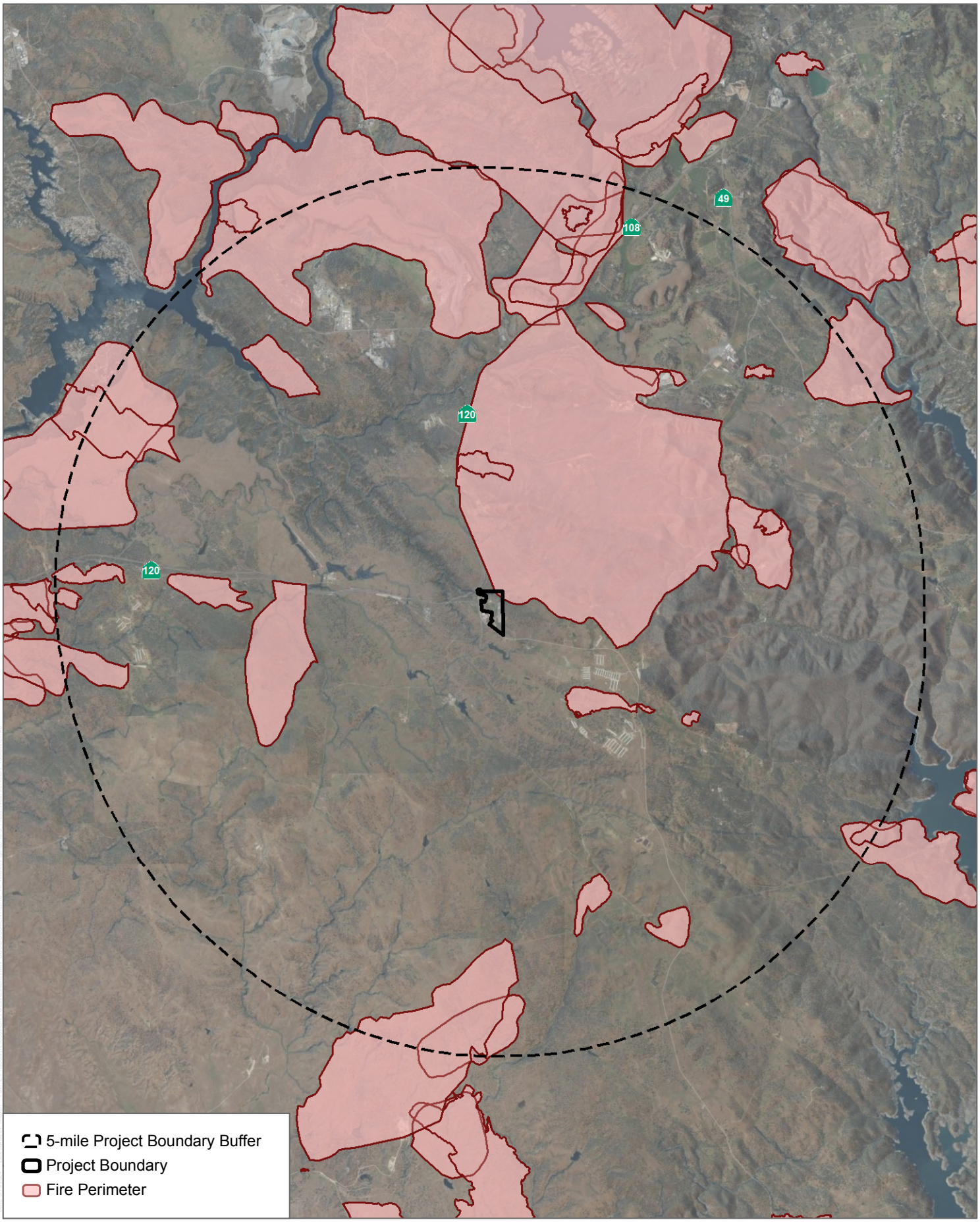


SOURCE: Bing Maps 2022, CALFIRE 2022

DUDEK

0 0.75 1.5 Miles

**FIGURE 3.16-5**

Project Area Fire History - Tuolumne Processing Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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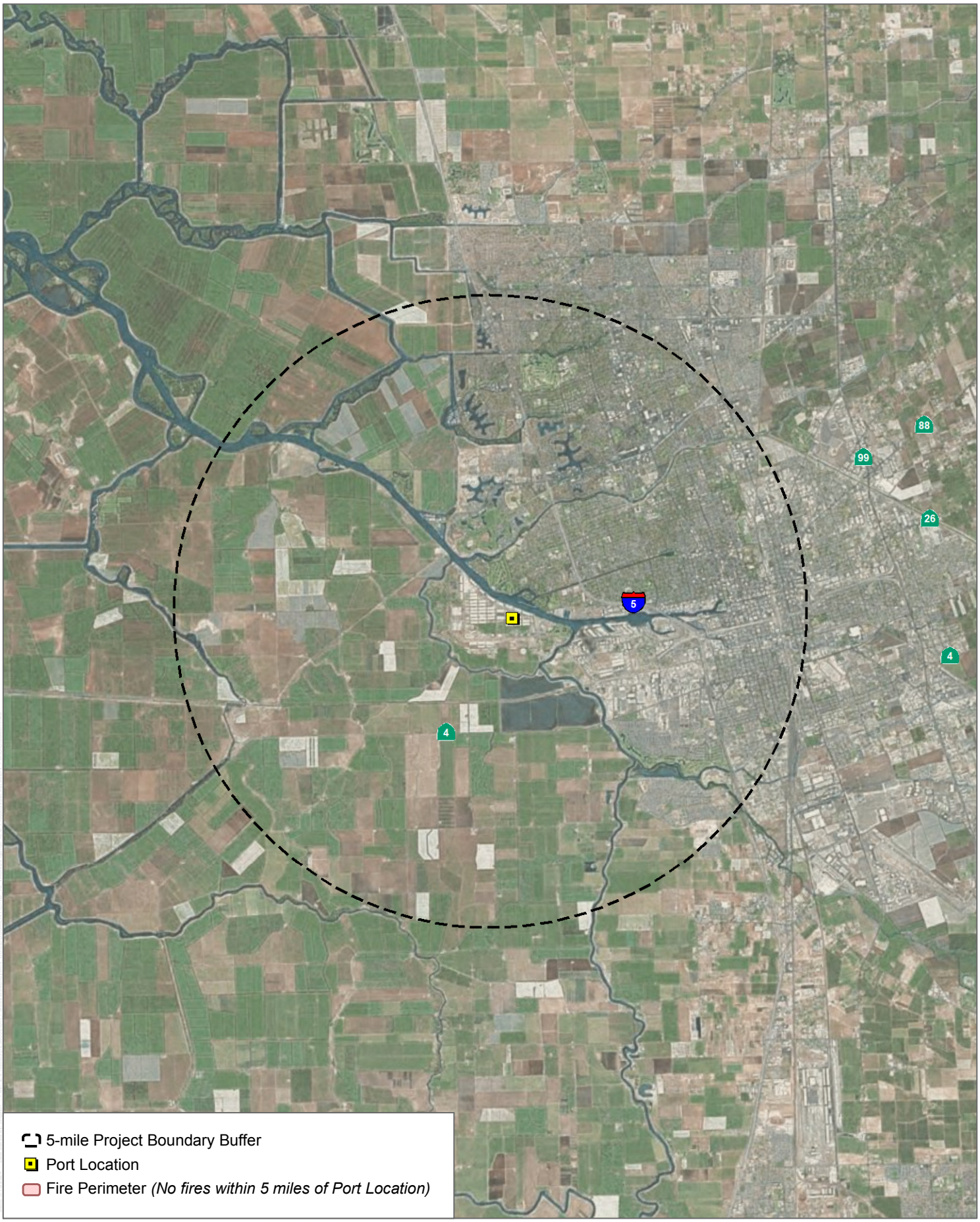


SOURCE: Bing Maps 2022, CALFIRE 2022

DUDEK

0 1 2 Miles

**FIGURE 3.16-6**

Project Area Fire History - Port of Stockton Facility

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 4.0 Alternatives

## 4.1 Introduction

This chapter describes alternatives to the proposed Golden State Natural Resources Forest Resiliency Demonstration Project (project), consistent with California Environmental Quality Act (CEQA) Guidelines Section 15126.6. This chapter presents the objectives of the Proposed Project, a summary of its significant environmental impacts, and a description of the alternatives that were considered but eliminated from further consideration, followed by an analysis of the three alternatives evaluated, including the No Project Alternative. A comparison of the three alternatives to the Proposed Project is provided and the environmentally superior alternative is identified.

According to CEQA Guidelines Section 15126.6, an environmental impact report (EIR) shall describe a range of reasonable alternatives to the project or to the location of the project, that would feasibly attain most of the basic objectives of the project and could avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives. This section of the guidelines further requires that the discussion focus on alternatives capable of eliminating significant adverse impacts of the project or reducing them to a level of insignificance even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly. The alternatives analysis also should identify any significant effects that may result from a given alternative.

The lead agency is responsible for selecting a reasonable range of potentially feasible project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives is governed by a "rule of reason" that requires the EIR to set forth only those potentially feasible alternatives necessary to permit a reasoned choice. The alternatives shall be limited to those that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only those that the lead agency determines could feasibly attain most of the basic objectives of the project while substantially lessening any of the significant effects of the project. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

An EIR is not required to consider alternatives which are infeasible. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (CEQA Guidelines Section 15364). Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or already owns the alternative site). None of these factors establishes a fixed limit on the scope of reasonable alternatives. Under CEQA case law, the concept of feasibility also "encompasses 'desirability' to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, and technological factors." (*City of Del Mar v. City of San Diego* [1982] 133 Cal.App.3d 410, 417; *California Native Plant Society v. City of Santa Cruz* [2009] 177 Cal.App.4th 957.) In assessing the feasibility of alternatives, agency decisionmakers may also take account of the extent to which the alternatives meet or further the agency's underlying purpose or objectives in considering a proposed project. (*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* [2008] 43

Cal.4th 1143, 1165, 1166; *Sierra Club v. County of Napa* [2004] 121 Cal.App.4th 1490, 1506-1509; *Citizens for Open Government v. City of Lodi* [2012] 205 Cal.App.4th 296, 314-315.)

## 4.2 Project Objectives

The underlying purpose of the proposed project is to help restore forests, watersheds, and ecosystems to a more natural and resilient condition by sustainably procuring and processing excess biomass into a pelletized fuel source for renewable energy generation. The proposed project is designed to be consistent with the following objectives, established by GSFA in consultation with GSNR:

- Sustainably reduce excess fuel loads in high hazard landscapes at greatest risk of catastrophic wildfire.
- Reduce catastrophic wildfire risks associated with ladder fuels, crown fires, insect pathogens, and disease.
- Enhance ecological functions, watershed functions, wildlife habitat, biodiversity, and overall forest health and resilience by increasing tree spacing, reducing evapotranspiration water loss, reducing nutrient resource competition, improving the growth rates and health of larger and healthier tress, and increasing carbon sequestration and storage.
- Reduce environmental harms resulting from uncontrolled wildfires, including emissions of greenhouse gases and air pollutants.
- Facilitate opportunities to reintroduce traditional tribal and cultural forest management practices and prescribed burning to maintain healthy forest conditions.
- Reduce risk to first responders, residents, visitors, communities, and natural and manmade infrastructure from catastrophic wildfire.
- Reduce firefighting suppression costs, healthcare costs related to wildfire smoke, and impacts and losses to manmade infrastructure and communities.
- Protect California's high-value, iconic recreational resources, National and State Parks and other priceless natural resources from catastrophic wildfires.
- Offset the high costs of wildfire management activities by making productive use of low-value forest materials generated from those activities.
- Improve economic and community development and create jobs in historically overlooked and underinvested California communities.
- Support the development of new and emerging technologies that use biomass fuels to address climate change, such as Bioenergy with Carbon Capture and Storage (BECCS).

## 4.3 Overview of Significant Project Impacts

The range of alternatives studied in the EIR must be broad enough to permit a reasoned choice by decision-makers when considering the merits of the project. The analysis should focus on alternatives that are potentially feasible. Under CEQA, alternatives that are remote or speculative should not be discussed in the analysis of alternatives. Furthermore, alternatives should focus on reducing or avoiding significant environmental impacts associated with the project as proposed. As described in Chapter 3, the project would result in several potentially significant environmental impacts. These impacts include impacts to air quality, biological resources, cultural (archaeological) resources, geology, greenhouse gas (GHG) emissions, hazards, hydrology and water quality, transportation, utilities, and wildfire. With implementation of project development features and mitigation measures, impacts would be

reduced to less than significant with the exception of air quality, GHG emissions, and transportation (specifically, VMTs). Potentially significant impacts are identified in Table 4-1.

## 4.4 Alternatives Considered but Eliminated from Further Consideration

This section discusses alternatives that were considered but were eliminated from detailed consideration because they did not meet most of the basic project objectives; were found to be infeasible for technical, environmental, or social reasons; or they did not avoid or substantially lessen significant environmental impacts of the Proposed Project. Section 15126.6(c) of the CEQA Guidelines indicates that the range of potential alternatives shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible, and briefly explain the reasons underlying the lead agency's determination. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (1) failure to meet most of the basic project objectives, (2) infeasibility (see introduction to this Chapter), or (3) inability to avoid significant environmental impacts.

### 4.4.1 Alternative Locations

As discussed in *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553 (*Goleta II*), where a project is consistent with an approved general plan, no off-site alternative need be analyzed in the EIR. The EIR "is not ordinarily an occasion for the reconsideration or overhaul of fundamental land-use policy." (Goleta II, supra, 52 Cal.3d at p. 573.) In approving a general plan, the local agency has already identified and analyzed suitable alternative sites for particular types of development and has selected a feasible land use plan. "Informed and enlightened regional planning does not demand a project EIR dedicated to defining alternative sites without regard to feasibility. Such ad hoc reconsideration of basic planning policy is not only unnecessary, but would be in contravention of the legislative goal of long-term, comprehensive planning." (*Goleta II, supra,* 52 Cal.3d at pp. 572-573. See also *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal. App. 4th 477, 491.)

The proposed sites for the Northern California and Central California pellet processing facilities and the Port of Stockton export facility are each consistent with the applicable General Plan and zoning. Further, the two processing facility sites have previously been used for the processing and/or shipment of wood products, and the export facility site is an infill location within a working port. For the reasons set forth above, CEQA does not require analysis of off-site alternatives under these circumstances. Nonetheless, this EIR includes such an analysis in the interests of public transparency and exceeding CEQA's requirements as an informational document and explains the justification for eliminating these alternatives from further consideration.

#### 4.4.1.1 Considerations Applicable to All Project Sites

Per Section 15126.6(f)(2) of the CEQA Guidelines, when an EIR includes an analysis of alternative sites, "[t]he key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR."

As discussed above, the proposed project would result in significant and unavoidable impacts relating to air quality, GHG emissions, and VMTs. Each of these impacts is driven by the fundamental nature of project activities (i.e., removal of vegetative material from forested lands, transportation and processing into wood pellets, and further transportation, export, and use of wood pellets), rather than the specific locations of any facility site. Development of the processing or export facilities in an alternative location in the general vicinity of any of the proposed sites would result in comparable impacts at those locations, and would not avoid or substantially lessen any impact.

Furthermore, GSNR does not hold ownership control over any other adequately sized parcels of land in or near any facility site that could be used as an alternative location for the proposed project. Similarly, there are no existing properties for sale in the vicinity of any of the project sites that have the necessary characteristics for construction and operation of the proposed facilities (including size, access to both highway and rail infrastructure, minimizing greenfield development, and, for the export facility, access to marine shipping), and that could reasonably be controlled by GSNR for the purpose of developing the project. CEQA does not require sites that are not owned by the project proponent or that could not be reasonably acquired by the proponent to be considered as an alternative to the project. (CEQA Guidelines Section 15126.6(f)(1).) Therefore, because an alternative location is not available that would avoid or substantially lessen the significant environmental effects of the project, and because the GSNR does not have ownership control over, and cannot reasonably obtain ownership control over, any other parcels of land in the vicinity that could accommodate the proposed project facilities, an alternative location alternative is not required to be further analyzed. Accordingly, with the one exception below, this alternative is not further considered in the EIR.

### 4.4.1.2 Alternative Location: Northern California Site

Aside from the considerations noted above, certain environmental impacts related to the Northern California (Nubieber) site, notably flood zone impacts and jurisdictional waters, may be avoided by an alternative location. The proposed pellet facility site in Nubieber was selected after the consideration of alternative sites, including sites in Humboldt County, Lassen County, Modoc County, and Siskiyou County. The ability of these sites to meet the particular needs of this project was assessed based on a wide variety of criteria including (but not limited to) feedstock availability, wildfire mitigation benefits, logistical feasibility, transportation accessibility/availability, environmental and permitting feasibility, site/infrastructure constraints, potential site contamination concerns, workforce availability/community buy-in and readiness, and other miscellaneous constraints. The other noted locations were screened out for this project for the reasons cited below.

- "Big Valley Mill" - 554-925 Highway 299 East, Bieber, CA (Lassen County). Former sawmill and power plant located approximately three miles from the proposed Lassen Facility. Lacks rail access, and property has documented "recognized environmental conditions" (i.e., potential hazardous substances contamination).
- "Samoa" - 97 Bay Street, Samoa, CA (Humboldt County). Developed forest products facility located at the Port of Humboldt Bay. Lacks rail access, and site is small, with potential limitations on feedstock truck access/traffic. Potential ESHA (environmental sensitive habitat areas) for sand dune habitat. High potential for rare plants. Potentially significant archaeological and tribal cultural resources.
- "McCloud Millworks" - Siskiyou County APN 028-530-060 (Siskiyou County). Former mill site located in McCloud, California. Potentially greater impacts related to special status species, including rare plants. Potentially significant cultural resources (former Millworks building). McCloud Rail (shortline operator) not in operation. Shortline requires extensive upgrade to facilitate unit trains (263 track to 286). Due to steep grade, shorter trains required.

- "Modoc" - 615 Steam Road, Alturas, CA (Modoc County). Industrially-zoned property owned by public agencies located in Alturas, California. Potential height restrictions due to proximity to airport. Shortline rail has derailment history, and may require upgrades for long-term viability. Feedstock truck route goes directly through residential area, and site may not be accessible by truck for part of the year due to snow and ice.

# 4.5 Alternatives Selected for Analysis in the EIR

This section describes the alternatives to the project that were selected and analyzed according to CEQA Guidelines Section 15126.6(a). The analyzed alternatives represent a reasonable range of alternatives to the project that would feasibly attain most of the project's basic objectives and would avoid or substantially lessen the significant adverse environmental effects of the project. Two alternatives were analyzed for the production of different wood-based products, and one alternative assessed impacts associated with an alternative layout for the Northern California facility.

The following four alternatives, which are described in detail below, were selected for comparative analysis in this EIR:

1. No Project Alternative – The No Project Alternative are the circumstances under which the Proposed Project does not proceed.
2. Wood Product Alternative – This alternative involves producing an alternative wood product at the production facilities, as compared to wood pellets. Woody material would be harvested to produce either oriented strand board (OSB) or medium density fiberboard (MDF).
3. Biochar Alternative – This alternative involves producing biochar at the production facilities, as opposed to wood pellets. Biomass would still be harvested per the proposed project.
4. Northern California Site Alternative Layout – This alternatives would change the facility layout to maximize avoidance of jurisdictional waters (waters of the US and the State).

## 4.5.1 No Project Alternative

### 4.5.1.1 Description

CEQA Guidelines Section 15126.6(e) generally provides that "[t]he 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, … as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." Section 15126.6(e)(3)(B) provides that, where, as here, a proposed project is something "other than a land use or regulatory plan," the "No Project" Alternative is "the circumstance under which the project does not proceed." The purpose of describing and analyzing a No Project Alternative is to allow decision-makers to compare the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project (CEQA Guidelines Section 15126.6[e][1]). "[W]here failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (CEQA Guidelines Section 15126.6[e][3][B]).

Under the No Project Alternative, GSNR would not construct any facilities, nor engage in Sustainable Forest Management projects as described herein to promote forest resiliency and reduce the effects of catastrophic wildfire in California. The No Project Alternative would fail to meet any of the forest resiliency objectives as outlined in section 4.2.

Project construction, operations, and transportation impacts would be avoided. However, benefits accruing to reduction of catastrophic wildfire would not occur. While other local, state, and federal programs would continue to engage in vegetation management, the significant increase in this activity enabled by the GSNR project would not occur. Most estimates show increasing incidence, severity, and size of wildfires, particularly in the Sierra Nevada and Southern Cascades in the absence of increased management actions (CCST 2020). Catastrophic wildfire results in the release of carbon as a result of combustion, and may also slow the uptake in carbon sequestration that typically results from regrowth following a fire (Hemes 2023).

#### 4.5.1.2 Impact Analysis

As shown in Table 4-1, the No Project Alternative would avoid many potentially significant impacts associated with construction, operations, and transportation for the proposed project. As shown in Table 4-1, impacts associated with construction and operation of the project would be avoided, including aesthetics (lighting), biological resources, cultural resources, geologic impacts, , hazards, hydrology, transportation, utilities, and wildfire. However, many of the benefits of the impacts avoided by the No Project alternative are offset by the reasonably foreseeable outcomes of wildfire, absent increased efforts to reduce the frequency and severity of wildfire. As discussed above, catastrophic wildfire has adverse carbon impacts. A comparison of treated vs. non-treated carbon loss data for a representative forest treatment sample is shown Section 3.7.2, Table 3.7-19. In addition, wildfire releases criteria air pollutants, such as particulate matter, which makes attainment of state air quality goals more difficult. The health effects of wildfire smoke can range from irritation to reduced lung function, bronchitis, exacerbation of asthma, and even increased risk of heart failure (CARB 2021). Smoke from wildfires has been linked to reductions in solar energy generation, a key component of California's renewable energy portfolio and central to the State's efforts to reduce GHG emissions from energy generation (Juliano 2022). While forests depend on natural cycles of fire, catastrophic wildfire can damage ecosystems. Areas subject to intense wildfire are also vulnerable to flooding and erosion (increasing impacts related to soils, hydrology, and water quality). While fire risk associated with the construction and operation of the project facilities (which is less than significant with implementation of feasible mitigation) would be avoided under the no project, the risk of wildfire itself would remain potentially significant.

#### 4.5.1.3 Ability to Meet Project Objectives

The No Project Alternative would not meet any of the project objectives, including wildfire management objectives, biological and cultural resource objectives, and economic and community development objectives.

### 4.5.2 Wood Product Alternative

#### 4.5.2.1 Description

Under this alternative, woody material would be harvested to produce either oriented strand board (OSB) or medium density fiberboard (MDF), instead of wood pellets. The rationale behind this alternative is to preserve carbon from forest vegetation in the final product, as opposed to a fuel use.

OSB is an engineered wood that is formed by adding adhesives and compressing layers of wood strand. It is often used in residential and commercial construction due to its ability to resist deflection, delamination, and warping, making it an ideal material for load bearing uses such as flooring (APA – The Engineered Wood Association 2024). Similar to the proposed project, the primary source of GHG emissions in OSB production is the drying process, which requires thermal energy production (Puettmann, Karstmer, and Taylor 2016). OSB strands, which are compressed into OSB sheets, are produced by thinly slicing logs (typically 8 to 12 inches in diameter) into wood flakes that are approximately 0.5 in by 3 inches by 0.02 inch, depending on process and material ((Fisette 2005; Hiziroglu 2017). Currently, OSB waste can only be incinerated; there are no alternatives for disposal (The Upstyle Wood Guide.org, n.d.)

MDF is a different engineered wood product that is often used in furniture and interior construction (such as cabinets, countertops, and trim). Its smooths surface and uniform density make it ideal for shaping (Travis Perkins 2024). As with OSB, MDF is produced using adhesives, including synthetic resin binder and wax (Government of Canada 2024). However, while OSB is made by compressing wood strands that are a few inches in length, MDF is made by adhering fine wood fibers together, from hard or softwood (Travis Perkins 2024). Recycling options for MDF are still being investigated, as most MDF waste is currently landfilled (Zimmer and Bachmann 2023). Studies indicate during decomposition, OSB and MDF offgas toxic compounds, originating from formaldehyde, urethane, and/or melamine used in their production.

#### 4.5.2.2 Impact Analysis

As shown in Table 4-1, the impacts from forest operations, transportation, and the construction and operation of the production facilities would be similar to the proposed project. By retaining some carbon within the OSB or MDF wood product, overall GHG emissions may be reduced (although likely not to a less than significant level).

Additionally, a higher percentage of OSB and MDF are used domestically. Thus, emissions from overseas shipping may be reduced, but this would be partially offset by truck and rail transport within the United States. Furthermore, OSB and MDF both use resin in the production process. Wood pellets do not require adhesives, as pellets rely on lignin in wood to hold shape (Jones, Haper, and Taylor 2023) . Adding resin to wood products incurs additional emissions associated with resin production, transport, and use. Finally, the production of both OSB and MDF may result in the generation of toxicants including formaldehyde, urethane, and melamine, which could create additional air quality impacts (Zimmer and Bachmann 2023). By eliminating the need to store pellets, impacts associated with facility fire may decrease, but new impacts would be created through the storage and transport of toxicants for MDF and OSB production.

GHG emissions from final use of the product (fuel pellets) would be reduced. However, GHG emission associated with the other aspects of the project, including feedstock acquisition, production, and transportation, would not be reduced, resulting in a reduced, but still potentially significant impact. Similarly, criteria air pollutants from combustion of the fuel pellets would be reduced, but other aspects of the project emissions, including feedstock acquisition, facility construction, operation, and transportation, would not be substantially reduced. Furthermore, emissions of toxic air pollutants would be increased due to the use of adhesives to produce OSB and MDF – as compared to wood pellets which are produced from heat and pressure rather than chemical additives.

In terms of biological resources and forestry, note that the production of OSB requires larger diameter feedstock material, and unlike wood pellets, does not provide an outlet for smaller diameter materials such as slash, and thus, cannot achieve same fuel reduction benefits as wood pellets. OSB strands, which are compressed to create OSB boards, are produced by “stranding”, or thinly slicing, logs into wood flakes (Fisette 2005). Conversely, wood

pellets can be produced from a wide variety of woody materials besides logs, as wood is finely chipped before it is compacted into pellets (Laschi, Marchi, and González-García 2016). The production of wood pellets does not necessitate intact strands of wood and thus, allows for a wider variety of woody material to be harvested and transformed into wood products. The flexible woody biomass requirements characteristic of wood pellets better helps the State to achieve its wildfire mitigation objectives and waste reduction targets through this product. When wood waste is routed to the State's landfills, it produces methane, a potent greenhouse gas, which counteracts the State's GHG reduction efforts. SB 1383, passed by the State legislature in 2016, requires that CalRecycle develop regulations to reduce 75% of organic waste sent to landfills, which will require 20 million tons of organic materials to be re-routed away from landfills (Johnson, 2017)). The production of wood pellets provides a superior opportunity for woody waste to be repurposed and sold to produce renewable energy. Production of OSB and MDF would require similar energy inputs (for feedstock acquisition, manufacturing, and transportation), but would have no offsetting energy benefits. Furthermore, slash produced by the logging industry is estimated as the top source of annual BDT in California, and thus, repurposing this type of woody biomass is essential for reducing wildfire fuel loads (Go-BIZ and OPR 2022). OSB cannot be produced from slash and thus, this alternative does not fully achieve the project's wildfire mitigation objectives.

#### 4.5.2.3 Ability to Meet Project Objectives

The wood materials alternative would achieve many of the proposed project objectives. However, softer market demand for these products is likely to limit the ability for the project to sustain treatment activities. Studies indicate that the OSB market has remained stagnant since 2018, which may jeopardize the project's ability to achieve its wildfire fuel reduction goals in practice, and reach its objective of providing economic benefits to historically overlooked and underinvested California communities. Researchers have emphasized the need for further investigation regarding how the production of structural wood products aligns with California's forest management goals (Sanchez et al. 2020).

OSB, and to a lesser extent MDF, are further limited by the size and type of feedstock that can be used in the manufacturing process, thereby reducing the extent to which they can achieve project objectives. Small diameter materials, such as forest slash, are generally not used for these products, and would likely either be left to decompose in place or be burned. Transport of unused material to a composting facility is likely not feasible due to the limited number of such facilities in the Working Area and the long travel distances involved. For these reasons, this alternative likely does not achieve the same degree of wildfire management objectives as the proposed project.

### 4.5.3 Biochar Alternative

#### 4.5.3.1 Description

Under this alternative, the GSNR facility would produce biochar instead of wood pellets. Biochar is a charcoal-like substance that is made by pyrolysis, a controlled process of heating organic material from agricultural and forestry wastes (also called biomass) in a low-oxygen environment. Biochar is applied to agricultural soils using a variety of application rates and preparation techniques. Biochar production is a carbon-negative process, which means that it actually reduces $CO_2$ in the atmosphere. In the process of making biochar, the unstable carbon in decaying plant material is converted into a stable form of carbon that is then stored in the biochar. The release of heat energy from this process can be also captured and used to create steam which is used to generate electricity (Spears 2018, Levitan 2010).

Biochar technology has not been employed, either domestically or internationally, at the scale to accomplish the treatment goals of the proposed project – raising critical issues of feasibility. Currently, there are only approximately 150 companies in the United States, mostly small suppliers, selling biochar worldwide (Thengane et al. 2021). These producers generally work at a scale of hundreds or thousands of metric tons per year (Trellis 2024). This scale would not be sufficient to meet the project objectives for fuel reduction, as the project would need to produce hundreds of thousands of metric tons of biochar to achieve stated objectives (the proposed project would produce up to 1,000,000 metric tons of product). The small market size makes it challenging to assess the overall feasibility of this alternative.

### 4.5.3.2 Impact Analysis

A higher amount of carbon would be sequestered in the project, as compared to the proposed project, due to the uptake of $CO_2$ by biochar. This would reduce the impact related to GHG emissions, as shown in Table 4-1. GHG emissions from final use of the product (fuel pellets) under the proposed project would be avoided. However, to achieve the basic objectives of the project, the biomass to produce biochar would be obtained through sustainable forest management projects. GHG emissions would therefore be reduced, but not necessarily to a less-than-significant level, due to emissions related to obtaining and transporting feedstock, and transporting the product to market. Air quality impacts may be reduced, as the end product is not used in energy production, but again, not to a less-than-significant level due to transportation emissions. Environmental impacts related to facility construction, feedstock acquisition, production operations, and transportation would remain largely the same.

Biochar is largely an underdeveloped commodity, and thus, there are many outstanding questions surrounding environmental impacts associated with biochar application. Additional R&D is needed to fully understand the potential positive and negative attributes associated with this alternative (Thengane et al. 2021). Additionally, studies indicated that biochar may increase the likelihood of excessive soil salinity and decreased soil fertility because of an increase in the pH of alkaline soils causing nutrient precipitation. Adverse impacts on reproduction, growth, and DNA integrity of earthworms have been reported along with effects on soil microbiome such as a shift in the fungi-to-bacteria ratio (Brtnicky et al. 2021). These impacts must be further evaluated before biochar is produced at the scale required to achieve project objectives.

Expansion of the biochar market would necessitate changes in the viewpoints of policymakers and consumers. Upstream and downstream costs will have direct impacts on the overall success of biochar as a product. The development of carbon credits could help bring the biochar market out of its infancy; however, to be successful, this would require a multitude of policies/regulations to develop and guide the market (Thengane et al. 2021)

### 4.5.3.3 Ability to Meet Project Objectives

The biochar alternative would achieve many of the proposed project objectives to some extent; however, there is far too much uncertainty surrounding its use and production to qualify as feasible alternative. It is unclear if this alternative could feasibly achieve the same scale as the proposed project, as there are numerous technological barriers associated with biochar production, application, and forest management practices. As articulated, many knowledge gaps exist surrounding the efficacy of biochar under various environmental conditions, methodologies for assessing wood biomass volume, and best practices for handling, preparing, transporting, and storing biochar. This alternative would also require the development of novel, specialized equipment and staff trainings (Peirson et al. 2024). Due to the underdeveloped nature of the biochar market, it is unclear if this alternative would achieve economic self-sufficiency, necessary to sustain forest resiliency activities. Domestic and international demand for

biochar remains unclear, with limited production and high costs. Today, approximately 150 companies (mostly small garden supply and specialties realtors) sell biochar worldwide, illustrating that the market is still in its infancy, and economic outlook remains uncertain (Thengane et al. 2021). Thus, this alternative may not achieve long-lasting community benefits in historically overlooked and underinvested California communities, nor achieve the same amount of wildfire fuel reduction treatment as the proposed project.

### 4.5.4 Alternative Layout at Northern California Facility

#### 4.5.4.1 Description

This alternative presents a maximum avoidance design for on-site jurisdictional waters, including wetlands. This design would reduce, but not entirely avoid impacts to waters of the US and waters of the state. However, this alternative layout creates serious operational challenges, including a lengthy conveyance of feedstock from the woodyard to the production facility, which would increase costs and decrease reliability (by creating additional maintenance challenges). This alternative site layout is shown in Figure 4-1.

#### 4.5.4.2 Impact Analysis

As shown in Table 4-1, the alternative layout decreases impacts to on-site jurisdictional waters, but not to a less-than-significant level without mitigation measures similar to those necessary for the proposed project.. No other impacts would be substantially reduced or avoided.

#### 4.5.4.3 Ability to Meet Project Objectives

While this alternative would accomplish most of the key objectives, reduced efficiency at the plant may impair the project's ability to offset wildfire fuel management costs by making productive use of low-value forest materials, thereby jeopardizing achievement of the project's forest resiliency treatment objectives.

## 4.6 Impact Comparison

Table 4-1 shows the potentially significant impacts of the proposed project, and the potential impacts of each alternative. Where an alternative would result in a potentially significant impact that would not occur under the proposed project, that is also noted in the table.

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **Aesthetics** | | | | | |
| **AES-1.** The project would not have a substantial adverse effect on a scenic vista. | LTS | LTS | LTS | LTS | LTS |
| **AES-2.** The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. | LTS | LTS | LTS | LTS | LTS |
| **AES-3.** In nonurbanized areas, the project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. In an urbanized area, the project would not conflict with applicable zoning and other regulations governing scenic quality. | LTS | LTS- | LTS | LTS | LTS |
| **AES-4.** The project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. | PS | LTS- | PS | PS | PS |
| **Air Quality** | | | | | |
| **AIR-1.** The project would potentially conflict with or obstruct implementation of the applicable air quality plan. | PS | PS | PS | PS | PS |
| **AIR-2.** The project would potentially result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. | PS | PS | PS | PS | PS |
| **AIR-3.** The project may expose sensitive receptors to substantial pollutant concentrations. | PS | PS | PS | PS | PS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **AIR-4.** The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. | LTS | LTS | LTS | LTS | LTS |
| **Biological Resources** | | | | | |
| **BIO-1.** The proposed project would have no impact on special-status plants but could have a substantial adverse effect on some special-status wildlife species during construction. | PS | LTS | PS | PS | PS |
| **BIO-2.** The proposed project could have a substantial adverse effect on riparian habitat or sensitive natural communities. | PS | LTS | PS | PS | PS |
| **BIO-3.** The proposed project could have a substantial adverse effect on state or federally protected wetlands or waters. | PS | LTS | PS | PS | PS- |
| **BIO-4.** The proposed project could impede the use of native wildlife nursery sites by removing or causing abandonment of active native bird nests. | PS | LTS | PS | PS | PS |
| **BIO-5.** The proposed project could conflict with local policies or ordinances protecting oak trees. | LTS | LTS | LTS | LTS | LTS |
| **Cultural and Tribal Cultural Resources** | | | | | |
| **CUL-1.** The project would not cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5. | LTS | LTS | LTS | LTS | LTS |
| **CUL-2.** The project may cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 or disturb human remains. | PS | LTS- | PS | PS | PS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **CUL-3.** The project may cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074. | PS | LTS- | PS | PS | PS |
| **Energy** | | | | | |
| **ENE-1.** The project would not result in wasteful, inefficient, or unnecessary consumption of energy resources. | LTS | LTS | LTS | LTS | LTS |
| **ENE-2.** The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. | LTS | LTS+ | LTS | LTS | LTS |
| **Geology and Soils** | | | | | |
| **GEO-1a.** The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault. | LTS | LTS | LTS | LTS | LTS |
| **GEO-1b.** The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. | LTS | LTS | LTS | LTS | LTS |
| **GEO-1c.** The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismically related ground failure, including liquefaction. | LTS | LTS | LTS | LTS | LTS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **GEO-1d.** The project would potentially directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. | PS | LTS- | PS | PS | PS |
| **GEO-2.** The project would potentially result in substantial soil erosion or the loss of topsoil. | PS | LTS- | PS | PS | PS |
| **GEO-3.** The project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. | PS | LTS- | PS | PS | PS |
| **GEO-4.** The project would not be located on expansive soil, creating substantial direct or indirect risks to life or property. | LTS | LTS | LTS | LTS | LTS |
| **GEO-5.** The project would potentially have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. | PS | LTS- | PS | PS | PS |
| **GEO-6.** The project would potentially directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. | PS | LTS- | PS | PS | PS |
| **Greenhouse Gas Emissions** | | | | | |
| **GHG-1.** The project would potentially generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. | PS | PS- | PS- | PS- | PS |
| **GHG-2.** The project would potentially conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. | PS | PS- | PS- | PS- | PS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **Hazards and Hazardous Materials** | | | | | |
| **HAZ-1.** The project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. | LTS | LTS- | LTS | LTS | LTS |
| **HAZ-2.** The project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. | LTS | LTS- | LTS | LTS | LTS |
| **HAZ-3.** The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. | LTS | LTS | LTS | LTS | LTS |
| **HAZ-4.** The project could create a significant hazard to the public or the environment due to being located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5. | PS | LTS- | PS | PS | PS |
| **HAZ-5.** The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. | LTS | LTS | LTS | LTS | LTS |
| **HAZ-6.** The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving fires. | PS | LTS- | PS | PS | PS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **Hydrology and Water Quality** | | | | | |
| **HYD-1.** The project would potentially violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. | PS | LTS- | PS | PS | PS |
| **HYD-2.** The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. | PS | LTS- | PS | PS | PS |
| **HYD-3.** The project would potentially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: | | | | | |
| i. result in substantial erosion or siltation on or off site; | PS | LTS- | PS | PS | PS |
| ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; | PS | LTS- | PS | PS | PS |
| iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or | PS | LTS- | PS | PS | PS |
| iv. cause the proposed development, when combined with all other existing and anticipated development, to increase the water surface elevation of the base flood more than one foot at any point within the community. | LTS | LTS- | PS | PS | PS |
| **HYD-4.** The project would not risk release of pollutants due to project inundation in a flood hazard, tsunami, or seiche zone. | LTS | LTS | LTS | LTS | LTS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **HYD-5** The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. | LTS | LTS- | LTS | LTS | LTS |
| **Land Use and Planning** | | | | | |
| **LU-1.** The project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. | LTS | LTS | LTS | LTS | LTS |
| **Noise** | | | | | |
| **NOI-1.** The project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. | LTS | LTS- | LTS | LTS | LTS |
| **NOI-2.** The project would not result in generation of excessive groundborne vibration or groundborne noise levels. | LTS | LTS | LTS | LTS | LTS |
| **NOI-3.** The project is not one that is located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, that would expose people residing or working in the project area to excessive noise levels. | LTS | LTS | LTS | LTS | LTS |
| **Population and Housing** | | | | | |
| **POP-1.** The project would not induce substantial unplanned population growth in the area, either directly or indirectly. | LTS | LTS- | LTS | LTS | LTS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **POP-2.** The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. | NI | NI | NI | NI | NI |
| **Public Services** | | | | | |
| **SER-1.** The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services. | | | | | |
| Fire Protection | LTS | LTS | LTS | LTS | LTS |
| Police Protection | LTS | LTS | LTS | LTS | LTS |
| Schools | LTS | LTS | LTS | LTS | LTS |
| Parks | LTS | LTS | LTS | LTS | LTS |
| Library Facilities | LTS | LTS | LTS | LTS | LTS |
| **Transportation** | | | | | |
| **TRF-1.** The project may conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. | PS | LTS- | PS | PS | PS |
| **TRF-2.** The project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). | PS | LTS- | PS | PS | PS |
| **TRF-3.** The project could substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). | PS | LTS- | PS | PS | PS |
| **TRF-4.** The project would not result in inadequate emergency access. | LTS | LTS | LTS | LTS | LTS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **Utilities and Service Systems** | | | | | |
| **UTIL-1.** The project would require the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities resulting in environmental effects. | PS | LTS- | PS | PS | PS |
| **UTIL-2.** The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. | LTS | LTS- | LTS | LTS | LTS |
| **UTIL-3.** The project would not result in a determination by the wastewater treatment provider, that it does not have adequate capacity to serve the project's projected demand in addition to existing commitments. | LTS | LTS- | LTS | LTS | LTS |
| **UTIL-4.** The project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. The project would comply with all federal, state, and local management and reduction statutes and regulations related to solid waste. | LTS | LTS- | LTS | LTS | LTS |
| **Wildfire** | | | | | |
| **WIL-1.** The project would not substantially impair an adopted emergency response plan or emergency evacuation plan. | LTS | LTS | LTS | LTS | LTS |

## Table 4-1. Comparison of Alternatives

| Project Impact (Prior to Implementation of Mitigation Measures) | Project | No Project | Wood Product Alt. | Biochar Alt. | Alternative Layout at Northern California Facility |
|---|---|---|---|---|---|
| **WIL-2.** The project would potentially exacerbate wildfire risks due to slope, prevailing winds, and other factors, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. | PS | PS | PS | PS | PS |
| **WIL-3.** The project would potentially require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. | PS | LTS- | PS | PS | PS |
| **WIL-4.** The Project would potentially expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. | PS | PS | PS | PS | PS |

LTS = Less Than Significant
PS = Potentially Significant
- Impact would be reduced
+ Impact would be greater

## 4.7 Environmentally Superior Alternative

CEQA Guidelines require that an EIR identify the environmental superior alternative (Section 15126.6 (e)(2)). If the environmentally superior alternative is the "No Project" Alternative, the EIR must identify an environmentally superior alternative from among the other alternatives.

The No Project Alternative would avoid most of significant project impacts, but would fail to achieve any of the project objectives. Therefore, one of the "build" alternatives should be identified as the environmentally superior alternative.

The Biochar alternative would reduce GHG emissions, by increasing sequestration in the final product. This alternative may not reduce impacts to less than significant due to the GHG impacts associated with obtaining and transporting feedstock. Unlike the Alternative Wood Product, it would not require additional chemicals to produce or substantially limit the type (size) of feedstock used. However, there are potential impacts to soils from overuse of biochar as an amendment. On balance, the Biochar alternative would be considered the environmentally superior alternative.

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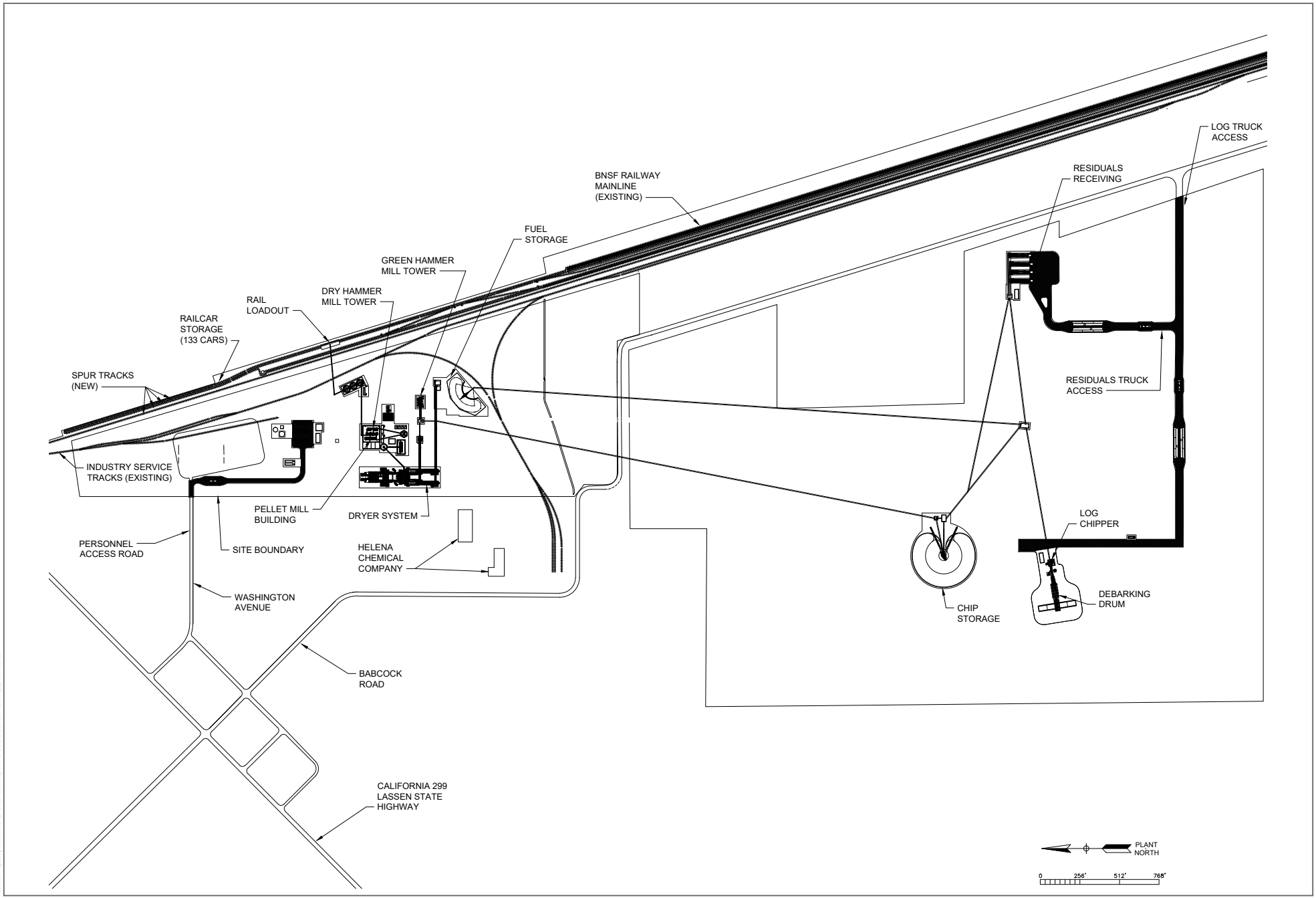


SOURCE: Nexus 2023

**FIGURE 4-1**

Northern California Site Alternative Layout

Golden State Natural Resources Forest Resiliency Demonstration Project

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# 5.0 Other CEQA Considerations

Section 15126 of the California Environmental Quality Act (CEQA) Guidelines requires that all aspects of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. The environmental impact report (EIR) must discuss (1) significant environmental effects of the proposed project and mitigation measures proposed to minimize the significant effects, (2) significant environmental effects that cannot be avoided if the proposed project is implemented, (3) significant irreversible environmental changes that would result from implementation of the proposed project, (4) growth-inducing impacts of the proposed project, and (5) alternatives to the proposed project. The EIR shall also contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR CEQA Guidelines Section 15128).

This chapter summarizes the significant environmental effects that cannot be avoided if the project is implemented (i.e., significant unavoidable impacts). It also addresses growth inducement and whether significant irreversible environmental changes of the project are required to be evaluated. An evaluation of the significant environmental effects of the Proposed Project, applicable mitigation measures, the level of impact significance before and after mitigation, and evaluation of cumulative impacts, is provided in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures. Chapter 4, Alternatives, addresses alternatives to the proposed project.

## 5.1 Effects Not Found to Be Significant

The Initial Study prepared as part of the Notice of Preparation (NOP) identified several topics that were not expected to result in a significant impact. These topics identified in the Initial Study were not discussed in scoping comments received by the lead agency, and are not further evaluated in the EIR. These topics include:

- **Agricultural Resources.** The project sites do not contain farmland, nor are they subject to a Williamson Act contract or zoned for agricultural uses. Project sites do contain oak woodlands, which are discussed as part of biological resources. Project Design Features applicable to Sustainable Forest Management Projects expressly preclude any conversion of forest land to non-forest use.
- **Mineral Resources.** The project sites are not identified as having state or regionally important mineral resources. Sustainable Forest Management Projects are temporary and have no effect on the availability of mineral resources.

## 5.2 Significant and Unavoidable Impacts

The CEQA Guidelines require a description of any significant impacts, including those that can be mitigated but not reduced to a level of insignificance (Section 15126.2[c]). Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described. This EIR identified significant unavoidable impacts to Air Quality, Greenhouse Gas Emissions, and Transportation. These impacts are listed below.

Impact AQ-1: The project would conflict with or obstruct implementation of the applicable air quality plan.

Impact AQ-2: The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Impact AQ-3: The project would potentially expose sensitive receptors to substantial pollutant concentrations.

Impact GHG-1: The project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Impact GHG-2: The project would potentially conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Impact TRF-2: The project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

## 5.3 Significant Irreversible Environmental Changes

The CEQA Guidelines require a discussion of significant irreversible environmental changes with project implementation, including uses of nonrenewable resources during the initial and continued phases of the project (Section 15126.2[d]). However, CEQA Guidelines Section 15127 indicates that information concerning irreversible changes needs to be included only in EIRs prepared in connection with:

A. The adoption, amendment, or enactment of a plan, policy, or ordinance of a public agency;
B. The adoption by a Local Agency Formation Commission of a resolution making determinations; or
C. A project which will be subject to the requirement for preparing an environmental impact statement pursuant to the requirements of the National Environmental Policy Act of 1969, 42 United States Code Sections 4321–4347.

As the proposed project is not one of the above project types, this EIR is not required to include an analysis of significant irreversible environmental changes.

## 5.4 Growth Inducement

The CEQA *Guidelines* require that an EIR evaluate the growth-inducing impacts of a proposed action (Section 15126.2[d]). A growth-inducing impact is defined by the CEQA *Guidelines* as:

> [T]he ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth.... It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement could result if a project involved construction of new housing. A project can have indirect growth inducement potential if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment

demand. Similarly, under CEQA, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. Increases in population could tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. The CEQA *Guidelines* also require analysis of the characteristics of projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

The timing, magnitude, and location of land development and population growth is based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and non-residential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. Because general plans define the location, type, and intensity of growth within a given jurisdiction, they are the primary means of regulating development and growth in California.

The proposed project does not include the direct construction of housing. Therefore, the consideration of growth focuses on the following:

1. Growth Inducement (Employment)
2. Removal of obstacles to population growth (such as provision of major new public services to an area where those services are not currently available), including:
    a. Extension of urban services or infrastructure into a previously unserved area; or
    b. Extension of a transportation corridor into an area that may be subsequently developed.

## 5.4.1 Growth Inducement Employment

Section 3.12, Population and Housing, of the EIR analyzes the project's overall effect on population and housing, including growth-inducing considerations. In terms of housing, the Golden State Natural Resources Forest Resiliency Demonstration Project would not result in direct construction of housing. The project would provide additional employment opportunities. The labor force for both the Lassen and Tuolumne sites would be drawn from the local communities, as well as the larger region. This is consistent with existing conditions in these rural areas, as discussed in Section 3.12, Population and Housing, and Section 3.14, Transportation. While some employees may seek to move closer to the facilities, longer commutes are typical in these regions. The Port of Stockton, in contrast, has access to a large existing labor force in the Stockton area and the surrounding communities. The project would not induce substantial population growth.

## 5.4.2 Removal of Obstacles to Population Growth

Section 15126.2(d) of the CEQA *Guidelines* states that an EIR should discuss "the ways in which the project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Growth can be induced in a number of ways, including through the elimination of obstacles to growth, through the stimulation of economic activity within the region, or through precedent-setting action. CEQA requires a discussion of how a project could increase population, employment, or housing in the areas surrounding the project as well as an analysis of the infrastructure and planning changes that would be necessary to implement the project.

## Extensions of Urban Services or Infrastructure

Projects that are characterized as having significant impacts associated with the inducement of growth are frequently those that would remove obstacles to additional growth, such as the expansion of sewer or water facilities that would permit construction of more development in the service area covered by the new facilities. Similarly, if a project would overburden existing infrastructure so as to require construction of new facilities that could result in significant impacts, then the project may be deemed to have a significant growth-inducing impact.

As discussed in the Section 3.13, Utilities and Service Systems, the project would require electrical transmission upgrades to serve the Lassen and Tuolumne Wood Pellet Processing Facilities. However, the proposed electrical transmission upgrades would only service the project sites and would not increase electrical load capacity for any of the surrounding properties. No other infrastructure upgrades or construction new facilities would be required to support the project. Nor would operation of project necessitate additional infrastructure upgrades or the construction of new facilities. As such, the project would not induce growth in the project vicinity or broader area due to extension of urban services or infrastructure.

The two pellet facility sites, Lassen and Tuolumne, will rely on existing on-site wells and septic systems for processing water and wastewater. In addition, secondary wells may be required to provide potable water to employees. These systems would only serve the project site. Water and sewer at the Port site would be provided by existing service systems, which would not require expansion to serve the project.

## Extension of Transportation Corridors

As discussed in Section 3.14, Transportation, the Lassen, Tuolumne, and Port of Stockton project sites are served by existing roadways. Employees and haul trucks accessing the Lassen Facility would use existing roadways, including State Route 299 and Babcock Road. The project does not propose improvements to the roadways, beyond maintenance activities, or railway lines surrounding the Lassen Facility. Railway improvements are limited to on-site rail spurs to serve the production facility and would not serve other properties or increase mainline capacity.

Truck traffic at the Tuolumne Facility would utilize the State Route 108/120 intersection with La Grange Road to the north and the State Route 132 intersection with La Grange Road to the south. Additionally, vehicular and truck traffic access into the Tuolumne Facility would be provided via two existing roadways from La Grange Road – CR J59. The project proposes improvements to the northern site access driveway at the Tuolumne Facility to serve as an employee access to the site. The proposed improvements are intended to enhance vehicle circulation and site access. Additionally, the project includes improvements to the railroad crossing located on the Tuolumne Facility site and construction of additional rail spur capacity. The improvements would not serve other properties or increase mainline capacity.

Additional on-site railway spurs would be constructed at the Port of Stockton site. However, these sidings would not create additional roadway crossings and would only serve the proposed project site . No other roadway or railway improvements are proposed at the Port of Stockton site.

As discussed above and in Section 3.14 of this EIR, the project would include minor roadway and railway improvements. However, these improvements are to enhance circulation and site access, and to support project activities, rather than increasing the capacity of the existing transportation corridors. Consequently, the project would not induce growth in the project vicinity or broader area due to extension of transportation corridors.

## 5.5 Conclusions

The proposed project would not develop residential land uses, increase or affect population growth, and/or expand infrastructure systems beyond what is needed to support the project. Although new on-site infrastructure would occur as part of the proposed project, the project would have limited facilities and would connect to existing infrastructure. There would be no amendments made to the Lassen County General Plan, Tuolumne County General Plan, or City of Stockton General Plan land use designations nor any changes to zoning-designations at the project sites. The project does not include extensions or expansions of infrastructure systems or roads beyond what is needed to serve project-specific demand. Consequently, the project would not induce growth in the project vicinity or broader area due to extension of urban services or infrastructure. For the above-described reasons, the project would not cause a new impact related to a substantial increase in population growth and would be in line with the projected growth planned for the area as defined in the Lassen County General Plan, Tuolumne County General Plan, and City of Stockton General Plan.

## 5.6 References

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