COUNTY OF LAKE
COMMUNITY DEVELOPMENT DEPARTMENT
Planning Division
Courthouse - 255 N. Forbes Street
Lakeport, California 95453

April 22, 2024

CALIFORNIA ENVIRONMENTAL QUALITY ACT ENVIRONMENTAL CHECKLIST FORM INITIAL STUDY (UP 23-05, IS 23-10)

1. Project Title:	AG Forest Wood Processing Bioenergy Project
2. Permit Numbers:	Major Use Permit UP 23-05 Initial Study IS 23-10
3. Lead Agency Name & Address:	County of Lake Community Development Department - Planning Division 255 North Forbes Street Lakeport, CA 95453
4. Contact Person:	Laura Hall, Senior Planner, (707) 263-2221
5. Project Location(s):	755 E State Hwy 20, Upper Lake, CA (APN 004-010-04)
6. Project Sponsor's Name & Address:	Scotts Valley Energy Corporation 1005 Parallel Drive Lakeport, CA 95453
7. General Plan Designation:	Rural Lands RL
8. Zoning Designation:	"APZ" Agricultural Preserve Zone-"SC" Scenic Combining-"WW" Waterway-"FF" Floodway Fringe
9. Supervisor District:	3
10. Flood Zone:	X-Areas determined to be outside the 0.2% annual chance floodplain, 0.2 Pct Annual Change Flood Hazard, and AE-Area inundated by the Base Flood with Base Flood Elevations
11. Slope:	0 to 4%
12. Wildfire Hazard:	Not in SRA
13. Earthquake Fault Zone:	Yes
14. Dam Failure Inundation Area:	N/A
15. Parcel Size:	42.60

16. PROJECT DISCRIPTION

Background and Purpose

The Scotts Valley Band of Pomo Indians (SVBPI) has received grant funding from the U.S. Department of Commerce's Economic Development Administration (EDA) to develop a facility to process and manage forest wood removed to lower fuel risk in Lake County from wildfires.

Biomass material will derive from the contractors that are removing biomass such as tree branches from powerline rights-of-way and operations from forest clearing for reduction of fuel resources to help protect communities.

This project will improve forest health and resiliency by providing alternatives to pile-burning of forest biomass. As a result, a reduction of greenhouse gas (GHG) emissions would occur. In addition, the project would also create employment opportunities for residents and supplement existing businesses in Lake County. The project agrees with California's Wildfire and Forest Resilience Action Plan, January 2021 (Attachment 9), as well as with California's 2022 Scoping Plan for Achieving Carbon Neutrality.

The Lake County Community Development Department (CDD), Planning Division has prepared this Initial Study/ Mitigated Negative Declaration (IS/MND) to evaluate potential environmental effects that may result from the proposed AG Forest Wood Processing project. Project activities would include constructing a facility to process and manage forest wood removed throughout the County to lower fuel risk from wildfires in communities. Biomass material would consist of tree branches from powerline rights-of-way and forest clearing. Contractors would deliver materials to the site. The project would result in the production of renewable energy which would be used to power the site and with the capability of serving down-stream users.

According to CEQA, the lead agency is the public agency with primary responsibility for carrying out or approving a project that has the potential for resulting, directly or indirectly, in a physical change to the environment (CEQA Guidelines Section 15367). The CDD Planning Division is responsible for taking discretionary action to consider approval of IS/ MND and use permit. Attachment 1. Includes the Mitigation Monitoring & Reporting Program (MMRP).

Project Location

The project is located at 755 E State Hwy 20, Upper Lake in northwest Lake County (Figure 1). The 42.6-acre parcel is within Section 7, Township 15N, Range 10W, in the UGGS 7.5 Upper Lake Quadrant (Global Positioning System 39.15884, -122.89998). Adjacent peaks include Hogback Ridge to the east at 2600 feet and Sam Alley Ridge to the north at 2000 feet (Lake County, 2024) (Figure 1). Attachment 2 includes the project plans. Situated on a 42.6-acre parcel of land, the area to be used is 5 acres, located approximately 1,000 ft. to the southwest of the northern property line. The northern property line parallels State

Highway 20 with the eastern property corner located across from Old Lucerne Road. Lake County Watershed Protection District ("LCWPD") owns the parcel and has provided a long-term lease for the 5 acres (where project activities would occur) to SVBPI. The LCWPD also owns the 75-acre parcel to the south.

Environmental Setting

The project site is within the Upper Cache Watershed (Hydrologic Unit Code [HUC 18020116]), at Latitude 39.157827 N, Longitude -122.901689 W; and Township 15N, Range 9W, Section 7; MDB&M (Mount Diablo Base and Meridian). A blueline stream that is tributary to Clear Lake flows from the north under State Highway 20 before entering the site. From the northwest it flows to the southeast and then flows south through a channel along the east side of the property line. Slopes at the site are 0 to 4 percent, ranging from 1,334 feet above mean sea level in the northwestern corner to 1,330 ft msl along the southern side of the overall parcel. The site was historically used for farming (vineyards) but has been fallow for several years. Currently, it is vegetated with blackberry thickets and other primarily nonnative vegetation (Lawrence Ray, 2023).

Environmental Commitment

The SVBPI is committed to minimizing the impact on project lands. As a result, the project will deploy non-permanent structures and equipment, which will be placed on site and secured in place. Note that no permanent foundations are planned, except for providing a foundation for a water storage tank that is needed to provide fire protection, ADA (Americans with Disabilities Act) parking, or other permanent facilities that may be required by the County in the permitting process. The steel structure (membrane canopy)[1] will be 40’ wide x 60’ long (2,400 sf) and constructed using a premanufactured-based building system, secured in place by ground screws and screened by conex/ cargo containers that also act as additional anchoring and storage for the facility. The membrane canopy structure will be a neutral natural coloration (selections of grey, tan, green are available). Where equipment must be anchored in place, it will be anchored using non-permanent systems, such as ground screws or equivalent.

Drainage (rainwater runoff) will be managed on-site, with less than 12% of the area for forest material management (5 of 41.6 acres [1,855,656 sf.]), and only 0.22% of the area as non-permeable (4,000 sf.). Runoff from the 2,400-sf membrane canopy structure with conex/cargo containers equaling another 1,600-sf will be managed through a surface-mounted drainage system will be in the gravel paver system with additional erosion control utilizing wattles, gravel, logs, and a bioretention area. Biological filtration will be used in areas that need protecting and will utilize rice husks and straw when needed.

[1] It should be noted that the term membrane canopy structure is used to refer to steel structure which will be covered with a membrane canopy, while the term facility generally refers to the entire operation.

Proposed Project

The facility will support the development of markets for locally derived forest biomass to support forest fuel reduction, improved ecological function, and other positive-impact forest management activities. Concurrently, the project will support new jobs and economic development activities/support revenue generation for the SVBPI. To this end, the facility will be designed to process, manage, and convert incoming forest biomass into usable materials for downstream products (renewable power generation and biochar carbon sequestering for soil amendment, and water and air filtration), while also enabling the conversion of biomass to 100% renewable electricity on-site.

Currently, forest biomass is allowed to be open controlled burned. The proposed project's operation would take that same material and process it to generate usable materials in renewable power generation or downstream products. Public Resources Code 4201-4204 directs the California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazard within State Responsibility Areas (SRA). These zones, referred to as Fire Hazard Severity Zones (FHSZ), classify a wildland zone as Moderate, High, or Very High fire hazard based on the average hazard across the area included in the zone. According to CAL FIRE's State Responsibility Ara Fire Hazard Severity Zones released on June 15, 2023, the majority of Lake County in the SRA area is classified as Very High (California Department of Forestry and Fire Protection, 2023). The biomass material coming from these areas of risk is important to manage and process and this proposed facility would meet that need. The facility will operate as a central forest wood management and processing system for forest thinning biomass collected throughout the area in and around Lake County.

This project aligns with SVBPI's commitment to environmental stewardship while supporting local and regional efforts to improve forest health, reduce the threat of catastrophic wildfires, and support in- region and sustainable economic and jobs development as discussed in Section 2.3.1.

Additionally, this project would help to implement the goals in the California's Wildfire and Forest Resilience Action Plan (Attachment 9). By reducing forest fuels, it would also reduce forest fires and thereby GHG emissions.

Construction Details

Construction is tentatively planned for 2024 and is estimated to take approximately 3-4 months. The access road on the west side of the parcel would be improved from State Highway 20 to a 5-acre area where the fencing and a biomass processing facility will be constructed (please see section 2.3.3 below for additional details). Some ground disturbance would be required for widening the driveway and leveling the ground to pour a pad for the 27,625-gallon NFPA 1142 rated water storage tank. Semi-trucks would deliver the steel building structure (membrane canopy structure with convex/cargo containers) as well as the large fire water storage tank and other equipment. Construction activities would require 3 to 4 local employees. Construction activities would adhere to all

requirements listed in the Lake County Municipal Code for air quality, noise, traffic and other local, State, and federal requirements.

Driveway Access & Improvements

The project development will include maintenance and improvement to the existing driveway that runs along the western edge of the parcel. This driveway has historically provided access for farming and equipment storage, and site maintenance. The driveway is lightly graveled, and an additional 200 cubic yards of gravel will be added to improve fire apparatus access to the facility as described earlier. A Knox Box (emergency key box) will be provided for rapid fire access at the gate. Fire apparatus turnaround will be provided. This will also provide a better gravel base for the vehicle access used during weekday operations. The existing encroachment from the parcel to State Highway 20 will be improved to conform to the requirements of Caltrans standard driveway exit from a 55-mph road. Line-of-sight requirements conform to the 605' minimum view in each direction for 55 mph traffic. Additional road base of 8 inches, with 2-1/2 inches of asphalt, will be added to create a more level ingress and egress for vehicle traffic along with widening to 30 feet and lengthening the driveway approach and apron area to 60 feet. The driveway will be paved from the existing edge of State Highway 20 to a new gate located at the 60' mark. Drainage and erosion control will be provided in areas of concern. The 14' wide driveway will be covered by filter fabric then 8" of rock (3/4"-1" Washed Rock) will be placed over that then a layer of TrueGrid Permeable Pavers with a layer of fill rock of 1.8" (5/8"-3/4" washed rock) (Attachment 4).

This driveway will conform to CalFire Article 2 Ingress and Egress §1273.01. Width. (c) Driveways (minimum 10'W), §1273.02. Road Surfaces (b) support at least 40,000 pounds and §1273.05. Turnarounds (d) Dead-end turnaround at terminus of 1,320'. The driveway area is 20,790 sf with a total of 514 cubic yards of base rock and 115 cubic yards of paver fill. A total of the TrueGrid with Washed rock Pavers helps prevent gravel road dust and stabilizes the road for fire/emergency vehicle access. This method of construction for the driveway will create a 40% void in space for water detention with a planned 55,000 square feet of pavers used will allow for 11,000 cubic feet of storm water detention capacity in the paver area. The pavers are made totally from post-consumer recycled plastic containers. Using gravel and pavers instead of concrete will save an estimated 163 tons of CO^2.

The one-acre fenced main processing area will be covered by filter fabric, 6" of washed base rock or 827 cubic yards and 276 cubic yards of fill rock. It is expected that rock will be delivered from State Hwy 179 via State Hwy 29 to State Hwy 20 for 15 total miles with dual trailers of 20 cubic yards per trip. 32 trips for the driveway and 55 trips for the fenced work area. Expected total rock delivery miles driven by truck is 2,610 miles. Pursuant to the Lake County Municipal Code Chapter 30, Article V, Section 30-17, subsection 17.4.19, routine maintenance of roads is an exempt activity, however, widening of the road is not. Although the amount of material that will be used for widening the driveway was not provided, the total material for the driveway (which includes the widening) and the fenced processing area is estimated to be 1,740 cubic yards.

Operations

As proposed, some of the project operations would include unloading biomass, sorting, trimming, crumbling, orbital shear, screening, biomass conversion processing to renewable fuel, and on-site bioenergy/biochar equipment. The site would provide its own power, utilizing the forest material to generate renewable energy as a microgrid. Microgrids are localized electric grids that can disconnect from the main grid to operate autonomously, even with the larger grid is down. It is planned that most of the material delivered to the site will be in the form of chipped wood, brush and branches that can be processed at the site. The providers of the forest wood will be required to supply the appropriate material with sizing and content.

Forest materials will be trucked to the site from contractors completing forest fuel reduction and powerline hazardous wood removal around the County and surrounding forest land. Forest materials are pre-processed into large wood chips offsite, mostly at the Donahoofacility at 8605 Bottle Rock Road, Kelseyville CA 95451, 21.2 miles away. The Donahoo site presently chips 300,000 tons, a year, of forest fuel mitigation and trucks approximately 100 miles away now. It is anticipated that between 2 and up to 5 trucks during the weekday will deliver forest materials of approximately 15,000 to 50,000 - tons per year. Utilizing the materials locally will save an estimated 158 miles per truck load or approximately 91.7 kgs of CO^2 emissions per truck load (one metric ton per week). We also plan that 4 employee vehicles will be used weekdays. One ADA conforming parking space will be provided. No bad odor will be generated from the process.

Once the forest material is onsite, the trucks or trailers will be unloaded by dumping or by tractor outside of the fenced area. The materials are then sorted and placed in appropriate areas and prepared for process. Tree branches and brush can be placed directly into the shredder that will cut material into chunks appropriate sizes for processing. If material is too wet to process, it will be sun-dried outside the fenced area and will be placed in rows no higher than 8 feet. Additional drying can be used during winter months with excess heat from the generating equipment. No combustion is used for direct drying of the material. Dried processed material will be placed within the fenced area for ready to trailer off or use at site. No materials that are not within the facility's ability to process will be approved for delivery.

Within the membrane canopy structure, the process system will consist of mechanical conveyors and systems to interconnect the biomass material as it moves through the process. The processing is to achieve a size for the biomass that will allow for the best results in turning woody material into renewable syngas to run in the power generator for producing onsite microgrid power. As part of the syngas process, wood biomass is dropped into an airlock chamber through a solid slide gate (Attachment 5). On the bottom of the chamber is another slide gate that is opened once the first chamber is full. The wood then enters into the electrically heated sealed and insolated chamber that is thermally heat with no air to release the gas embedded in the biomass. No combustion of the wood occurs, rather the biomass is thermally decomposed into combustible gases (called Synthetic Gas "Syngas") and residual carbon mass called biochar. The syngas is filtered and cooled to

make it ready for use in power generation and the biochar is then sent to a holding container. Attachment 7 provides specifications and other information on an Artis Biomass Gasifier Unit Syngas Generator. Photo 1 is an example of a Field-Testing Facility which is in Walnut Grove, California.

Biochar will leave the facility about once every two weeks in a covered truck trailer. The amount of biochar produced will be about 1-1.5 tons a day, 5 days a week. A 15-ton capacity trailer would be leaving every two to three weeks. The main customer would be the Donahoo located along Bottle Rock Rd., Kelseyville.

The steel building structure (membrane canopy structure) is designed in accordance with California Building Code Volume II Chapter 31 (Special Construction) Section 3102 in place for over 180 days for membrane canopy structures. Sections 3102.1, 3102.3, 3102.6, and 3102.6.1 apply. Occupancy Group (CBC Chapter 3) is U with construction type being IIB, single-story, building height under 55 feet (actual 26 feet) (CBC, Table 504.3), Building Area Limit of 8,500 sf (actual 2,400 sf (40'Wx60'L)) (CBC Table 503), and conforms to building area without sprinklers under 8,500 sf (CBC Table 506.2). Building Occupancy F-1 or F-2 for wood processing is for buildings over 2,500 sf in area and at 2,400 sf does not require fire protection sprinklers.

Photo 1: Artis Field Test Lab Site Picture (Walnut Grove, CA)

Source: Scotts Valley Energy Corporation, 2024.

Employment

Work would consist of arranging forest wood materials delivered into processing sections. Sun drying may occur on static forest materials during summer months, but wood biomass drying will occur when necessary, using waste heat from the power generation process. Moving materials and loading them into processing equipment will be accomplished with a front loader. Employees will work in and around the woodyard throughout the site. One of

the 5 acres is designated for material handling and processing, with most of the equipment located within this fenced restricted area. The employees also work in and around the process building when materials are in process.

The total onsite personnel, as proposed, would be between 3-5 employees. The weather will have an influence on the number of employees working at any one time. For example, in the winter if conditions dictate that forest material is not generated offsite and trucking of biomass to the site is limited then less employees would be needed. This would also be the case when fire conditions dictate that no activity can take place in the forest and, therefore, no material will be coming to the processing site. Shredding and crumbing operations would require 2 to 3 employees. Employees are always onsite during normal weekday business hours, engaged in the processing and moving of material, moving of equipment around the yard, loading and unloading of trucks/trailers, and performing repairs and maintenance. The forest material delivery contractor is responsible for delivering the correct specification of wood chips equal to or under 6" in size. A covered trash container is provided in areas where employees generate litter. Onsite litter is collected routinely and disposed of properly.

Water Usage

Estimated domestic water use is approximately 100 – 500 gallons a day and 100,000 gallons annually which would be applied to the material to control dust and maintain the appropriate moisture content and applied to areas to suppress fugitive dust emissions. Water is currently available at two existing wells, one near the entrance or the property and the other 300' south of the operations location, one of which will be refurbished.

A 27,625-gallon NFPA 1142 rated water storage tank will be placed near the entrance to fenced area for emergency water supply for fire suppression. No fire pump will be provided but a fire hydrant connection, acceptable to North Shore Fire District, will be supplied for connection to a pumper truck. A 2" water line and UG electrical line to power pump, approximately 300' long will be installed from an existing farm well that fills the water storage tank (Attachment 6). The well is located on the parcel to the south at APN: 004-013-15.

No septic system will be installed. Instead, an ADA-approved restroom facility will be used, and a servicing company will be hired to maintain the facility appropriately with cleaning and disposal at minimum of once a week. The project includes a 2,500-gallon onsite water storage tank used for dust control and domestic water when needed.

Hours of Operation

The facility would operate Monday through Friday, and close on all national holidays. Hours of operations will occur between 7:30 a.m. and 7:00 p.m., with the site not open to the public. No weekend processing will be allowed outside the hours permitted herein. Some of the power facilities will be running on already processed materials to keep water pump, security and lights operating keeping lights directed toward the ground to prevent

any significant nighttime light pollution. Remote monitoring and control will be used for operations and security.

Petroleum Based Products

Petroleum based products that will be located onsite from time-to-time, and proposed temporary storage at the facility, consist of the following:

- Diesel fuel (red diesel) to be stored and used only onsite in a tank/trap wagon (500-gallon UL142 double-walled fuel storage tank with 25gpm 120vac pump & meter fueling station) for off-road vehicles.
- Located in a designated locked Conex Metal Shipping Container with appropriate containment and ventilation, will house the following:
  - Hydraulic oil, new or used, for the equipment will be kept in 5-gallon bucket or less, prior to being transported to a certified recycling center waste oil container.
  - Engine oil, new or used, will be kept in 5-gallon buckets or less, prior to being transported to a certified recycling center waste oil container.
  - New engine oil is stored in a 5-gallon bucket which is used for the equipment and generator set when applicable (oil change). General cleaning liquids in containers under 1 gallon.

Noise

Sound levels have been estimated and fall under the county's acceptable levels for agriculture operations. The sound level of the power generation facility will be under the decibels A levels for non-business hours to the property line.

17. Surrounding Land Uses and Setting

Surrounding land uses includes row crops and agricultural buildings to the west, undeveloped land to the south, single-family home to the east, and State Highway 20 to the north. The parcel sizes in the surrounding area range in size from 9.9 acres to 74.8 acres. Public rights-of-way in the vicinity of the project site include State Highway 20, a Caltrans maintained roadway, on the north. Access to the subject property is limited to State Highway 20. The nearest residences are located approximately 1,000 feet to the east and additional properties over 850 feet to the north, with State Hwy 20 in between. The residences are located above any drainage planned for the site. The Lake County Municipal Code zoning designations for surrounding properties include:

- North: Beyond State Highway 20. APN 004-010-23, “RR” Rural Residential-“WW” Waterway.
- South: APN 004-013-18, “APZ” Agricultural Preserve Zone-“WW” Waterway-“FF” Floodway Fringe.
- West: APN 004-010-29, “A” Agriculture-“SC” Scenic Combining-“WW” Waterway-“FF” Floodway Fridge.
- East: APN 004-010-05, “A” Agriculture-“SC” Scenic Combining-“WW” Waterway-“FF” Floodway Fridge.

18. Other public agencies whose approval is required (e.g., Permits, financing approval, or participation agreement).

The extent of this environmental review falls within the scope of the Lead Agency, the Lake County Community Development Department, and its review for compliance with the Lake County General Plan, the Middletown Area Plan, the Lake County Zoning Ordinance, and the Lake County Municipal Code. Other organizations in the review process for permitting purposes, financial approval, or participation agreement can include but are not limited to:

- Lake County Air Quality Management District
- Lake County Community Development Department
    - Building and Safety Division
    - Planning Division
- Lake County Department of Environmental Health
- County of Lake Health Services
- Lake County Department of Public Works
- Lake County Sheriff Department
- Lake County Northshore Fire District
- California Department of Transportation
- California Department of Fish & Wildlife
- Central Valley Regional Water Quality Control Board

19. Have California Native American tribes traditionally and culturally affiliated with the Project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

The County sent out an AB52 Tribal Consultation Notification to all Tribal Nations on September 27, 2023. To date, no comments have been received.

20. Initial Study Attachments

The following attachments are included at the end of this report and referenced throughout the report's text:

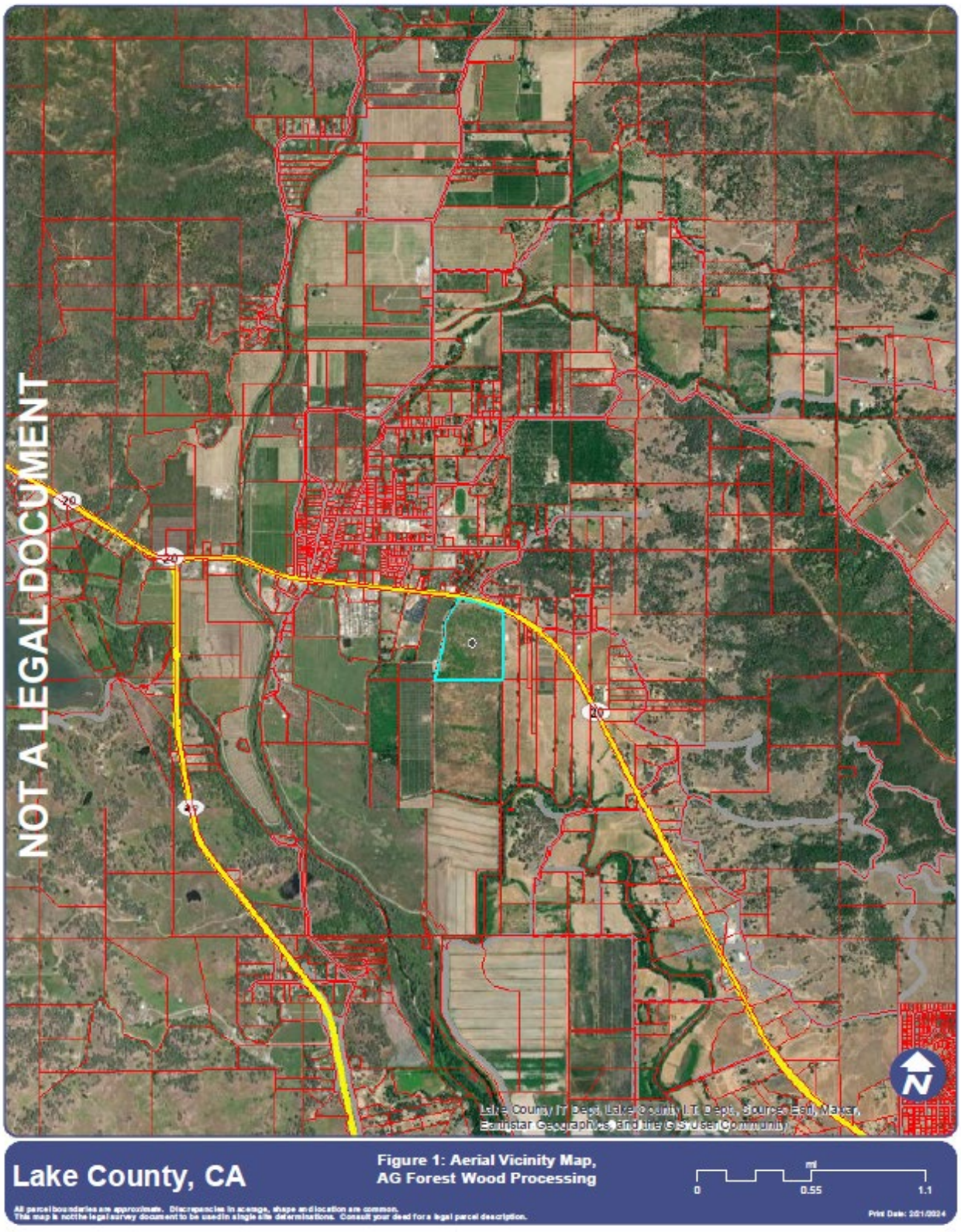
Attachment 1: Mitigation Monitoring & Reporting Program (MMRP)
Attachment 2: Project Plans:

- Bioretention Rainwater Runoff Plan (CP-1.2)
- General Encroachment (GE-0.1)
- Architectural & Structural Drawing (AS-1.1)
- Architectural Equipment Drawing Interior Layout (AQ-5.1)
- Architectural Equipment Drawing Interior Layout (AQ-5.2)
- Architectural Equipment Drawing Interior Layout (AQ-5.3)

- Electrical Drawing Microgrid Schematic (E-1.6)
- Sound Level Analysis (X-0.6) and
- Earthquake Fault Zone Map (X-0.8)

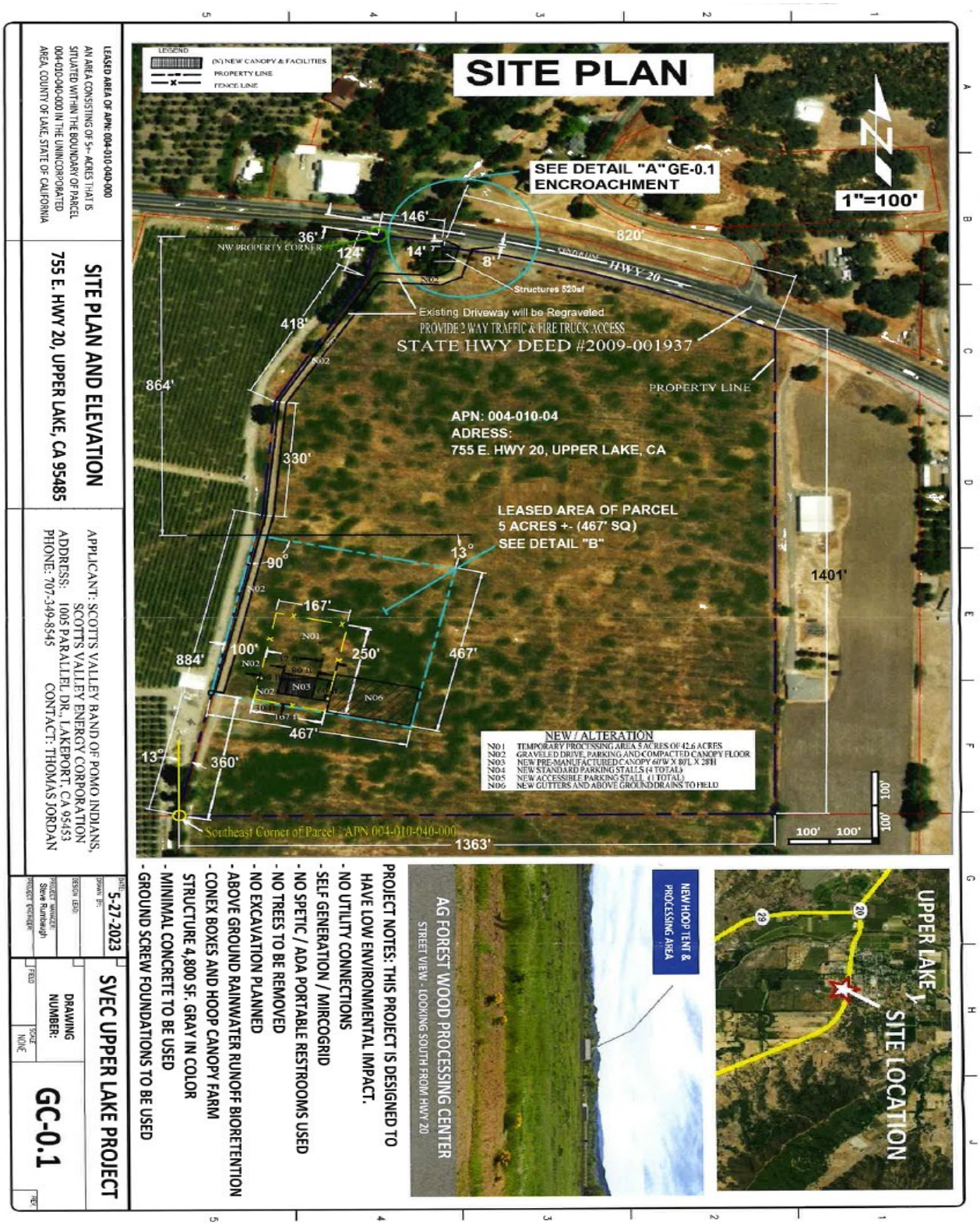
Attachment 3: Biological Resource Assessment with Botanical Survey
Attachment 4: TrueGrid Pavers
Attachment 5: Artis 200 R2 Carbon Negative Fuel & Energy
Attachment 6: Water Tank NFPA 22 Compliant and Typical Suction Nozzle with Anti-Vortex
Attachment 7: Generator Sets
Attachment 8: Land Evaluation & Site Assessment (LESA)
Attachment 9: Californias Wildfire and Forest Resilience Action Plan

Figure 1: Aerial Vicinity Map



Source: Community Development Department, 2023.

Figure 2: Site Map



Source: Scotts Valley Band of Pomo Indians, 2023.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving project aspects that have a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Greenhouse Gas Emissions	☒ Public Services
☐ Agriculture & Forestry Resources	☒ Hazards & Hazardous Materials	☐ Recreation
☒ Air Quality	☒ Hydrology / Water Quality	☒ Transportation
☒ Biological Resources	☐ Land Use / Planning	☒ Tribal Cultural Resources
☒ Cultural Resources	☐ Mineral Resources	☐ Utilities / Service Systems
☐ Energy	☐ Noise	☒ Wildfire
☒ Geology / Soils	☐ Population / Housing	☒ Mandatory Findings of Significance

DETERMINATION
On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Initial Study Prepared By: Laura Hall, Senior Planner
Signature: _____ Date: _____

Mireya G. Turner, Director
Lake County Community Development Department

EVALUATION OF ENVIRONMENTAL CHECKLIST

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
   Once the lead agency has determined that a particular physical impact may occur, and then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
3) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c) (3) (D). In this case, a brief discussion should identify the following:
   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9) The explanation of each issue should identify:
   a) The significance criteria or threshold, if any, used to evaluate each question; and
   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

I. AESTHETICS	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Except as provided in Public Resource Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) 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?	☐	☐	☒	☐
d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Discussion

a) Scenic areas are regulated in the Lake County Municipal Code Zoning Ordinance Article 34, “SC” Scenic Combining District. The site includes both pastoral features and convenient visual access from State Highway 20. These two characteristics must be considered when applying the “SC” district. According to Article 34, the minimum standard shall be the development standards of the base zoning district, or the performance standards set forth in this Article, whichever is more restrictive. Therefore, the project must meet the performance standards under Article 34, Section 21-34.10 (b) and (c) which requires consideration of the following: setbacks, yard areas, parking and loading, outdoor storage, operations, and landscaping to be part of the review. Although Article 34 states that uses except single-family residential structures shall be subject to development review as set forth in Article 56, pursuant to Article 56, Section 21-56, subsection 56.2 (d) “A development review permit is hereby waived whenever a design review permit is required by this Chapter”.

Due to the size of the parcel and the 5-acre site being set back approximately 1,000 feet from State Highway 20, the project would meet the performance standards for lot dimensions and setbacks. The site plans include Architectural & Structural Drawing of the membrane structure that includes fabric and trim color options. A chain-link fence will be installed around the membrane structure and outdoor processing area. To meet the requirements of Section 21-34.10 (b) (v), the following mitigation measure shall be applied.

AES-1: Prior to construction activities, a landscaping plan shall be submitted to the Community Development Department the includes the appropriate visual screening using drought resistant or indigenous vegetation. Water conservation shall be applied with the use of drip irrigation.

In addition, according to the Shoreline Communities Area Plan Section 3.0, subsection 3.4, State Highway 20 has been identified as a potential scenic highway. However, existing, and commercial and residential development in the planning area may affect the ability of the highway to be considered for Scenic Highway status.

The project would meet Objectives 3.4.4 and 3.4., Policies 3.4.4a through 3.4.4i and 3.4.5 with AES-1 applied.

Less Than Significant with Mitigation Measure AES-1

b) As mentioned above, the Shoreline Communities Area Plan Section 3.0, subsection 3.4, says that State Highway 20 has been identified as a potential scenic highway. However, although State Highway 20 is included on the State's List of Eligible and Officially Designated State Scenic Highways List, it is not on the Caltrans List of Officially Designated County Scenic Highways (California Department of Transportation, 2015).

Less Than Significant Impact

c) Proposed development would be located approximately 1,327 feet from State Highway 20. Below is the street view of the property with the red arrow showing the general location of the 5-acre site. Although the facility would be visible from State Highway 20, both pastoral features and convenient visual access would remain. Also, as discussed in criteria a) above the project will need to comply with Articles 34 and 56.

Less Than Significant Impact

Photo 2: Google Street View from State Highway 20 Looking South at Property

Source: Google, 2024.

d) No weekend processing will be allowed outside the hours permitted. Some of the power facilities will be running on already processed materials to keep water pump, security and lights operating keeping lights directed toward the ground to prevent any significant nighttime light pollution. Remote monitoring and control will be used for operations and security. Additionally, pursuant to the Lake County Municipal Code Chapter 5 Building Regulations, Article I, Section 5-4G 5. Light fixtures must direct light downward and not allow light to escape in an upward direction. The following mitigation shall be incorporated into the project.

AES-2 Outdoor lighting shall be restricted to the processing facility and shall be directed downward so as not to illuminate adjacent areas. All lighting being proposed shall conform with IDA Dark Sky approved fixtures.

Less Than Significant Impact with Mitigation Measure AES-2

II. AGRICULTURE AND FORESTRY RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	☐	☐	☒	☐

(Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Discussion

a) The 42.6-acre project site is zoned APZ “Agricultural Preserve” by the County of Lake and five acres of the parcel is designated as “Prime Farmland” by the California Department of Conservation. Construction activities including improving the existing driveway and installing the membrane canopy structure and required infrastructure would result in temporary impacts to 5 acres of prime farmland. The estimated timeline to complete these activities is approximately 3-4 months. Operations would continue to have impacts on five acres of prime farmland. Although most of the development would not be permanently affixed to the land and could be returned to its natural state when the lease agreement ends (10 to 15 years). However, due to the prime-farm land designation, an analysis was conducted using the California Department of Conservation’s Land Evaluation and Site Assessment (LESA) Model to determine the potential significance of the project’s conversion of agricultural land.

The LESA Model is a point-based approach for rating the relative importance of agricultural land resources based upon specific measurable features such as soil resource quality, the project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands (California Department of Conservation, 1997). A single LESA score is generated for a given project after all of the individual Land Evaluation (LE) and Site Assessment (SA) factors have been scored and weighted. The California LESA Model is weighted so that 50 percent of the total LESA score of as given project is derived from the LE factors, and 50 percent from the SA factors. Individual factor weights are listed in Attachment 8, with the sum of the factor weights required to equal 100 percent.

Attachment 8 includes the final LESA score for the proposed project. As shown, the project site has an LE sub score of 42.46 and an SA sub score of 18; therefore, the final LESA score for the proposed project is 60.46. Table 1 includes the scoring thresholds to determine the significance of a project. The final LESA score for the proposed project is 60 which is consider significant unless either LE or SA sub sore is less than 20. Since the SA sub score is 18, the proposed projects impact on prime farmlands would be less than significant.

Table 1: Total LESA Score Scoring Decision

0 to 39 Points	Not Considered Significant
40 to 59 Points	Considered Significant only if LE and SA sub scores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either LE or SA sub score is less than 20 points
80 to 100 Points	Considered Significant

Source: California Department of Conservation, 1997.

Less Than Significant Impact

b) The Williamson Act (California Land Conservation Act of 1965) states that a board or council by resolution shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use will be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit (California Department of Conservation, 2023). Pursuant to the Lake County Municipal Code Zoning Ordinance Article 4 Agricultural Preserve Zone (APZ), Section 21-4, subsection 4.5 (e) uses in Article 27, Table B, are allowed and include power generation facilities with a major use permit. Pursuant Article 68, Section 21-68, subsection 68.4 (p)14. Power generation is defined as "Any electrical generating facility using thermal, wind, or water energy including but not limited to, biomass plants, wind farms, coal-fired plants, or thermal power plants".

The parcel is under Williamson Act contract and was historically utilized for vineyard operations. Currently, the land has been fallowed since 2018 following its sale. However,

the County automatically renews Williamson Act Contracts annually until cancelled. As discussed above, using the California LESA Model methodology, the project's impact on prime farmland would be less than significant.

Less Than Significant Impact

c) Forest land as defined under Public Resource Code 12220(g) is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

Timber land as defined under California Code, Public Resources Code Section 4526, means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis.

Timberland production zone or "TPZ" as defined under California Code, Government Code Sections 51104 (g) means an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h).

Neither the project site nor surrounding lands meet these definitions.

No Impact

d) Please refer to criteria c) in this section.

No Impact

e) Five acres of a 42.6-acre parcel classified as prime farmland would be used for the biomass facility operation for approximately 15 years. However, according to the LESA Model, the project is not considered significant. Please refer to criteria a) in this section.

Less Than Significant Impact

III. AIR QUALITY	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				

a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under and applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d) Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people?	☐	☒	☐	☐

Discussion

a) The project site is located within the Lake County Air Basin, which is under the jurisdiction of the Lake County Air Quality Management District (LCAQMD). The LCAQMD applies air pollution regulations to all major stationary pollution sources and monitors air quality. Due to the Lake County Air Basin attainment status with both state and federal ambient air quality standards, the LCAQMD does not have an air quality plan.

Less Than Significant Impact

b) and c) Any project with daily emissions that would exceed thresholds of significance of these criteria pollutants should be considered as having an individually and cumulatively significant impact on both a direct and cumulative basis: CO, SO_2, NO_x, O_3, PM_{10}, $PM_{2.5}$, VOC, ROG, Pb. Because the Lake County Air Basin is in attainment with both State and federal ambient air quality standards, the LCAQMD is not required to adopt thresholds for air quality.

Short-term construction activities would include widening and improving the existing driveway, setting up the membrane canopy structure with convex/cargo containers, and pouring a pad for installation of the 27,625-gallon NFPA 1142 rated water storage tank. Semi-trucks would deliver these items to the project site. Construction activities would take approximately three months and would require up to five local employees. The following equipment is expected for construction of the project: gruber; gravel truck; compaction equipment; post hole digger; ground screw anchor machine and delivery trucks; water trucks; and water buffalo trailer. Forty (40) total truck trips are estimated for construction.

Long-term operations per the lease agreement with the County are anticipated to last from 10 to 15 years. Approximately two to five trucks per weekday would deliver forest

materials (approximately 15,000 to 50,000 tons per year) to the site from Kelseyville approximately 24.5 miles away, and biochar produced at the site would require 1-2 covered trucks leaving the site approximately every two weeks There would be two to five full-time personnel working Monday through Friday, 12 hours a day. Stationary equipment would include two power generators (Attachment 7). The nearest offsite residences are located approximately 820 feet to the east and 1,055 feet to the north on State Highway 20. Additional residences are located north of State Highway 20 which includes the pre-school that would be considers a sensitive receptor.

The proposed project was routed to the Lake County Air Quality Management District (LCAQMD) for review and commenting. The following mitigation measures would reduce criteria air pollutants to less than significant.

AQ-1: Commercial burning shall not be allowed during construction or during the life of the project. All vegetative waste from land development must be disposed of by chipping or other appropriate methods.

AQ-2: Mobile diesel equipment used for construction and/or maintenance shall comply with State registration requirements. Portable and stationary diesel-powered equipment shall meet the requirements of the State Air Toxic Control Measures for Compression Ignition engines.

AQ-3: A complete list of all equipment which will be utilized at the site with the potential to emit air contaminants shall be submitted to the LCAQMD including, but not limited to: conveyors, chippers, grinders, generator, pumps, off-road equipment, etc. An Authority to Construct permit may be required for equipment with the potential for emissions to air. The pyrolysis facility will likely require a LCAQMD Authority to Construct permit. The applicant shall contact the LCAQMD as soon as possible to reduce the potential for delays in obtaining any necessary LCAQMD permits.

AQ-4: The applicant shall chip seal primary access roads and parking. Paving with asphaltic concrete is preferred. All areas subject to semi-truck I trailer traffic should require asphaltic concrete paving or equivalent to prevent fugitive dust generation. Gravel surfacing may be adequate for low use/overflow driveways and parking areas; however, gravel surfaces require more maintenance to achieve dust control, and permit conditions should require regular palliative treatment if gravel is utilized. White rock is not suitable for surfacing (and should be prohibited in the permit) because of its tendency to break down and create excessive dust. Adequate dust mitigation measures must be put in place such that a nuisance is not created.

AQ-5: Other methods to accomplish AQ-4 shall be allowed through approval from the Lake County Air Quality Management District. Proof of approval from the Lake County Air Quality Management District shall be submitted to the Lake County Community Development Department prior to any ground moving activities.

Less Than Significant with Mitigation Measure AQ-1 though AQ-5

d) The mitigation measures listed above (AQ-1 through AQ-5) would reduce both construction and operational odors and dust to a less than significant level.

Less Than Significant with Mitigation Measures

IV. BIOLOGICAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) 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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) 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?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological	☐	☐	☐	☒

	resources, such as a tree preservation policy or ordinance?				
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Discussion

a) The Biological Resource Assessment (BRA) was completed for the proposed project on July 15, 2023, and updated on February 20, 2024, by ecological consultant Lawrence Ray (Attachment 3). The update included, but not limited to, providing clear information on waterways at or near the project site. In addition,, the BRA was sent out with project details to the different agencies for comments through the County's Request for Review process. The California Department of Fish and Wildlife noted plant and animal species that have been found within 5 miles of the project (according to the CNDDB Database) and provided recommendations which will be discussed and implemented into the project.

According to the BRA, the following analyses and surveys for sensitive plants and wildlife potentially occurring in the vicinity included:

- Review of current California Natural Diversity Database (CNDDB) mapping of known sensitive plant and wildlife populations within the region.
- An analysis of the suitability of the site for sensitive plants aThend wildlife using the California Native Plant Society On-line Inventory of Rare and Endangered Vascular Plants of California, and the California Department of Fish and Wildlife's California Wildlife Habitat Relations System.
- A California Department of Fish and Wildlife protocol, floristic-level field survey of the plants occurring within the property.
- A delineation of waters of the U.S

Pre-Survey Research Results

CNPS On-Line Electronic Inventory Analysis: A California Native Plant Society (CNPS) analysis was conducted for all plants with federal and state regulatory status, and all non-status plants on the CNPS Lists 1B through 4. The query included all plants within this area of the county occurring within the plant communities identified on the project site. The inventory lists species potentially occurring at the site; these are listed in Table 2 (12 total). These species were included in the list of potentially sensitive species specifically searched for during field surveys. It is important to note that this list includes species for which appropriate habitat is not present on the parcel. The CNPS database search does not allow fine tuning for specific soil types and many specific habitats.

Note: The CNPS list is used to broaden the list of sensitive species considered during the subsequent field surveys; however, it must be used with discretion because the database search does not allow fine-tuning for specific soil types or for many specific habitats required by sensitive plant taxa. Consequently, the CNPS list generated for a site may include several taxa for which the required habitat is not present.

California Natural Diversity Database: The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the Upper Lake 7½‘ and adjacent quadrangles were reviewed for this project. Table 3 presents a list of sensitive plant (15 total) and wildlife species (20 total) known to occur within this quadrangle. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species. Appendix A at the end of this report lists the species within the nine quadrangles in the vicinity of this property.

California Department of Fish and Wildlife, California Wildlife Habitat Relationships System (CWHR), Version 9.0: The CNDDB and RareFind 5 databases consist of maps and records of all known populations of sensitive plants and wildlife in California. This data is continually updated by the CDFW with new sensitive species population data. The CNPS database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself eliminate the need for an in-season botanical survey, it can, when used in conjunction with other information, provide an exceptionally good indication of the suitability of a site as habitat for sensitive plant species. The CWHR database operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and distinctive features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

Wildlife Habitat Analysis Results: The California Wildlife Habitat Relationships analysis lists a number of native species with sensitive and non- sensitive status as potentially occurring on the site based on the geographic location and wildlife habitats present. This list is included as Appendix B.

Wildlife Assessment: Based on the pre-survey research conducted for this study, a total of 15 (please note this should be 16 but the BRA lists 15) sensitive wildlife species need to be accounted for within the project area. These consist of the species identified as present within and adjacent to the Lower Lake quadrangle by the CNDDB and CWHR, Version 9.0. Accepted protocol requires that all CNDDB species in the surrounding U.S.G.S. quadrangle be discussed even through suitable habitat may not occur on the site.

According to the pre-survey research, a total of 27 plant species are listed (Table 2 and 3) from the CNPS and CNDDB searches. Based on the pre-survey research, a total of 15 (please note this should be 16 but the BRA lists 15) sensitive wildlife species need to be accounted for within the project area. These consist of the species identified as present

within and adjacent to the Lower Lake quadrangle by the CNDDB and CWHR, Version 9.0. Accepted protocol requires that all CNDDB species in the surrounding U.S.G.S. quadrangle be discussed even through suitable habitat may not occur on the site. The 16 sensitive wildlife species include:

Western bumble bee (Bombus occidentalis);
Obscure bumble bee (Bombus oliginosus);
Red-bellied newt (Taricha rivularis);
Foothill yellow-legged frog (Rana boylii);
Western pond turtle (Emys marmorata);
White-tailed kite (Elanus leucurus);
Northern harrier (Circus cyaneus hudsonius);
Osprey (Pandion haliaetus);
Tricolored blackbird (Agelaius tricolor);
Grasshopper sparrow (Ammodramus savannarum);
Townsend's western big-eared bat (Corynorhinus townsendii ssp. townsendii);
Pallid bat (Antrozous pallidus):
Pacific fisher, West Coast DPS (Martes pennanti);
American badger (Taxidea taxus);
North American porcupine (Erethizon dorsatum); and
Bald eagle (Haliaeetus leucocephalus).

Additionally, the presence of the woodland, grasslands, and marshes and wetlands adjacent to Clear Lake provide a wide variety of upland and wetland habitats used by many animal species. Small, medium, and large mammals with sensitive and non-sensitive status such as rodents, bats, rabbits, skunks, deer, as well as woodpeckers, wrens, warblers, red-tailed hawks, crows and ravens, owls and other passerines and raptors may inhabit or feed on this property.

Note: Even when lacking sensitive status, migratory passerines and birds of prey are protected under the Migratory Bird Treaty Act and California Fish and Game Code. Removal or trimming of trees has a potential to result in an incidental take of eggs, or nestlings if clearing of tree habitat occurs during the nesting season (February 1 through August 31).

Field Survey Results

Sensitive Plants: A total of 42 native and introduced plant taxa were identified within the survey areas during the in-season botanical survey. As used here, the term sensitive includes species having state or federal regulatory status, included on Lists 1B through 4 by the California Native Plant Society, or otherwise listed in the California Natural Diversity Database.

Sensitive Wildlife: A total of 15 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the quadrangle

and the CWHR database. Based on the habitat assessment, the following conclusions are made regarding species with sensitive regulatory status:

- Sensitive status species that have a potential to be present in their sensitive state:
    - Obscure bumble bee, Foothill yellow legged frog; Western pond turtle; White-tailed kite; Northern harrier; Tricolored blackbird; Grasshopper sparrow; Townsend's big-eared bat; Pallid bat; American badger; Pacific fisher; North American porcupine.

Possible Waters of the U.S.: A small riparian area is adjacent to this parcel as shown on Figure 2 of the BRA. It is of very low quality and does not exhibit all three criteria for designation as wetland.

Recommendations

Wildlife and Bird Species: The BRA concludes that sensitive status species that have a potential to be present on the project property. Raptors and passerines lacking sensitive regulatory status but otherwise protected under the Migratory Bird Treaty Act may also be present on the property in their sensitive status. None of the species were observed during the field surveys and habitat is marginal and/or limited on-site. However, the presence of the woodland, grasslands, and marshes and wetlands adjacent to Clear Lake provide a wide variety of upland and wetland habitats used by many animal species. Small, medium, and large mammals with sensitive and non- sensitive status such as rodents, bats, rabbits, skunks, deer, as well as woodpeckers, wrens, warblers, red- tailed hawks, crows and ravens, owls and other passerines and raptors may inhabit or feed on this property. Pre-construction surveys will be completed prior to vegetation removal or earthwork to address potential impacts to nesting birds and other sensitive animals with the potential to occur within or adjacent to the existing drainage ditch (see Mitigation Measures BIO-2 and BIO-3). Additionally, Mitigation Measure BIO-4 requires the proper use, storage and handling of hazardous materials (such as pesticides and petroleum products) during construction and operation of the project to ensure impacts to sensitive amphibian species and water resources are reduced to less than significant.

Plants. Habitat onsite generally consists of annual and ruderal grasses, as well as disturbed areas from fallow farming practices. Some Valley Oaks, Himalayan blackberry and Poison hemlock are present along the western boundary of the site near the drainage ditch that borders the site. Although the database queries noted 15 plant species with the potential to occur within the larger area, no plants with sensitive regulatory status were found on the property during the floristic-level botanical survey and the project conditions do not support the presence of the noted special status plants.

Wetlands and Riparian Habitat. A small riparian area is adjacent to this parcel as shown on Figure 2 of the BRA.. It is of very low quality and does not exhibit all three criteria for designation as wetland. A formal delineation of waters of the U.S. was not conducted due to the lack of water, hydric soil and wetlands plants not present on the parcel (Ray,

2023). However, the BRA was updated on February 20, 2024, to clearly identify streams and culverts on or near the property. According to the updated BRA:

> A dashed" blueline" appears on the soils map (Figure 3; Soils Map) and Vegetation Map (Figure 4), entering at the north central boundary at Hwy 20, turning to the east and continuing south along the eastern portion of the parcel.
>
> A careful investigation looking for the presence of this unnamed stream found no evidence of it. Further field investigations and discussions with neighboring landowners revealed the presence of a culvert and ditch conveying water to the drainage ditch previously mentioned to the west. The culvert is located at datum 122.90058/39.1622 and flows approximately 45 yards to the western ditch at datum 122.900111/39.16127. This ditch is not located on the parcel, but within the State Highway 20 Caltrans's right-of-way No water crossings are located on the parcel

Although there is no evidence of a blueline stream on the eastern portion of the parcel according to the BRA, historical aerial imagery appears to show a pattern of what may be runoff that occurs from the northwestern corner and then ends on the east side approximately 675 feet from the highway down the parcel line. However, this occurrence is over 800 feet northwest of the project site. In addition, BIO-1 below would reduce impacts to less than significant.

Due to the proximity to the project site to the drainage ditch on the west side of the property, the following mitigation measures will be incorporated into the project. In addition, the applicant will be required to submit grading and erosion control plans which include best management practices.
Lastly, the BRA recommends outdoor lighting, if used, should be restricted to the processing facility and should be directed downward so as not to illuminate adjacent areas. All lighting being proposed conforms with IDA Dark Sky approved fixtures that will reduce impacts. This recommendation has been implanted with AES-2 which will reduce any lighting impacts.

BIO-1: All work in or near waterways and wetlands shall incorporate extensive erosion control measures consistent with Lake County Grading Regulations in order to avoid erosion and the potential for transport of sediments to the existing drainage ditch. Coverage under the National Pollutant Discharge Elimination System (NPDES), General Permit for Storm Water Discharges associated with a Construction Activity (General Permit) and a Storm Water Pollution Prevention Plan (SWPPP)may be required.

BIO-2: Pre-construction surveys for the presence of Western pond turtle, Foothill yellow-legged frog and other sensitive animal species shall be completed by a qualified biologist prior to ground disturbing activities within 100 feet of the drainage ditch along the western boundary of the site. If sensitive species are found, all work shall halt and appropriate buffer zones and handling protocols shall be established by a qualified biologist, in accordance with CDFW and USFWS protocols.

BIO-3: If the project includes vegetation removal (including grasses) or earthwork of any kind during the bird nesting season (February 1 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey to identify the absence or presence of active (i.e. with eggs or young) nests. The survey area shall include the project site and a minimum 300-foot buffer around the project site. To minimize the chance of nests becoming established between the time the survey is conducted and when construction begins, the pre-construction survey shall be conducted no more than three (3) days before the start of vegetation removal and/or ground disturbing activities. If active nests are observed during the pre-construction survey, a species-appropriate no-disturbance buffer shall be established by a qualified biologist to protect the active nest.

BIO-4: State and Federal regulations on pesticide selection, use, storage and transportation shall be strictly followed. Pesticide use shall not occur during periods when winds may transport spray to adjacent areas.

Less than Significant with Mitigation Measures BIO-1 – BIO-4

b) and c) A small riparian area is adjacent to this parcel as shown on Figure 2 of the BRA... However, according to the BRA, is of very low quality and does not exhibit all three criteria for designation as wetland (1.the presence of water, 2. hydric soils, and 3. wetland plants). The proposed project would need to comply with Article 37 Section 21-37, subsection 37.3 (b)4, which will require a 20-foot setback from wetlands.

Less than Significant Impact

d) The proposed processing facility are comparatively small and unlikely to significantly impair wildlife movement through the corridor. A chain-link fence will be installed around the facility and processing area. As recommended by the BRA, BIO-5 would reduce impacts from installing fencing in other areas.

BIO 5: The use of deer fencing shall be restricted to the perimeters of the proposed facility. No deer fencing or other obstacles to wildlife passage shall be installed that will restrict wildlife movement.

Use of outdoor lighting has a potential to disrupt wildlife movement, much of which occurs at night. Proposed lighting will be limited to 1 acre in low quality habitat and conforms with Dark Sky Approved fixtures. Mitigation measure AES-2 would reduce impacts.

Less Than Significant with Mitigation Measure BIO-5

e) Tree removal is not proposed with this project.

No Impact

f) Lake County does not currently have a habitat conservation plan. The BRA prepared for this project provides mitigation measures to reduce impacts to sensitive species.

Less than Significant Impact

V. CULTURAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion
a) Lake County sent out a Request for Review to the Northwest Information Center at the Sonoma State University on September 27, 2023. A response was received on December 21, 2023, with the California Historical Resources Information System (CHRIS) results. In addition, a Cultural Resource Evaluation was completed by John W. Parker on July 19, 2023, for the proposed project. An evaluation was completed that included a review of background records and a field inspection of ~7 acres, including the project area and proposed access road alignment. The purpose of the investigation was to locate, describe, and evaluate any archaeological or historical resources that may be present within the project area. In addition, the author was to assess the impact that might occur as a result of ground disturbance activities associated with project development.

The background research indicated that most of the area had not been inspected for cultural resources in the past. However, a Caltrans Highway improvement project did inspect the northern-most portion of the road access alignment. This inspection relocated one site. During the field inspection, the small farm house adjacent to State Highway 20 was evaluated and found not to meet the criteria necessary to be considered a "significant" historic resource. No historic or prehistoric cultural materials were discovered during the field survey (Parker, 2023).

Less than Significant Impact

b) Some ground moving activities would occur during widening of the driveway, and vegetation clearance will be needed for developing the site.

The field inspection involved a complete reconnaissance of the proposed project area. This work was done by walking transects across the project area spaced every 5 to 10 meters. The ground was examined for historic and prehistoric cultural materials and features. Dense vegetation hampered the inspection of the mineral soil over much of the project area and it is likely that isolated artifacts would have been missed. However, enough ground surface was visible to make sure any significant historic or prehistoric features or sites would have been recorded. Because the field survey could not rule out finding isolated artifacts, the following mitigation measures shall be applied.

The Cultural Resource Evaluation recommends that in the unlikely event that buried cultural sites or features are encountered during the ground disturbance process, it is recommended that work in the immediate vicinity of the find be suspended, and a Registered Professional Archaeologist called in to evaluate the find as required by CEQA with California Resource Code Section 21083.2 referenced (Parker, 2023). This recommendation is further defined to cover training for workers and to provide specific steps should any archaeological, paleontological, or cultural materials be discovered during site development.

CUL-1: All workers shall be trained in recognizing potentially significant archaeological, paleontological, or cultural materials that may be discovered during ground disturbance. Prior to ground disturbing activities, the Permittee shall submit a Cultural Resources Plan, identifying methods of sensitivity training for site workers, procedures in the event of an accidental discovery, and documentation and reporting procedures. Prior to ground disturbing activities, the Permittee shall submit verification that all site workers have reviewed the Cultural Resources Plan and received sensitivity training.

CUL-2: Should any archaeological, paleontological, or cultural materials be discovered during site development, all activity shall be halted within 100 feet of the find(s). A professional archaeologist certified by the Registry of Professional Archeologists (RPA) shall be notified and shall evaluate the find(s) and recommend mitigation procedures, if necessary. The findings and mitigation measures shall be reviewed and approved by the Lake County Community Development Director prior to commencing work.

Less Than Significant with Mitigation Measures CUL-1 and CUL-2

c) The Project site does not contain a cemetery and no known formal cemeteries are located within the immediate site vicinity. In the event that human remains are discovered on the project site, the project would be required to comply with the applicable provisions of Health and Safety Code §7050.5, Public Resources Code §5097 et. seq. and CEQA Guidelines §15064.5(e). California Health and Safety Code §7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin. Pursuant to California Public Resources Code §5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made by the coroner. This requirement will be incorporated into the project with CUL-3.

CUL-3: Should any human remains be encountered, the applicant shall halt all work within 100 feet, notify the Sheriff's Department, the culturally affiliated Tribe(s), and a qualified archaeologist for proper internment and Tribal rituals per Public Resources Code Section 5097.98 and Health and Safety Code 7050.5.

Less Than Significant with Mitigation Measure CUL-3

VI. ENERGY	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resource, during construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Discussion

a) The primary energy source required for the project would be petroleum during short-term construction and woody biomass and petroleum during long-term operations.

Construction activities are expected to last one season (3 to 4 months). A truck and trailer would be used to deliver construction equipment. The equipment would be staged onsite until construction activities are complete and then will be removed. Construction equipment would be used varying hours over 3 to 4 months. Workers would drive their vehicles to the site. All of these activities would result in the use of petroleum fuels. The project would be subject to all Lake County Air Quality Management District regulations as well as the California Air Resource Board's (CARB's) In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines. Overall, while construction activities would consume petroleum-based fuels, consumption of such resources would be temporary and would cease upon the completion of construction. Further, the petroleum consumed related to construction would be typical of construction projects of similar types and sizes and would not necessitate new petroleum resources beyond what are typically consumed in California. Therefore, because petroleum use during project construction would be temporary and minimal and would not be wasteful or inefficient, impacts are determined to be less than significant.

During operations, forest materials will be trucked to the site from contractors completing forest fuel reduction and powerline hazardous wood removal around the County and surrounding forest land. Forest materials are pre-processed into large wood chips offsite,

mostly at the Donahoo facility– 8605 Bottle Rock Road, Kelseyville CA 95451, 21.2 miles away. The Donahoo facility site presently chips 300,000 tons, a year, of forest fuel and currently trucks approximately 100 miles away. It is anticipated that between 2 to 5 trucks during the weekday will deliver forest materials of approximately 15,000 to 50,000 - tons per year to the project site. Utilizing the materials locally will save an estimated 158 miles per truck load. Therefore, the project would result in a net benefit due to reducing truck miles at the Donahoo site.

Operations would also include the use of red diesel fuel for off road vehicles. This would mainly consist of the front loader used to move the forest products. In addition, employees would drive their vehicles to the site daily during the week. These uses, and these discussed above, would likely be offset however by the renewable energy in the form of biomass which will power the entire site.

Less than Significant Impact

b) Many regulations have been passed in the State to address climate change including Assembly Bill 32 (Nunez, 2006) and Senate Bill 32 (Pavley, 2016). Renewable Energy regulation including Senate Bill 350 (de Leon, 2015) established clean energy, clean air, and GHG reduction goals, including reducing GHG to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050. The California Energy Commission is working with other state agencies to implement the bill. Senate Bill 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This objective will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal and others (California Energy Commission, 2024). Because this is a biomass project that would produce renewable energy, it is in agreement with the State's plan for addressing climate change.

Less than Significant Impact

VII. GEOLOGY AND SOILS	Potentially Significant Impact	Less Than Significant With Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potentially substantial adverse effects, including the risk of loss, injury, or death involving: i) 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. ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction? iv) Landslides?				
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) 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-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) 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?	☐	☐	☒	☐
e) 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 waste water?	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Discussion

Earthquake

(a) (i) According to the United States Geological Survey, the Clover Valley fault zone runs through the project site. This fault is classified as Undifferentiated Quaternary (< 1.6 million years), well constrained location. A Quaternary fault is one that has been recognized at the surface and that has moved in the past 1,600,000 years (1.6 million years). That places movement within the Quaternary Period, which covers the last 2.6 million years.

The California Codes Public Resources Code Section 2621-2630, Alquist-Priolo Earthquake Zoning Act, provides policies and criteria to assist cities, counties, and state

agencies in the exercise of their responsibility to prohibit the location of developments and structures for human occupancy across the trace of active faults. According to California Code of Regulations Title 14, Section 3601:

An "active fault" is a fault that has had surface displacement within Holocene time (about the last 11,000 years), hence constituting a potential hazard to structures that might be located across it.

Since the Clover Valley Fault is Quaternary fault, it does not meet the definition of an active fault under the Alquist-Priolo Earthquake Zoning Act.

Less than Significant Impact

(ii) Seismic Ground Shaking

Lake County contains numerous known inactive and some active faults. The closest active fault is the Bartlett Springs fault zone. This fault is classified as a Holocene fault displacement (during past 11,700 years) without historic record. Referring to the Earthquake Shaking Potential for California 2016 map, the project site is within the increasing intensity range of experiencing ground shaking during an earthquake (California Geological Survey, 2016).

The California Building Code (CBC) identifies seismic factors that must be considered in structural design. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, while Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. Appendix J of the CBC regulates grading activities, including drainage and erosion control. The CBC also contains a provision that provides for a preliminary soil report or geotechnical report to be prepared to identify "…the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects" (CBC Chapter 18 Section 1803.1.1.1). Additionally, the state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes.

Less than Significant Impact

(iii) Seismic–Related Ground Failure, including liquefaction

Liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Liquefaction occurring beneath buildings and other structures can cause major damage during earthquakes (United States Geological Survey, 2024). Liquefaction is most likely to occur in wet, sandy, soils. Soils with large grains, such as sands, don't fit together very well and have large void spaces ("high porosity"). In wet regions of the world, this allows more water to infiltrate the soil (United States Geological Survey, 2024).

According to the digital Seismic Hazard Zone Map presents areas where liquefaction and landslides may occur during a strong earthquake. Three types of geological hazards, referred to as seismic hazard zones, may be featured on the map: 1) liquefaction, 2) earthquake-induced landslides, and 3) overlapping liquefaction and earthquake-induced landslides. In addition, a fourth feature may be included representing areas not evaluated for liquefaction or earthquake-induced landslides. Developers of properties falling within any of the three zones may be required to investigate the potential hazard and mitigate its threat during the local permitting process (California Department of Technology, 2020). According to the Seismic Hazard Zone Map, most liquefaction and landslides occurring during earthquakes are located in the Bay Area and southern California, not in Lake County.

Less than Significant Impact

(iv) Landslides
The project is flat and there are no surrounding mountains or hills in close proximity.

No Impact

b) According to the Soil Survey of Lake County, California, the following soil type Lupoyoma silt loam, protected (map unit 158) includes very deep, moderately well drained soil is on flood plains. It formed in alluvium derived from mixed rock sources. Slope is 0 to 2 percent. Permeability of this Lupoyoma soil is moderately slow. Available water capacity is 8.5 to 11.0 inches. This soil covers most of the 5-acre site. Approximately 0.8% Cole Variant clay loam (map unit 124) covers the remainder of the area. This soil type includes very deep, moderately well drained soil is on flood plains. It formed in alluvium derived from mixes rock sources. Slope is 0 to 2 percent. Permeability of this Cole Variant soil is slow. Available water capacity is 8 to 10 inches (U.S. Department of Agriculture, Natural Resources Conservation Service, 1989).

According to Web Soil Survey, a wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. Lupoyoma silt loam, protected (map unit 158) has a rating of 5 while Cole Variant clay loam (map unit 124) has a rating of 6 (Natural Resources Conservation Service, 2024).

Construction would include some soil disturbance for widening the driveway and pouring a pad for the 27,625-gallon NFPA 1142 rated water storage tank. It is expected that a grading permit would be required. Although a Construction General Permit would not be triggered, the applicant would still need to follow the Lake County Municipal Code Chapter 30, Article V, Section 30-18, subsection 18.3 c) requirement to submit an Erosion and Sediment Detention Plan, as well as all other requirements under Chapter 30 including, but not limited to, signing conditions of approval.

Less than Significant Impact

c) Please refer to criteria a) iii in this section.

Less than Significant with Mitigation Measure BIO-1

d) Lupoyoma silt loam, protected (map unit 158) has a shrink swell that is moderate to low. This soil type consists of stratified very fine sand loam to silty clay loam and is well drained with no ponding. The shrink and swell potential for Cole variant clay loam (map unit 124) is high (Natural Resources Conservation Service, 2024).

Pursuant to California Code Regulations Title 14, Section 3601 Definitions:

> (e) A "structure for human occupancy" is any structure used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year.

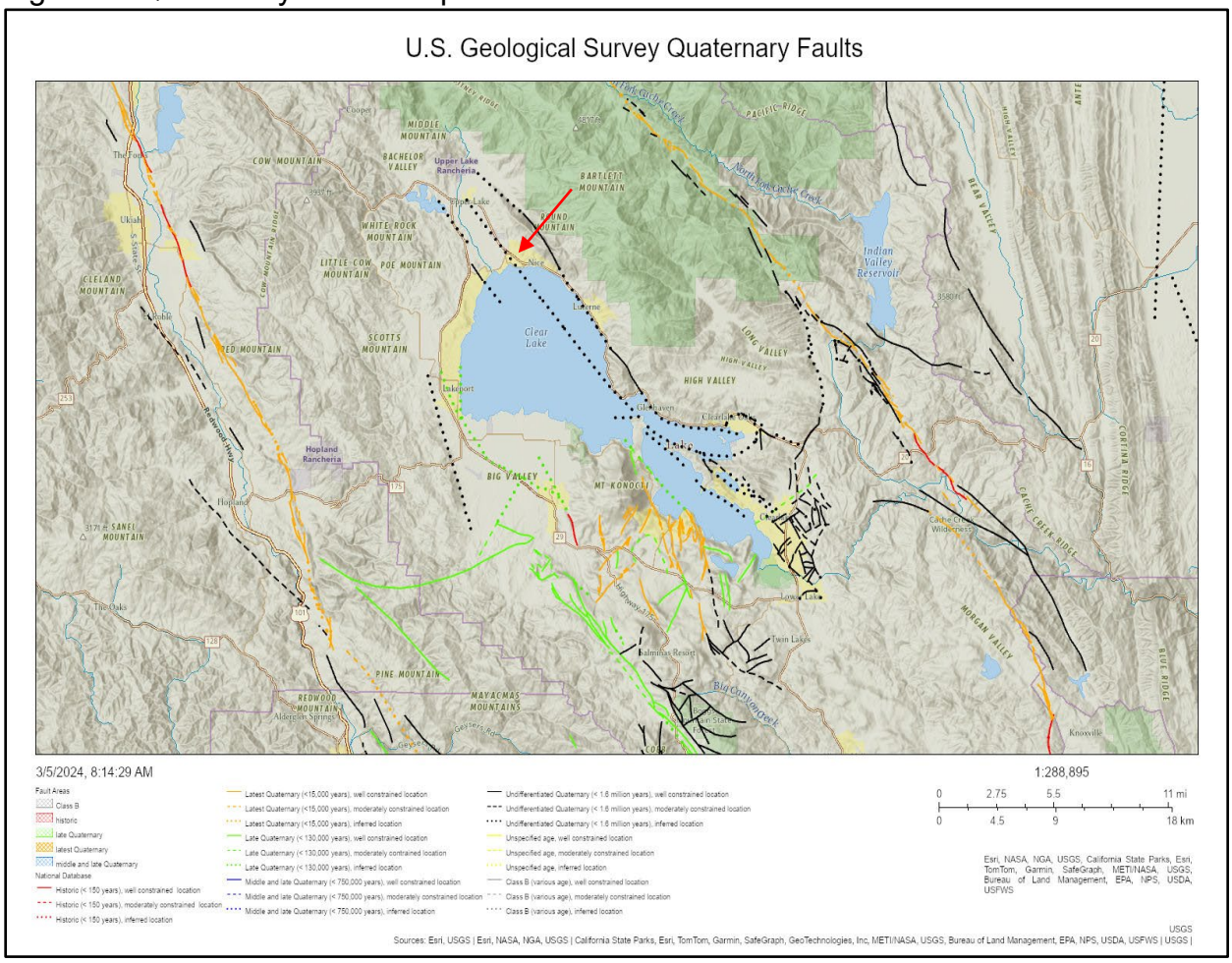
According to the project description, the site will operate 12 hours a day, 5 days a week. With State and federal holidays: 12 x 5 = 60 hours x 52 weeks = 3,120 – eleven federal holidays = 3,110 hours.

Although the project does not propose placing the member canopy structure in the area where Cole variant clay loam (map unit 124) occurs, the following mitigation would reduce any potential design changes.
GEO 1: The proposed membrane canopy structure and any foundations shall be constructed on Lupoyoma silt loam, protected (map unit 158) areas. Any development on the Cole variant clay loam (map unit 124) areas would require a geotechnical report or approval from the Lake County Public Works Department prior to construction.

f) Please refer to Environment Factor 3.5 Cultural Resources section d).

Less Than Significant Impact with Mitigation Measure GEO-1

Figure 3: Quaternary Faults Map



Source: California Department of Conservation, 2024.

VIII. GREENHOUSE GAS EMISSIONS	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

a) The LCAQMD does not have thresholds for greenhouse gas emissions so recommends using the BAAQMD's thresholds. On April 20, 2022, the Air District Board of Directors adopted CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans. Pursuant to Chapter 3 Thresholds of Significance, Table 3-2, land use projects must include A or B. Because A. only applies to residential, office and retail projects, the threshold for B. would have to be implemented. According to B. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b). This option requires that a public agency creates a plan for the reduction of greenhouse gas emissions. Currently, the Lake County does not have a GHG emissions reduction plan.

However, this project agrees with both the California's Wildfire and Forest Resilience Action Plan, January 2021, as well as with California's 2022 Scoping Plan for Achieving Carbon Neutrality. While the first Plan covers the importance of reducing forest fuels through woody biomass projects in order to reduce open burning which in turn reduces GHG emissions, the second Plan covers the importance of bioenergy to reduce GHG emissions.

In addition, forest wood biomass/ bioenergy projects are becoming more common in California. Tuloumne, Placer, and Shasta are among a few Counties that have been permitted over the last decade. The Placer County Air Management District is among the few air districts that has extensive experience in permitting woody biomass projects. According to the Tuloumne BioEnergy Inc. Greenhouse Gas Study:

> Under a No Project alternative, the biomass collected for the proposed Project would otherwise be burned in piles at the forest collection sites. Based on a report released by the National Wildfire Coordinating Group (NWCG 2020), average pile burning generates 3,711 pounds of CO2e per bone dry ton (NWCG 2020: Table 4.1.1, Peterson, pers. comm,. 2021). Thus, the Project would avoid 67,832 MT CO2e that would be emitted annually from pile burning.

Although the project would produce a small amount of GHG emissions, mostly due to hauling traffic, these impacts would be offsite by reducing open air burning in Lake County's forests and therefore would result in net positive benefits for the life of the project.

Less than Significant Impact

b) This project agrees with California's 2022 Scoping Plan for Achieving Carbon Neutrality.

Less than Significant Impact

IX. HAZARDS AND HAZARDOUS MATERIALS	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☒	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) 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?	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

Discussion:

a) and b) Construction activities would involve the use of hazardous materials such as fuels, lubricants, and solvents typically associated with construction equipment and vehicles. These materials are commonly used during construction and are not acutely hazardous. The federal Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). The OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for construction activities such as excavation and trenching. Any materials used during construction activities would be handled in accordance with applicable laws, regulations, and protocols related to protect worker, user, and public safety.

Project operations would include use of diesel fuel (red diesel) to be stored and used only onsite in a tank/trap wagon (500-gallon UL142 double-walled fuel storage tank with 25gpm 120vac pump & meter fueling station) for off-road vehicles. Also, located in a designated locked Conex Metal Shipping Container with appropriate containment and ventilation, will house the following:

- Hydraulic oil, new or used, for the equipment will be kept in 5-gallon bucket or less, prior to being transported to a certified recycling center waste oil container.
- Engine oil, new or used, will be kept in 5-gallon buckets or less, prior to being transported to a certified recycling center waste oil container.
- New engine oil is stored in a 5-gallon bucket which is used for the equipment and generator set when applicable (oil change). General cleaning liquids in containers under 1 gallon.

Lake County has an Emergency Operations Plan that was completed in July 2020. Businesses that handle hazardous materials in Lake County are required to file a Hazardous Materials Business Plan as well as a Risk Management Plan with Certified Unified Program Agencies. The California Health & Safety Code (Division 20, Chapter 6.95) defines a hazardous material as "any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and the environment if released into the workplace or the environment." Common hazardous materials include new and used oil, gasoline, diesel fuel, propane, antifreeze, solvents, etc. The Environmental Health Division of the Lake County Department of Health Services is the CUPA for all of Lake County (County of Lake, 2020). Therefore, the project was routed to the agency for comments and the following mitigation measures will be required.

HAZ-1: There are no permits for the referenced water well and septic system on this property. Notation of their existence was noted on material previously submitted in 2010, but the locations have not been validated. Prior to construction, the applicant shall schedule a field clearance inspection. In addition, It is noted in the submitted material that

the onsite well will be “refurbished”. A well repair/alteration permit may be required for this process. Prior to construction, the applicant shall contact the appropriate department to determine if a permit is required.

HAZ-2: All wells shall be located and with an adequate horizontal distance from potential sources of contamination and pollution. The storage of hazardous materials shall be located a safe distance from any water well to prevent contamination. The site shall be designed to prevent runoff of hazardous materials into the nearby creek and drainage paths.

HAZ-3: If the applicant stores hazardous materials equal to or greater than 55 gallons of a liquid, 500 pounds of a solid or 200 cubic feet of compressed gas, the applicant will be required to submit a Hazardous Materials Inventory Disclosure Statement/ Plan to the Environmental Health Division via the California Electronic Reporting System (CERS) and it shall be renewed and updated annually or if quantities increase. Note that additional California Unified Program Agency (CUPA) requirements may apply depending on the amounts of hazardous materials stored onsite. This requirement shall be completed prior to construction of the project.

Less Than Significant with Mitigation Measures HAZ-1- HAZ-3

c) The Early Childhood Development Center is located at 650 E. Highway 20. From the project parcels nearest boundary line to the pre-school it is 825 feet, and from the edge of the proposed facility to the pre-school is approximately 1,177 feet. Up to 5 haul trucks would be delivering processed wood to the site per day. Due to the proposed facility’s proximity to the pre-school, the project is not anticipated to emit hazardous emissions that would substantially impact the pre-school. However, this project was routed to the LCAQMD and to the Lake County Health Services for comments; noted requirements from these agencies have been incorporated as Mitigation Measures HAZ-4 and AQ-1-AQ-6.In addition, the trucks leaving the site to deliver biochar would be covered.

Less Than Significant with Mitigation Measures HAZ-4 and HAZ-4 and AQ-1-AQ-6

d) EnviroStor is the Department of Toxic Substances Control's data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further. A search of the of EnviroStor came back as negative for hazardous waste sites within 1,000 feet of the project site (Department of Toxic Substances Control, 2024).

No Impact

e) Lampson Field is a general aviation airport and the sole public use facility in Lake County. The Public Works Department oversees the operation, maintenance, and improvements to the Airport (Lake County, 2024). Lampson Field is located at 600 Sky

Park Dr, Lakeport, CA 95453 which is over 14.5 miles from the project site. The project is not within the Lampson Field Master Plan (Hodges & Shutt, 1993).

No Impact

f) The project site would be accessed from State Highway 20 by up to 5 trucks per weekday. If an ambulance, fire truck, or the California Highway Patrol are on an emergency call and need to get by, there are areas before and at the project site where the trucks could pull over and let emergency responders go by. It is illegal in California not to yield the right of way to an emergency vehicle approaching with its lights and sirens on based on California Vehicle Code Section 21806.

Less than Significant Impact

g) Several meetings occurred with the Northshore Fire Protection District and the Lake County Building Department regarding driveway access, site operations, and water availability for firefighting. As a result of these meetings, the membrane canopy structure was reduced in size to prevent the requirement to install sprinklers which may have prevented the project from moving forward due to cost. The applicant would need to comply with all California Fire Code requirements which include but are not limited to those discussed below.

The existing driveway will be cleared and then covered with a base filter fabric, road base material, plastic heavy load grid paver system with a topping of clean crushed rock that incorporates into the paver system for compaction. This surface can retain water from running off and can carry heavy loads of 100 psi or 40,000 pounds. This driveway will conform to CalFire Article 2 Ingress and Egress §1273.01. Width. (c) Driveways (minimum 10'W), §1273.02. Road Surfaces (b) support at least 40,000 pounds and §1273.05. Turnarounds (d) Dead-end turnaround at terminus of 1,320'. The driveway area is 20,790 sf with a total of 514 cubic yards of base rock and 115 cubic yards of paver fill. Fire apparatus turnaround will be provided. A Knox Box (emergency key box) will be provided for rapid fire access at the gate.

As a result of meeting with the Northshore Fire District, a 27,625-gallon NFPA 1142 rated water storage tank will be placed near the entrance to fenced area for emergency water supply for fire suppression. No fire pump will be provided but a fire hydrant connection, acceptable to North Shore Fire District, will be supplied for connection to a pumper truck. A 2" water line and UG electrical line to power pump, approximately 300' long will be installed from an existing farm well that fills the water storage tank. The well is located on the parcel to the south APN: 004-013-15. This requirement will be added as mitigation.

As proposed, when material is too wet to process, it will be sun-dried outside the fenced area and will be placed in rows no higher than 8 feet. Additional drying can be used during winter months with excess heat from the generating equipment. No combustion is used for direct drying of the material. Dried processed material will be placed within the fenced area for ready to trailer off or use at site. Sun drying may occur on static forest materials

during summer months, but wood biomass drying will occur when necessary, using waste heat from the power generation process. Although the piles would be monitored through a computerized system for heat, the Northshore Fire Protection District was concerned that the materials might become combustible. Because combustible materials may take hours to extinguish, and other emergencies in the service area may need attention, a condition of project approval will state that:

> After four hours of suppression efforts by the Fire Entities, the property owner shall take over continued extinguishment efforts with heavy equipment and water tenders at their expense.
>
> If the emergency becomes re-established or of concern the property owner should call 911 for Fire response to mitigate the emergency.

HAZ-4: A 27,625-gallon NFPA 1142 rated water storage tank shall be placed near the entrance to fenced area for emergency water supply for fire suppression. No fire pump will be provided but a fire hydrant connection, acceptable to North Shore Fire District, shall be supplied for connection to a pumper truck. A 2" water line and UG electrical line to power pump, approximately 300' long shall be installed from an existing farm well that fills the water storage tank.

Less Than Significant with Mitigation Measure HAZ-4

X. HYDROLOGY AND WATER QUALITY	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☒	☐	☐
c) 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 that would: i) Result in substantial erosion or siltation on-site or off-site;	☐	☐	☒	☐

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; 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 iv) Impede or redirect flood flows?				
d) In any flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

a) and c) According to the Biological Resource Assessment with Botanical Survey completed on July 15, 2023, and updated on February 20, 2024:

> A dashed" blueline" appears on the soils map (Figure 3; Soils Map) and Vegetation Map (Figure 4), entering at the north central boundary at Hwy 20, turning to the east and continuing south along the eastern portion of the parcel. A careful investigation looking for the presence of this unnamed stream found no evidence of it. Further field investigations and discussions with neighboring landowners revealed the presence of a culvert and ditch conveying water to the drainage ditch previously mentioned to the west. The culvert is located at datum 122.90058/39.1622 and flows approximately 45 yards to the western ditch at datum 122.900111/39.16127. This ditch is illustrated on Figure 4 as a yellow line and is not located on the parcel, but within the Hwy 20 Caltrans State Hwy Right of Way. No water crossings are located on this parcel.

Rainwater runoff from the 2,400 sq. ft. membrane canopy structure with 1,600 sq. ft. conex/cargo containers will go through a gutter system with downspout and would be routed to a dry detention basin area with 4% slope away from the processing area. The perforated advanced drainage system would include 140 ft. of 4" above ground piping, with 6" gravel placed over the perforated pipe system. Additional erosion control utilizing wattles, gravel, logs, and a bioretention area. Biological filtration will be used in areas that

need protecting and will utilize rice husks and straw when needed. A Bioretention Rainwater Runoff Plan (CP-1.2) is included in Attachment 2.

Earthmoving activities will include grading the existing driveway among other things (processing area and water tank). The project design will include covering the driveway with a base filter fabric, road base material, plastic heavy load grid paver system with a topping of clean crushed rock that incorporates into the paver system for compaction. This surface can retain water from running off. Also, as required under the Lake County Municipal Code Chapter 30, an Erosion and Sediment Control will need to be submitted with the grading plans. With incorporation of BIO-1, impacts related to erosion would be reduced to less than significant.

No septic system will be installed. Instead, an ADA-approved restroom facility will be used, and a servicing company will be hired to maintain the facility appropriately with cleaning and disposal at minimum of once a week. The project includes a 2,500-gallon onsite water storage tank used for dust control and domestic water when needed.

Both the project design and regulatory requirements would result in reducing impacts to surface and groundwater quality.

Less Than Significant with Mitigation Measure BIO-1

b) An estimated 100,000 gallons of water would be used annually for domestic uses and applied to control dust and to maintain the appropriate moisture content. Water is currently available at two existing wells, one near the entrance or the property and the other 300’ south of the operations location, one of which will be refurbished. A 2,500-gallon water storage tank would be used for domestic purposes, and a 27,625-gallon NFPA 1142 rated water storage tank will be placed near the entrance to fenced area for emergency water supply for fire suppression. Mitigation measures for the wells and tank are implemental with HAZ-1 and HAZ-4.

Less Than Significant with Mitigation Measures HAZ-1 and HAZ-4

Groundwater in California is regulated under the Sustainable Groundwater Management Act of 2014 which requires local agencies to form groundwater sustainability agencies (GSAs) for the high and medium priority basins, and to develop groundwater management plans. The project site is within the Upper Lake Valley Basin which has not been classified as a high or medium priority basin. In addition, according to the Clear Lake Source Water Assessment and Watershed Sanitary Survey (August 2023), the Upper Lake Valley Groundwater Basin remains fully charged (California Rural Water Association, 2023).

Finally, the proposed project would use substantially less water than the previous land use which included vineyards.

Less than Significant Impact

d) The southern portion of the 5-acre site is within the 0.2 Percent Annual Chance Flood Hazard. However, the facility structure would be constructed in the X zone which is classified as Areas determined to be outside the 0.2% annual chance floodplain. In addition, the project will be required to adhere to the Lake County Building Code.

Less than Significant Impact

e) Although there is currently no water management plan, the Lake County Water Resources Department oversees programs for the water quality of Clear Lake. The Clear Lake Ambient Monitoring Program (CLAMP) collects monthly physical, chemical, and biological water quality data from the three arms of Clear Lake monthly. The CLAMP data is available on the California Environmental Data Exchange (CEDEN). Currently, the CEDEN is working with the San Francisco Estuary Institute on the Development of Lake County Water Quality Data Exchange Program (Phase 1) which will include factsheets and a data management plan. As part of the CDD's processing of projects, a request for comments was routed to the Lake County Water Resources Department and as of April 7, 2024 no comments were received.

The project is designed to prevent runoff as discussed in Section a) above.

Less than Significant Impact

XI. LAND USE PLANNING	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☒	☐
b) 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?	☐	☐	☒	☐

Discussion

a) Land uses that might result in dividing a community would include, but are not limited to development of the following uses: bridges, highways, railways, levees, tree groves, fences, etc. The property is currently not developed with structures. The development would be set back over 1,000 feet from State Highway 20. There would be some fencing around a portion of the site, but it would not interview with neighboring properties movements.

Less than Significant Impact

b) The proposed project is consistent with the Lake County General Plan. The general plan land use designation on this site is Agriculture A and Resource Conservation RC. According to the County of Lake General Plan (2008), Chapter 3, for Agriculture A "One purpose of this land use category is to protect the County's valuable agricultural resources and to prevent development that would preclude its future use in agriculture", Because the propose project would only include 5 acres of the 42.6 acre site, much of the land would remain fallow. The LESA completed for the project resulted in a Less Than Significant Impact. In addition, the life of this project is tentatively planned for 10 to 15 years. The purpose of the Resource Conservation RC is to assure the maintenance or sustained generation of natural resources within the County. The highest priority for these lands is to provide for the management of the County's natural infrastructure. A small riparian area is adjacent to this parcel as shown on Figure 2 of the BRA.. It is of very low quality and does not exhibit all three criteria for designation as wetland. Mitigation has been applied to reduce impacts to this area.

According to the Lake County Municipal Code Zoning Ordinance, the project is zoned Agricultural Preserve Zone "APZ" - Scenic "SC" Combining- Waterway "WW"- Floodway Fringe "FF":. Pursuant to Article 4, Section 21-4, subsection 4.5 (e) Those uses permitted in the "APZ" district with a major use permit in Table B, Article 27. According to Article 27, Section 27.11 Table B (x) power generation facilities are allowed in the APZ zoning district. Bioenergy would be produced for the woody biomass. The bioenergy would be used to power the facility and could be made available to downstream users. The project complies with other requirements with SC-WW-FF as discussed throughout this study.

Last, the project is in the Shoreline Communities Area Plan. The purpose of the Shoreline Communities Area Plan is to provide guidance for the long-term growth and development of the Shoreline Communities area over the next twenty years. The project is in conformance with all applicable objectives and policies especially Objective 4.3.1 "Reduce the threat to life and property from structural and wildland fires", and Policy 4.31e "Provide alternatives to controlled burns in high fire hazard areas".

Less than Significant Impact

XII. MINERAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion

a) and b) Mineral resources in Lake County mainly consist of aggregate minerals (Lake County Planning Department, Resource Management Division, 1992). The site does not include any known minerals and is not near a mining operation (California Department of Conservation, 2022). Other minerals exist in Lake County, but none are near the project site. Zoning of the site does not allow for mineral resource mining.

No Impact

XIII. NOISE	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the 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?	☐	☐	☒	☐
b) Result in the generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐
c) 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?	☐	☐	☐	☒

Discussion

a) Some noise during construction will occur, however construction hours are limited to 7:00 a.m. to 6:00 p.m. Monday through Saturday, and construction would be considered

temporary. Due to the temporary nature of construction, and the distance form adjacent uses, the likelihood of noise-related impacts is minimal and can be minimized through compliance with Lake County noise regulations, which are added standard conditions of approval for use permits. Operations would include noise from vehicle traffic, the facility, and other equipment used for maintaining the site. Because the wood would be processed at the Donahoo site before being delivered to the site, there would not be a lot of noise that is normally associated with woody forest biomass projects that also process the wood on the site. The project would need to comply with the following Lake County Municipal Code Zoning Article 41 which requires the following:

Table: Maximum on-hour equivalent sound pressure levels (A-Weighted-dBAS)

Time of Day	Receiving Property Zoning District		
	Residential*	Commercial	Industrial
7 am - 10 pm	55	60	65
10 pm - 7 am	45	55	60

*Note: The Residential category includes all agricultural and resource zoning districts.

.. Sound levels have been estimated and fall under the county's acceptable levels for agriculture operations. The sound level of the power generation facility will be under the decibels A levels for non-business hours to the property line.

Less than Significant Impact

b) Ground-borne vibration could be general from heavy equipment during construction. However, construction activities would be temporary, and operations at the site would not cause significant ground-borne vibration.

Less Than Significant Impact

c) See Section IX e). The project site is located 14.5 miles from the nearest airport. Therefore, the project would not expose people residing or working in the area to excessive noise levels from air travel.

No Impact

XIV. POPULATION AND HOUSING	Potentially Significant Impact	Less Than Significant With Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) 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)?				
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Discussion

a) Typically, population growth is associated with projects that include substantial numbers of new housing units, increased roadway or utility capacity, or other facilities that draw populations of people to the area. The project does not propose such uses and all employees are anticipated to be from Upper Lake or nearby.

Less Than Significant Impact

b) Please refer to Section a) above.

Less Than Significant Impact

XV. PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) 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: 1) Fire Protection? 2) Police Protection? 3) Schools? 4) Parks? 5) Other Public Facilities?	☐	☒	☐	☐

Discussion

a) The project could have some possible impacts on public services, primarily fire protection if a fire was to occur. Several meetings were held with the Northshore Fire Protection District and concerns about the outdoor drying of forest materials were voiced. The Fire District is located in Lucerne approximately 8.6 miles from the project site. Mitigation measure HAZ-4 in Section IX has been incorporated into the project to reduce impacts related to hazards from wildfires. In addition, a condition of approval will be added requiring the following:

> After four hours of suppression efforts by the Fire Entities, the property owner shall take over continued extinguishment efforts with heavy equipment and water tenders at their expense. If the emergency becomes re-established or of concern the property owner should call 911 for Fire response to mitigate the emergency.

Police protection would be provided by the Lake County Sheriff's Office which has a office in Lucerne (approximately 8.6 miles) and one in Lakeport (approximately 10.4 miles).

Employees at the site would be local, so likely already use the nearby park and other facilities in Upper Lake.

Less Than Significant with Mitigation Measure HAZ-4

XVI. RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) 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?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion

a) Because the project does not propose components that would result in an increase in population, the project is not anticipated to result in the increase of local parks. The nearest park is Upper Lake Park, located approximately 1,018 feet from the entanrce driveway to the 5-acre site. Employees who would be working at the project site would be locals who likely already use the park.

Less Than Significant Impact

b) The project does not include any recreational facilities and will not require the construction or expansion of existing recreational facilities.

Less Thank Significant Impact

XVII. TRANSPORTATION	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☒	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

Discussion

a) Lake Transit has 10 routes serving Lake County with Route 1-North Shore Clearlake to Lakeport that serves Upper Lake. While Route-1 has a stop at Main Street in Upper Lake, that site is approximately 0.8 miles from the project site (Lake Transit, 2023). A request for comments was routed to Lake Transit, and as of April 7, 2024 no comments were received.

According to the Final 2022 Lake County Regional Transportation Plan/Active Transportation Plan, there is a Class III Proposed Bikeways route south of the project site along Reclamation Road which continues across State Highway 20 along Upper Lake Lucerne Road. The route also goes along State Highway 20 near the project site, and occurs north of the project site along Bridge Arbor North and across State Highway 20 to Main Street in Upper Lake. The following mitigation measure shall be incorporated into the project.

TRN-1: Before the end of the driveway at State Highway 20, install signage cautioning truck drivers to watch for bicyclists.

Less Than Significant with Mitigation Measure TRN-1

b) Project operations would include trucks coming from the Donahoo site located at Bottle Rock Road, Kelseyville CA 95451, 21.2 miles away. Up to five trucks trips would occur per day. Once every two weeks, biochar will be transported in a covered truck trailer to the main customer located at 7130 Red Hills Road, Kelseyville. Lake County currently does not have thresholds for VMT. However, pursuant to the Technical Advisory on Evaluating Transportation Impact in CEQA, in the absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than significant transportation impact.

Less Than Significant Impact

c) Would the Project substantially increase hazards due to geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The project site is served by a private driveway which is accessed from State Highway 20. This project was routed to Public Works and Fire as well as to Caltrans. No adverse comments were received by either Public Works or Caltrans. The Northshore Fire District requested the interior driveway be improved to meet Public Resource Code 4290 and 4291 road standards for commercial uses.

Surrounding sites do include agricultural activities that utilize farm equipment. It is not uncommon to see farm equipment moving from one farm site to another and using public roads to do so. Due to the truck traffic coming in and out of the site, the following mitigation measure shall be incorporated into the project.

TRN-2: Before the end of the driveway at State Highway 20, install signage cautioning truck drivers to watch for farm equipment.

Less Than Significant with Mitigation Measure TRN-2

d) As mentioned in Section c) above, the driveway will need to meet CAL FIRE's standards. The existing driveway is lightly graveled, and an additional 200 cubic yards of gravel will be added to improve fire apparatus access to the facility as described earlier. Fire apparatus turnaround will be provided. The existing encroachment from the parcel to SR20 will be improved to conform to the requirements of Caltrans standard driveway exit from a 55-mph road. Line-of-sight requirements conform to the 605' minimum view in each direction for 55 mph traffic. Additional road base of 8 inches, with 2-1/2 inches of asphalt, will be added to create a more level ingress and egress for vehicle traffic along

with widening to 30 feet and lengthening the driveway approach and apron area to 60 feet. The driveway will be paved from the existing edge of SR 20 to a new gate located at the 60' mark. No ground disturbance is anticipated while building this encroachment. Drainage and erosion control will be provided in areas of concern. The 14' wide driveway will be covered by filter fabric then 8" of rock (3/4"- 1" Washed Rock) will be placed over that then a layer of TrueGrid Permeable Pavers with a layer of fill rock of 1.8" (5/8"-3/4" washed rock). This driveway will conform to CAL FIRE Article 2 Ingress and Egress §1273.01. Width. (c) Driveways (minimum 10'W), §1273.02. Road Surfaces (b) support at least 40,000 pounds and §1273.05. Turnarounds (d) Dead-end turnaround at terminus of 1,320'.

Less Than Significant Impact

XVIII. TRIBAL CULTURAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project 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, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

Discussion

a) and b) A CRE was prepared for this project by John Parker on July 19, 2023, and the results are covered in Section V. The field inspection involved examining the ground for historic and prehistoric cultural materials and features. However, it was determined that dense vegetation hampered the inspection of the mineral soil over much of the project area and it is likely that isolated artifacts would have been missed. However, enough ground surface was visible to make sure any significant historic or prehistoric features or sites would have been recorded.

The Cultural Resource Evaluation recommends that in the unlikely event that buried cultural sites or features are encountered during the ground disturbance process, it is recommended that work in the immediate vicinity of the find be suspended, and a Registered Professional Archaeologist called in to evaluate the find as required by CEQA with California Resource Code Section 21083.2 referenced (Parker, 2023). This recommendation is further defined to cover training for workers and to provide specific steps should any archaeological, paleontological, or cultural materials be discovered during site development.

In accordance with AB 52, a Request for Response for consultation was sent out to the affiliated Tribes on September 27, 2023. As of April 7, 2024, no response has been received. Because of the rich tribal heritage present in Lake County, the following mitigation measures are added as a precautionary measure in case of inadvertent discovery of significant items, relics, artifacts or remains.

TCR 1: All on-site personnel of the project shall receive tribal cultural resource sensitivity training prior to initiation of ground disturbance activities on the project. The training must be according to the standards of the NAHC or the culturally affiliated tribe(s). Training will address the potential for exposing subsurface resources and procedures if a potential resource is identified. The training will also provide a process for notification of discoveries to culturally affiliated tribes, protection, treatment, care and handling of tribal cultural resources discovered or disturbed during ground disturbance activities of the Project. Tribal monitors will be required to participate in any necessary environmental and/or safety awareness training prior to engaging in any tribal monitoring activities for the project.

TRC-2: If previously unidentified tribal cultural resources are encountered during the project altering the materials and their stratigraphic context shall be avoided and work shall halt immediately. Project personnel shall not collect, move, or disturb cultural resources. A representative from a locally affiliated tribe(s) shall be contacted to evaluate the resource and prepare tribal cultural resources plan to allow for identification and further evaluation in determining the tribal cultural resource significance and appropriate treatment or disposition.

TCR-3: Prior to commencement of ground disturbing activities, the permittee shall submit documentation to the Community Development Department demonstrating that they have

engaged with the culturally affiliated tribe(s) to provide cultural monitors and that cultural sensitivity training has been provided to site workers.

Less Than Significant with Mitigation Measures TCR-1 - TCR-3

XVIIII. UTILITIES / SERVICE SYSTEMS	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or communications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater 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?	☐	☐	☒	☐
d) 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?	☐	☐	☒	☐
e) BuiComply with federal, state, and local management and reduction statutes and regulations related to solid waste	☐	☐	☒	☐

Discussion

a) Water would come from the two existing groundwater wells. A company would deliver and service toilets with sinks that would be services weekly. The site would provide its own power, utilizing the forest material to generate renewable energy as a microgrid.

Microgrids are localized electric grids that can disconnect from the main grid to operate autonomously, even with the larger grid is down. Employees would have cell phones. This project would not need electric, natural gas, or communication services and therefore will have no effect on any of these types of facilities.

Less Than Significant Impact

b) There are two wells onsite with one needing to be refurbished. As mentioned in Section X, the Upper Lake Valley Groundwater Basin remains fully charged. The overall trend is that of a basin in equilibrium and not exhibiting signs of overdraft even with the recent drought (California Rural Water Association, 2023). However, after routing the project to the Lake County Public Services Department mitigation was added to address issues such as well permitting and setbacks from waterways, possible hazards, and reporting requirements including but not limited to CUPA.

Less Than Significant Impact HAZ-1 - HAZ-3

c) The project will produce minimal wastewater that would be treated by a local company that will service the portable toilet and sink. Servicing would occur weekly.

Less Than Significant Impact

d) C & S Waste Solutions would provide waste services for the project site. Solid waste would be generated from up to five employees and other manufacturing waste would be minimal. The Eastside Landfill is the final designation for the most solid waste throughout the County. The landfill's remaining capacity is 2,859,962 tons and the cease to operate date is December 31, 2043 (CalRecycle, 2024).

Less Than Significant Impact

e) As proposed, the project would follow local, State, and federal management and reduction statutes and regulations related to solid waste.

Less Than Significant Impact

XX. WILDFIRE	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
b) Would the project, 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?	☐	☒	☐	☐
c) 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?	☐	☒	☐	☐
d) 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?	☐	☐	☒	☐

Discussion

a) and b) The project site is in a local responsibility area but is near state responsible areas. Meetings and several correspondences with the Northshore Fire District and the Lake County Building Division occurred for this project. As discussed in Section IX, a 27,625-gallon NFPA 1142 rated water storage tank will be required and has been incorporated into the project with HAZ-5.

In addition, due to concerns related to drying woody materials, and combustible materials possible taking hours to extinguish while there may be other emergencies in the service area needing attention, mitigation HAZ-6 was also incorporated into the project. In addition, the existing farm driveway will be updated to meet CAL FIRE standards which is required under California Fire Code f CCR 1273. Finally, a Knox Box (a rapid entry lock box) approved by the Northshore Fire District will be installed.

Less Than Significant with Mitigation Measures HAZ-5 and HAZ-6

c) A water storage tank would be installed for fire protection (HAZ-5). The existing driveway will need to be updated to meet the requirements of CCR 1273.

Less Than Significant with Mitigation Measure HAZ-5

d) The project site is flat. There would be no drainage changes except to contain rainwater from the membrane facility structure.

Less Than Significant Impact

XXI. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) cDoes the project have impacts that are individually limited, but cumulatively considerable? (incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a) Due to the project design, conditions of approval, and implementation of mitigation measures, impacts on the environment would be reduced to less than significant. Both a Biological Resource Assessment with Botanical Survey and Cultural Resource Evaluation were completed for the project. Mitigation measures to reduce impacts to animal and plant species and the habitat has been implemented to reduce impacts and include Aesthetics, Biological Resources, Cultural Resources, and Tribal Cultural Resources. To prevent the

potential disturbance of cultural and tribal historical resources, mitigation will be incorporated. Workers will be trained to prevent disturbance of important historical resources from the past.

Less Than Significant with Mitigation Measures AES-1 and AES-2, **BIO-1 – BIO-5, CUL - 1-CUL3, and TRC-1 – TRC-3.**

b) A project's cumulative impacts are based on an assessment of whether the "incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Past developments included the small home near State Highway 20. Currently, except for this proposed project, there are no other known planned projects in the Upper Lake. Future development is unknown, however based on past development in the unincorporated Upper Lake it would likely be minimal.

Potentially significant impacts have been identified related to the following criteria. Air Quality, Hazards and Hazardous Materials, Transportation, and Wildfire. These impacts in combination with the impacts of other past, present, and reasonably foreseeable future projects on the site could cumulatively contribute to significant effects on the environment. Implementation of and compliance with the mitigation measures identified in each section as Project Conditions of Approval would avoid or reduce potential impacts to less than significant levels and would not result in any cumulatively considerable environmental impacts.

Less Than Significant with Mitigation Measures AQ-1 – AQ-6, HAZ-1 – 5, TRN-1 and TRN-2

c) The proposed project has the potential to result in adverse indirect or direct effects on human beings. Air Quality, C, Geology and Soils, Hazards and Hazardous Materials, Transportation, and Wildfire. Implementation of and compliance with the mitigation measures identified in each section as conditions of approval would not result in substantial adverse indirect or direct effects on human beings and impacts would be considered less than significant.

Less Than Significant with Mitigation Measures AQ-1 – AQ-6, GEO-1, HAZ-1 – 5, TRN-1 and TRN-2 i

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Attachment 1: Mitigation Monitoring & Reporting Program (MMRP)

MITIGATION MONITORING AND REPORTING PROGRAM

Scotts Valley Energy Corporation / 755 E. State Hwy 20, Upper Lake, CA
Initial Study IS 23-10
Major Use Permit UP 23-05

CEQA Category	Mitigation Measure	Implementation Responsibility	Monitoring & Reporting Responsibility	Timing	Date Implemented
Aesthetics					
	AES-1: Prior to construction activities, a landscaping plan shall be submitted to the Community Development Department the includes the appropriate visual screening using drought resistant or indigenous vegetation. Water conservation shall be applied with the use of drip irrigation.	Applicant; project contractor	Applicant	Prior to construction	
	AES-2 Outdoor lighting shall be restricted to the processing facility and shall be directed downward so as not to illuminate adjacent areas. All lighting being proposed shall conform with IDA Dark Sky approved fixtures.	Applicant; project contractor	Applicant	Prior to construction	
Air Quality					
	AQ-1: Commercial burning shall not be allowed during construction or during the life of the project. All vegetative waste from land development must be disposed of by chipping or other appropriate methods.	Applicant; project contractor	Applicant; project contractor	During and after construction	
	AQ-2: Mobile diesel equipment used for construction and/or maintenance shall comply with State registration requirements. Portable and stationary diesel-powered equipment shall meet the	Applicant; project contractor	Applicant; project contractor	During and after construction	

	requirements of the State Air Toxic Control Measures for Compression Ignition engines.				
	AQ-3: A complete list of all equipment which will be utilized at the site with the potential to emit air contaminants shall be submitted to the LCAQMD including, but not limited to: conveyors, chippers, grinders, generator, pumps, off-road equipment, etc. An Authority to Construct permit may be required for equipment with the potential for emissions to air. The pyrolysis facility will likely require a LCAQMD Authority to Construct permit. The applicant shall contact the LCAQMD as soon as possible to reduce the potential for delays in obtaining any necessary LCAQMD permits.	Applicant; project contractor	Applicant; project contractor	Prior to construction	
	AQ-4: The applicant shall chip seal primary access roads and parking. Paving with asphaltic concrete is preferred. All areas subject to semi-truck I trailer traffic should require asphaltic concrete paving or equivalent to prevent fugitive dust generation. Gravel surfacing may be adequate for low use/overflow driveways and parking areas; however, gravel surfaces require more maintenance to achieve dust control, and permit conditions should require regular palliative treatment if gravel is utilized. White rock is not suitable for surfacing (and should be prohibited in the permit) because of its tendency to break down and create excessive dust. Adequate dust mitigation measures must be put in place such that	Applicant; project contractor	Applicant; project contractor	Prior to operations	

	a nuisance is not created.				
	AQ-5: Other methods to accomplish AQ-4 shall be allowed through approval from the Lake County Air Quality Management District. Proof of approval from the Lake County Air Quality Management District shall be submitted to the Lake County Community Development Department prior to any ground moving activities.	Applicant; project contractor	Applicant; project contractor	Prior to construction	
Biological Resources					
	BIO-1: All work in or near waterways and wetlands shall incorporate extensive erosion control measures consistent with Lake County Grading Regulations in order to avoid erosion and the potential for transport of sediments to the existing drainage ditch. Coverage under the National Pollutant Discharge Elimination System (NPDES), General Permit for Storm Water Discharges associated with a Construction Activity (General Permit) and a Storm Water Pollution Prevention Plan (SWPPP)may be required.	Applicant	Applicant	During operations	
	BIO-2: Pre-construction surveys for the presence of Western pond turtle, Foothill yellow-legged frog and other sensitive animal species shall be completed by a qualified biologist prior to ground disturbing activities within 100 feet of the drainage ditch along the western boundary of the site. If sensitive species are found, all work shall halt and appropriate buffer zones and handling protocols shall be established by a qualified biologist, in accordance with	Applicant; qualified biologist	Applicant; qualified biologist	Prior to construction	

	CDFW and USFWS protocols.				
	BIO-3: If the project includes vegetation removal (including grasses) or earthwork of any kind during the bird nesting season (February 1 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey to identify the absence or presence of active (i.e. with eggs or young) nests. The survey area shall include the project site and a minimum 300-foot buffer around the project site. To minimize the chance of nests becoming established between the time the survey is conducted and when construction begins, the pre-construction survey shall be conducted no more than three (3) days before the start of vegetation removal and/or ground disturbing activities. If active nests are observed during the pre-construction survey, a species-appropriate no-disturbance buffer shall be established by a qualified biologist to protect the active nest.	Applicant; qualified biologist; project contractor	Applicant; qualified biologist; project contractor	Prior to and during construction	
	BIO-4: State and Federal regulations on pesticide selection, use, storage and transportation shall be strictly followed. Pesticide use shall not occur during periods when winds may transport spray to adjacent areas.	Applicant; qualified biologist; project contractor	Applicant	Prior to construction	
	BIO 5: The use of deer fencing shall be restricted to the perimeters of the proposed facility. No deer fencing or other obstacles to wildlife passage shall be installed that will restrict wildlife movement.	Applicant; project contactor	Applicant; project contactor	Prior to construction	

Cultural Resources					
	CUL-1: All workers shall be trained in recognizing potentially significant archaeological, paleontological, or cultural materials that may be discovered during ground disturbance. Prior to ground disturbing activities, the Permittee shall submit a Cultural Resources Plan, identifying methods of sensitivity training for site workers, procedures in the event of an accidental discovery, and documentation and reporting procedures. Prior to ground disturbing activities, the Permittee shall submit verification that all site workers have reviewed the Cultural Resources Plan and received sensitivity training.	Applicant; project contractor; archologist	Applicant; project contractor; archologist	Prior to construction	
	CUL-2: Should any archaeological, paleontological, or cultural materials be discovered during site development, all activity shall be halted within 100 feet of the find(s). A professional archaeologist certified by the Registry of Professional Archeologists (RPA) shall be notified and shall evaluate the find(s) and recommend mitigation procedures, if necessary. The findings and mitigation measures shall be reviewed and approved by the Lake County Community Development Director prior to commencing work.	Applicant; project contractor; archologist	Applicant; project contractor; archologist	During construction	
	CUL-3: Should any human remains be encountered, the applicant shall halt all work within 100 feet, notify the Sheriff's Department, the culturally affiliated Tribe(s), and a qualified archaeologist for	Applicant; project contractor; archologist	Applicant; project contractor; archologist	During construction	

	proper internment and Tribal rituals per Public Resources Code Section 5097.98 and Health and Safety Code 7050.5.				
Geology and Soils					
	GEO 1: The proposed membrane canopy structure and any foundations shall be constructed on Lupoyoma silt loam, protected (map unit 158) areas. Any development on the Cole variant clay loam (map unit 124) areas would require a geotechnical report or approval from the Lake County Public Works Department prior to construction.	Applicant; project contractor	Applicant	Prior to and during construction	
Hazards and Hazardous Materials					
	HAZ-1: There are no permits for the referenced water well and septic system on this property. Notation of their existence was noted on material previously submitted in 2010, but the locations have not been validated. Prior to construction, the applicant shall schedule a field clearance inspection. In addition, It is noted in the submitted material that the onsite well will be “refurbished”. A well repair/alteration permit may be required for this process. Prior to construction, the applicant shall contact the appropriate department to determine if a permit is required. **HAZ-2**: All wells shall be located and with an adequate horizontal distance from potential sources of contamination and pollution. The storage of hazardous materials shall be located a safe distance	Applicant; project contractor	Applicant	Prior to construction	

	from any water well to prevent contamination. The site shall be designed to prevent runoff of hazardous materials into the nearby creek and drainage paths.				
	HAZ-3: If the applicant stores hazardous materials equal to or greater than 55 gallons of a liquid, 500 pounds of a solid or 200 cubic feet of compressed gas, the applicant will be required to submit a Hazardous Materials Inventory Disclosure Statement/ Plan to the Environmental Health Division via the California Electronic Reporting System (CERS) and it shall be renewed and updated annually or if quantities increase. Note that additional California Unified Program Agency (CUPA) requirements may apply depending on the amounts of hazardous materials stored onsite. This requirement shall be completed prior to construction of the project.	Applicant; project contractor	Applicant	Prior to construction	
	HAZ-4: A 27,625-gallon NFPA 1142 rated water storage tank shall be placed near the entrance to fenced area for emergency water supply for fire suppression. No fire pump will be provided but a fire hydrant connection, acceptable to North Shore Fire District, shall be supplied for connection to a pumper truck. A 2" water line and UG electrical line to power pump, approximately 300' long shall be installed from an existing farm well that fills the water storage tank.	Applicant; project contractor	Applicant; project contractor	Prior to construction and during operations	
Transportation					

	TRN-1: Before the end of the driveway at State Highway 20, install signage cautioning truck drivers to watch for bicyclists.	Applicant; project contractor	Applicant	During construction	
	TRN-2: Before the end of the driveway at State Highway 20, install signage cautioning truck drivers to watch for farm equipment.	Applicant; project contractor	Applicant	During construction	
Tribal Cultural Resources					
	TCR 1: All on-site personnel of the project shall receive tribal cultural resource sensitivity training prior to initiation of ground disturbance activities on the project. The training must be according to the standards of the NAHC or the culturally affiliated tribe(s). Training will address the potential for exposing subsurface resources and procedures if a potential resource is identified. The training will also provide a process for notification of discoveries to culturally affiliated tribes, protection, treatment, care and handling of tribal cultural resources discovered or disturbed during ground disturbance activities of the Project. Tribal monitors will be required to participate in any necessary environmental and/or safety awareness training prior to engaging in any tribal monitoring activities for the project.	Applicant; project contractor; archologist; tribal monitors	Applicant; project contractor; archologist; tribal monitors	Prior to construction	
	TRC-2: If previously unidentified tribal cultural resources are encountered during the project altering the materials and their stratigraphic context shall be avoided and work shall halt immediately. Project	Applicant; project contractor	Applicant; project contractor	During construction	

	personnel shall not collect, move, or disturb cultural resources. A representative from a locally affiliated tribe(s) shall be contacted to evaluate the resource and prepare tribal cultural resources plan to allow for identification and further evaluation in determining the tribal cultural resource significance and appropriate treatment or disposition.				
	TCR-3: Prior to commencement of ground disturbing activities, the permittee shall submit documentation to the Community Development Department demonstrating that they have engaged with the culturally affiliated tribe(s) to provide cultural monitors and that cultural sensitivity training has been provided to site workers.	Applicant	Applicant	Prior to construction	

Attachment 2: Project Plans

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT SITE. ALL INCONSISTENCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
2. INFORMATION ON NEW OR EXISTING CONDITIONS WAS OBTAINED FROM DRAWINGS PROVIDED BY OTHERS AND FROM LIMITED JOB SITE WALK OBSERVATIONS. ACTUAL CONDITIONS MAY VARY.
3. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN ALL EQUIPMENT IN A SAFE MANNER, KEEP DEAD FRONT EQUIPMENT IN PLACE WHILE EQUIPMENT IS ENERGIZED. CONDUCT CONSTRUCTION OPERATIONS IN A SAFE MANNER FOR EMPLOYEES AS WELL AS OTHER WORK PERSONS AT THE SITE. PROVIDE THE NECESSARY SAFETY EQUIPMENT TO MAINTAIN SAFETY.
4. PRIOR TO COMMENCING, COORDINATE AND REVIEW WORK ACTIVITIES WITH THE OWNERS REPRESENTATIVE. PROVIDE A PROJECT SCHEDULE OUTLINING DATES, TIMES, AND DURATION OF PROPOSED WORK.
5. PROVIDE DEBRIS CONTAINERS FOR GARBAGE AND RECYCLING OF MATERIALS, CLEAN SITE EACH DAY BEFORE END OF WORK DAY AND UPON COMPLETION OF WORK CLEAN PREMISES OF ALL DBRIS RESULTING FROMWORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
6. CONTRACTOR SHALL WORK ONLY DURING DESIGNATED HOURS, APPROVED BY SAN BENITO COUNTY, CALIFORNIA.
7. CONTRACTOR SHALL TRAIN AND PROVIDE GUIDANCE TO ALL EMPLOYEES AND VISITORS TO THE PROJECT SITE ABOUT BIOLOGICAL CONDITION AND REQUIREMENTS WHEN ENTERING CONSTRUCTION SITE.
8. CONTRACTOR SHALL REINFORCE THE WORKING ENVIRONMENTAL CONDITIONS AND RESTRICTIONS AS PROVIDED BY SAN BENITO COUNTY FOR MITIGATION. SEE ATTACHED DOCUMENTS.
9. CONTRACTOR SHALL PROVIDE A COMPLETE SET OF "AS-BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.
10. IT IS NOT THE INTENT OF THESE CONSTRUCTION NOTES TO COVER ALL DETAILS AND/OR CONDITIONS AND/OR SPECIFICATION REQUIRMENTS OF THE "AUTHORITY HAVING JURISDICTION" (AHJ). ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE PROJECTS STANDARD SPECIFICATIONS, GENERAL DESIGN STANDARDS, ORDANCES, RULES, POLICIES, REQUIREMENTS AND REGULATIONS, AS WELL AS, ANY OTHER APPLICABLE STATE AND/OR GOVERN FOR CONSTRUCTION OF ALL PROJECT ELEMENTS.
11. THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN (MAIN LINE, NO LATERAL OR SERVICE SHOWN) ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS AND ARE APPROXIMATE, NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTLILITES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO TRENCHING FOR CONDUIT OR PLOWING OF CABLES AND SHALL BE REQUIRED TO TAKE ANY PRECAUTIONARY MEASURES TO PROTECT ALL LINES SHOWN AND/OR ANY OTHER UNDERGROUND UTLITIES NOT OF RECORD OR NOT SHOWN ON THE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITIES PRIOR TO CONSTRUCTION, CALL BEFORE YOU DIG!
12. ANY CONTRACTOR / SUBCONTRACTOR PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE HIMSELF/HERSELF WITH THE SITE AND SHALL SOLELY RE RESPONSIBLE FOR ANY DAMAGES TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FORMHIS OPERATIONS, EXISTING SITE IMPROVEMENTS SHALL INCLUDE BUT NOT LIMITED TO BERMS, DITCHES, FENCES, ANIMALS AND PLANTS. ANY REMOVAL OR DAMAGE TO EXISTING IMPROVEMENTS SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT HIS EXPENSE AND SHALL BE APPROVED BY THE OWNER.
13. ALL SUBMITTALS MUST BE ORIGINALS WITH SIGNAURES WERE APPLICABLE; FACSIMILES OR E MAILS SHALL BE FOLLOWED UP WITH ORIGINALS.
14. THE CONTRACTOR SHALL PROVIDE, FURNISH AND INSTALL ALL NECESSARY TRAFFIC CONTROL IN ACCORDANCE WITH THE MINIMUM REQUIRMENTS OF SAN BENITO COUNTY.
15. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO NOT IMPEDE TRAFFIC ON THE EXISTING STREETS AND /OR FIRE LANES. THE CONTRACTOR SHALL POST ALLL NECESSARY SIGNS REQUIRED FOR THE TRAFFIC CONDITION THAT THE CONTRACTOR PLACES UPON THE TRAFFIC WAY PER CALIFORNIA DEPARTMENT OF TRAANSPORTATION (CDOT). COORIDATION WITH THE COUNTY AND THE CITY OF HOLLISTER, CALIFORNIA AS NEEDED.

SITE SECURITY

THE SITE WILL HAVE 24/7 MONITORING THAT INCLUDES THE FOLOWING:

1. GATE ENTRY INTO THE OPERATIONS AREAS WILL BE CONTROLLED.
2. KEY AREAS WILL HAVE VIDEO RECORDING AND CAPABLE OF BEING RETAINED FOR 30 DAYS.
   VIDEO RECORDS WILL BE MADE AVAILABLE TO THE COUNTY ON REQUEST.
   THE VIDEO RECORDING WILL BE CAPABLE OF BEING EXPORTED IN MPEG FORMAT.
3. EXTERIOR LIGHTING WILL BE DIRECTED TOWARD KEY AREAS, SUCH AS PERIMITER AND BETWEEN BUILDINGS.
4. ALARM AND SYSTEM CONTROLS WILL MONITORED BY A CENTRAL REMOTE STATION. ALARM SYSTEM WILL INCLUDE PRIVATE SECURITY COMPANY RESPONSE TO CRITICAL ALARMS: FIRE, ROBBERY AND BURGLAR.

PERMIT DISPLAY

ALL CURRENT VALID PERMITS SHALL BE DISPLAYED INSIDE THE LOBBY OR WAINTING AREA OF THE MAIN ENTRANCE TO THE SITES.
THE PERMITS SHALL BE IN A CONSPICUOUS PLACE SO THAT IT MAY BE READILY SEEN BY ALL PERSONS ENTERING THE SITE.

SIGNAGE

AT THE ENTERANCE TO THE FACILITY THE FOLLOWING WILL BE DISPLAYED;

1. "THIS SITE IS NOT OPEN TO THE PUBLIC"
2. "SMOKING IS PROHIBITED"
3. "ONLY AUTHORIZED PERSONAL MAY ENTER"
4. "ALL VISITORS MUST CHECK IN AT OFFICE"
5. "THIS SITE IS BEING VIDEO RECORDED"

ODOR CONTROL

CULTIVATION AND BIOMASS GENERATION FACILITY SHALL PREVENT ODORS BEING GENERATED THAT ARE ABOVE PERMITTED LEVELS FROM ESCAPING THE BOUNDARIES OF THE PARCEL, SUCH THAT THE ODOR CANNOT BE DETECTED BY A REASONABLE PERSON OF NORMAL SENSITIVITY.

GENERAL ELECTRICAL AND STRUCTURAL NOTES:

1. THESE DRAWINGS ARE BASED UPON AVAILABLE DOCUMENTS WHICH MAY NOT ACCURATELY DETAIL AS-BUILT CONDITIONS. EXISTING ELECTRICAL EQUIPMENT, CONDUIT AND WIRE SIZE, LOCATIONS AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER IMMEDIATELY OF ALL DISCREPANCIES AFFECTING THE INSTALLATION OF THE NEW EQUIMENT.
2. INSTALL ELECTRICAL EQUIPMENT, BOXES, PLATFORMS, CONDUITS TO BEST SUIT ACTUAL CONDITIONS. COORDINATE THE NEW CONSTRUCTION WITH OTHER TRADES.
3. PROTECT ALL EXISTING ELECTRICAL EQUIPMENT AND EXISTING CONDUITS. NOTIFY OWNER OR REPRESENTATIVE IF EXISTING EQUIPMENT MUST BE SHUT DOWN OR MOVED DURING THE CONSTRUCTION PHASE.
4. REPAIR AND/OR REPLACE ALL EXISTING EQUIPMENT OR CIRCUITS THAT ARE DAMAGED DURING CONSTRUCTION.
5. PROVIDE EQUIPMENT, CODUIT, CABLES, HARDWARE, SOFTWARE, WIRING AND DEVICES IN ACCORDANCE WITH THE SPECIFICATIONS AND MANUFACTURES REQUIREMENTS FOR ALL WORK INSTALLED AS PART OF THE PROJECT.
6. ALL EQUIPMENT SHALL BE GROUNDED PER NEC ARTICLE 250.
7. ALL CIRCUIT BREAKERS, FUSES, AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN MAXIMUM SHORT CIRCUIT TO WHICH THEY MAY BE SUBJECTED TO AND MINIMUM OF 10,000 AJC.
8. ALL CONDUCTORS SHALL BE COPPER.
9. EACH CONDUCTOR SHALL BE PERMANTLY TAGGED IN EACH PANELBOARD, PULLBOX, J-BOX, SWITCH, ETC.
10. PENETRATIONS IN FIRED RATED AREAS SHALL BE FIRE STOPPED IN ACCORDANCE WITH LOCAL BUILDING CODES USING UL RATED MATERIALS.
11. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT LABELS.

GENERAL SYSTEM NOTES

1. INFORMATION ABOUT THE EXISTING SITE CONDITIONS WAS PRIMARILY FROMEXISTING DRAWINGS AND LOCAL KNOWLEDGE. FIELD VERIFY ALL REFERENCES AND CONDITIONS BEFORE CONSTRUCTION. MAKE ALL NECESSARY ADJUSTMENTS FOR ACTUAL SITE CONDITIONS.
2. ALL WORK SHALL CONFORM TO AND BE PERFORMED IN ACCRODANCE WITH CODES, STANDARDS, AND LOCAL REQUIRMENTS SPECIFIED BY THE AUTHORITIES HAVING JURIDATION (AHJ)
3. ALL EQUIPMENT SHALL BE LISTED AND LABELED PER RECONGIZED ELECTRICAL TESTING LABORATORY.
4. ALL EQUIPMENT SHALL BE INSTALLED PER THE LISTING REQUIREMENTS AND MANUFACTURERS INSTALLATION INSTRUCTIONS.
5. ALL EQUIPMENT SHALL BE GROUNDED PER NEC CODE 250 AND 690.
6. AT COMPLETION OF THE PV SYSTEM INSTALLATION, COMPLETE A SYSTEM COMMISSIONING TEST AS REQUIRED BY PROJECT REQUIREMENTS.

WIRING COLOR CODE:

	480 VAC, 3/0	277 VAC, 1 0	240/120 VAC, 1/0
L1	BROWN	BROWN	BLACK
L2	ORANGE		RED
L3	YELLOW		
NEUTRAL	GREY	GREY	WHITE
GROUND	GREEN/BARE	GREEN/BARE	GREEN/BARE

APPLICABLE BUILDING CODES

CBC VOLUME II CHAPTER 31 (SPECIAL CONSTRUCTION)
SECTION 3102 (MEMBRANE STRUCTURES) >180 DAYS
SECTION 3102.1 - 3102.8
3102.3 TYPE OF CONSTRUCTION - TYPE IIB
NON-COMBUSTIBLE MEMBRANE AND FRAME
3102.6 MIXED CONSTRUCTION SHALL BE PERMITTED
3102.6.1 NON-COMBUSTIBLE MEMBRANE SHALL BE PERMITTED AS A ROOF IF NOT LESS THAN 20 FEET ABOVE FLOOR.

PROCESSING OF AG-FOREST WOOD AND BUILDING

DESCRIPTION	ALLOWABLE	ACTUAL
OCCUPANCY GROUP (CBC, CHAPTER 3):	U	U
CONSTRUCTION TYPE	TYPE IIB	TYPE IIB
NUMBER OF STORIES (CBC),	ONE (1)	ONE (1)
NUMBER OF STORIES INCREASED FOR FIRE SPRINKLERS (CBC, SECTION 504.2):	N/A	N/A
BUILDING HEIGHT (CBC, TABLE 504.3)	55'	26'-0"
BUILDING HEIGHT INCREASE:	N/A	N/A
BUILDING HEIGHT INCREASE FOR FIRE SPRINKLERS (CBC, SECTION 504):	N/A	N/A
BUILDING AREA (CBC, TABLE 503) PER STORY:	8,500 SF	4,800 SF
BUILDING AREA WITHOUT FIRE SPRINKLERS CBC, TABLE 506.2	8,500 SF	4,800 SF
BUILDING AREA INCREASE FOR FRONTAGE (CBC, TABLE 506.2)	N/A	N/A
TOTAL BUILDING AREA PER STORY:	-	
BUILDING SETBACK (NORTH):		+- 864'
BUILDING SETBACK (EAST):		+- 846'
BUILDING SETBACK (SOUTH):		+- 260'
BUILDING SETBACK (WEST):		+-100'
FIRE SPREINKLER SYSTEM:		NO
FIRE ALARM:		NO
YEAR BUILDING ORIGINALLY CONSTRUCTED:		NEW
HIGH FIRE HAZARD SAFETY ZONE:		NO
SEISMIC SAFETY JOINTS:		NO
EMERGENCY RESPONDER RADIO COVERAGA:		YES

NA

TABLE 504.3[a, i]
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
B, F, M, S, U	NS[b]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60

NS = Buildings not equipped throughout with an automatic sprinkler system;

TABLE 506.2[a, b, i]
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
U	NS	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500

NS = Buildings not equipped throughout with an automatic sprinkler system;

LEASED AREA OF APN: 004-010-040-000

AN AREA CONSISTING OF 5+- ACRES THAT IS SITUATED WITHIN THE BOUNDARY OF PARCEL 004-010-040-000 IN THE UNINCORPORATED AREA, COUNTY OF LAKE, STATE OF CALIFORNIA

COVER PAGE
GENERAL INFORMATION
755 E. HWY 20, UPPER LAKE , CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: **G-0.1**

FIELD
SCALE NONE
REV.

SITE PLAN

1"=100'

SEE DETAIL "A" GE-0.1
ENCROACHMENT

STATE HWY DEED #2009-001937

PROPERTY LINE

APN: 004-010-04
ADRESS:
755 E. HWY 20, UPPER LAKE, CA

LEASED AREA OF PARCEL
5 ACRES +- (467' SQ)
SEE DETAIL "B"

Existing Driveway will be Regraveled
PROVIDE 2 WAY TRAFFIC & FIRE TRUCK ACCESS

Structures 520sf

NEW / ALTERATION

N01	TEMPORARY PROCESSING AREA 5 ACRES OF 42.6 ACRES
N02	GRAVELED DRIVE, PARKING AND COMPACTED CANOPY FLOOR
N03	NEW PRE-MANUFACTURED CANOPY 60'W X 80'L X 28'H
N04	NEW STANDARD PARKING STALLS (4 TOTAL)
N05	NEW ACCESSIBLE PARKING STALL (1 TOTAL)
N06	NEW GUTTERS AND ABOVE GROUND DRAINS TO FIELD

LEGEND
(N) NEW CANOPY & FACILITIES
PROPERTY LINE
FENCE LINE

NW PROPERTY CORNER

Southeast Corner of Parcel / APN 004-010-040-000

AG FOREST WOOD PROCESSING CENTER
STREET VIEW - LOOKING SOUTH FROM HWY 20

PROJECT NOTES: THIS PROJECT IS DESIGNED TO HAVE LOW ENVIRONMENTAL IMPACT.

- NO UTILITY CONNECTIONS
- SELF GENERATION / MIRCOGRID
- NO SPETIC / ADA PORTABLE RESTROOMS USED
- NO TREES TO BE REMOVED
- NO EXCAVATION PLANNED
- ABOVE GROUND RAINWATER RUNOFF BIORETENTION
- CONEX BOXES AND HOOP CANOPY FARM STRUCTURE 4,800 SF. GRAY IN COLOR
- MINIMAL CONCRETE TO BE USED
- GROUND SCREW FOUNDATIONS TO BE USED

LEASED AREA OF APN: 004-010-040-000

AN AREA CONSISTING OF 5+- ACRES THAT IS SITUATED WITHIN THE BOUNDARY OF PARCEL 004-010-040-000 IN THE UNINCORPORATED AREA, COUNTY OF LAKE, STATE OF CALIFORNIA

SITE PLAN AND ELEVATION

755 E. HWY 20, UPPER LAKE, CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,
SCOTTS VALLEY ENERGY CORPORATION
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: GC-0.1

FIELD
SCALE: NONE
REV.

BIORETENTION RAINWATER RUNOFF CALCULATION

BIORETENTION FEASIBILITY

1. Is the use of Bioretention appropriate?
2. Confirm other design criteria and applicability.
   Pollutant Removal Effectiveness Required

PRELIMINARY HYDROLOGIC CALCULATIONS

3. Compute site hydrologic input parameters

	Pre-developed	Post-developed
Development Conditions		
Area	42 acres	41 acres
CN (SCS curve number)	77	80
Adjusted CN (curve number adjusted for 1-inch storm)		79.14
Time of concentration	2.86 min	7 min
	0.05 hours	0.12 hours

4. Compute WQ_v water quality volume requirements
   Compute Runoff Coefficient, R_v — R_v = 0.07
   Compute WQ_v Volume requirements — WQ_v = 0.25 acre-ft
5. Compute WQ_p peak flow using SCS — WQ_p = cfs
   Compute modified SCS curve number — CN = 79.14
6. Compute CP_v
   Compute S (maximum retention) — S = 2.50
   Compute 1-yr. 24-hr total rainfall depth — Rainfall Depth = 2.58 inches
   Compute Q_d (runoff volume) — Q_d = 0.94 inches
   Compute CP_v (chnnnel protection volume) — CP_v = 3.23 acre-ft
7. Size Flow Diversion Structure

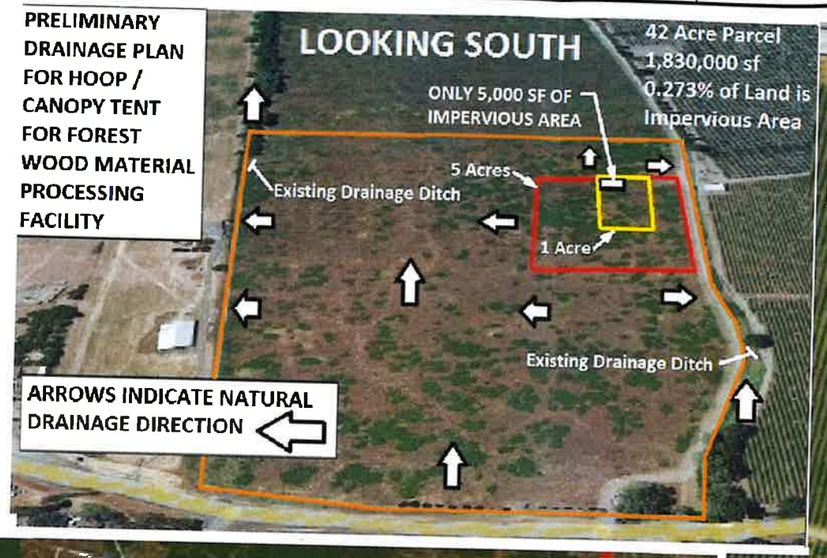
BIORETENTION AREA DESIGN

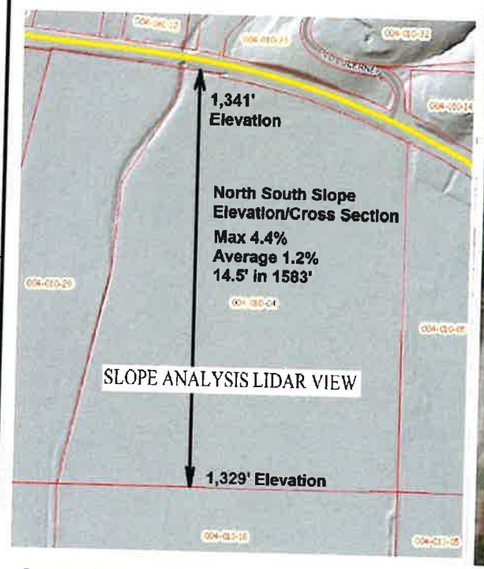
8. Pretreatment facility type and design parameters
9. Determine Area of bioretention ponding/filter area — A_f = 13359 ft²

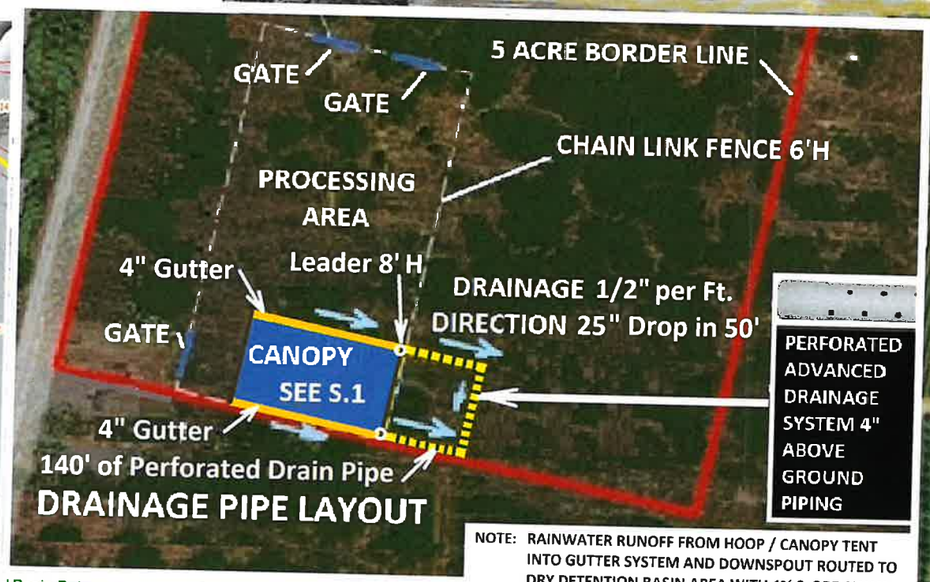
NOTES:

Optimal

PRELIMINARY DRAINAGE PLAN FOR HOOP / CANOPY TENT FOR FOREST WOOD MATERIAL PROCESSING FACILITY







NOTE: RAINWATER RUNOFF FROM HOOP / CANOPY TENT INTO GUTTER SYSTEM AND DOWNSPOUT ROUTED TO DRY DETENTION BASIN AREA WITH 4% S OPE AWAY FROM PROCESSING AREA. 6" GRAVEL WILL BE PLACED OVER PERFORATED PIPE SYSTEM .

Post Developed Basin Data

Drainage Area =	41.000	ac	
Impervious % (I)=	2.439	%	
Impervious acres =	1.000	ac	
Curve Number (CN) =	80.000		
Tc =	7.000	minutes =	0.117 hours
T lag =	4.200	minutes =	0.070 hours

Pre-Developed Basin Data

Drainage Area =	42.000	ac	
Impervious % (I)=	0.000	%	
Impervious acres =	0.000	ac	
Curve Number (CN) =	77.000		
Tc =	2.860	minutes =	0.048 hours
T lag =	1.716	minutes =	0.029 hours

Water Quality Volume Calculations

Rv = 0.05+0.009(I) =	0.072
WQv = 1.0RvA/12 =	0.246 ac-ft
WQv = 1.0Rv =	0.072 inches
Modified CN =	79.143

Channel Protection Volume Calculations

Q = (P-0.2S)^2/(P+0.8S) =	0.945 inches
S = 1000/CN-10 =	2.500
CPv =	3.227 acre-ft

ALLOWABLE FLOW FOR VERTICAL LEADERS AND HORIZONTAL STORM DRAIN

ALLOWABLE FLOW IN G.P.M.

PIPE SIZE	VERTICAL LEADER	HORIZONTAL STORM DRAIN SLOPE PER FOOT 1/8"	1/4"	1/2"
2	30	12	17	24
3	90	36	51	72
4	192 /96	78	111	157/78

	4,800	4,800	Roof Area to Drain
Lake County Code		3	Inches per hour
		12	Inches per foot
	0.25	0.25	
Cu Ft per Hr	1200		
	0.0167	0.0167	minutes in hr
Cu Ft per Min	20		
	7.48	7.48	Gals in cu. Ft.
gpm drain	149.6		
Drain Lines	2		
gpm per Line	74.8		

0.2% Annual Chance Flood
Rebuilt Encroachment
Access Driveway Entrance
See Detail of Asphalt

Parcel Boundary
Leased Area
Rocked Access Corridor
Existing Farm Access Driveway

Hazard, Area of 1% annual chance with average depth less than one foot or with drainage areas of less than one square mile

LEASED AREA OF APN: 004-010-040-000

AN AREA CONSISTING OF 5+- ACRES THAT IS SITUATED WITHIN THE BOUNDARY OF PARCEL 004-010-040-000 IN THE UNINCORPORATED AREA, COUNTY OF LAKE, STATE OF CALIFORNIA

BIORETENTION RAINWATER RUNOFF PLAN

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: CP-1.2
FIELD
SCALE NONE
REV.

SEE DETAIL BELOW

CORNER SITE DISTANCE - 55MPH VISUAL DISTANCE OF MINIMUM 605'

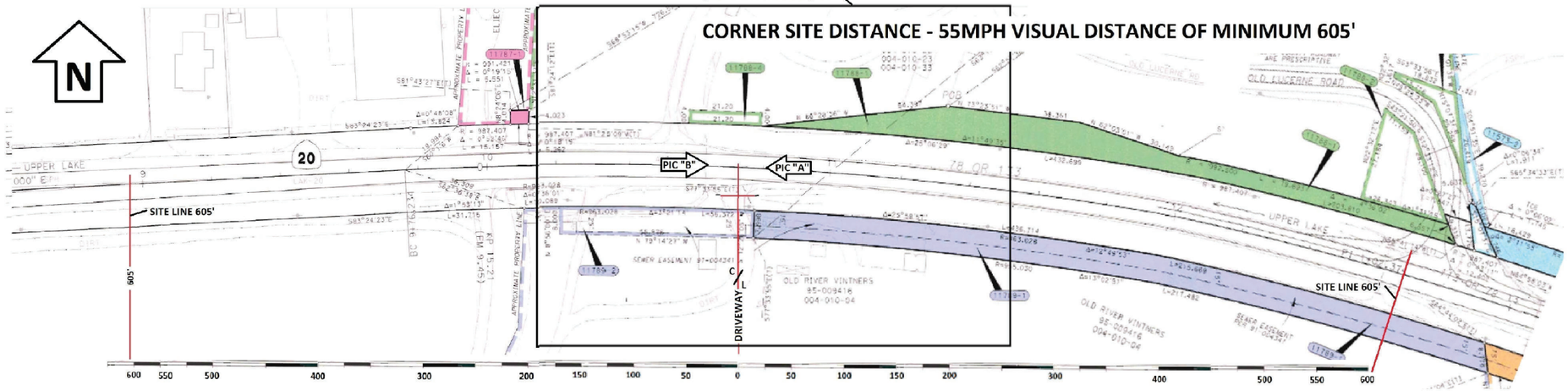
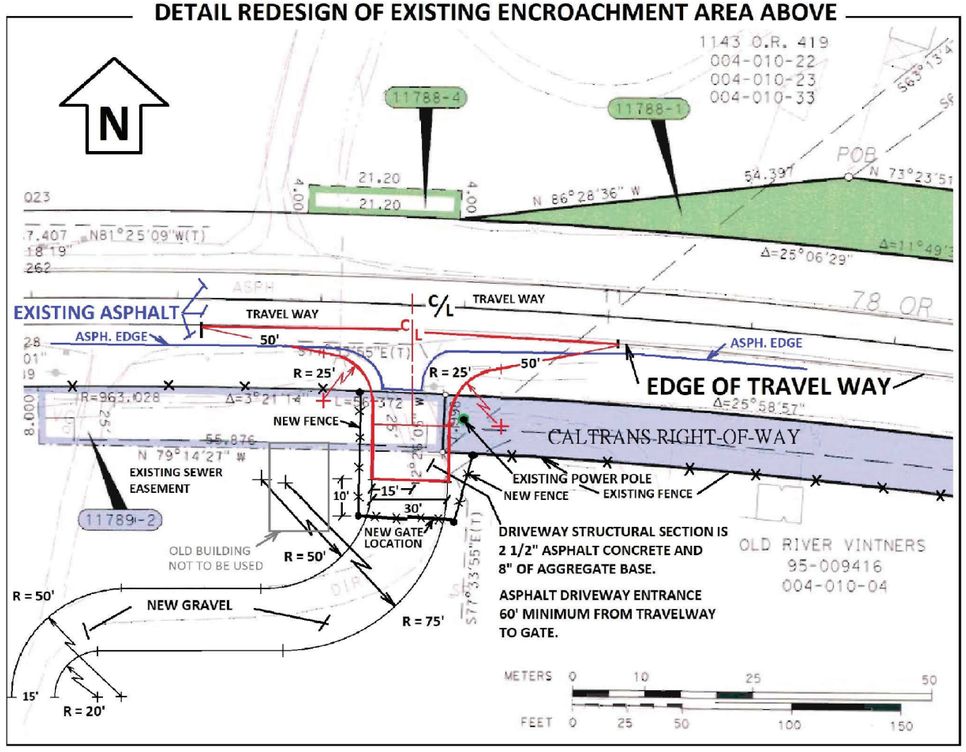


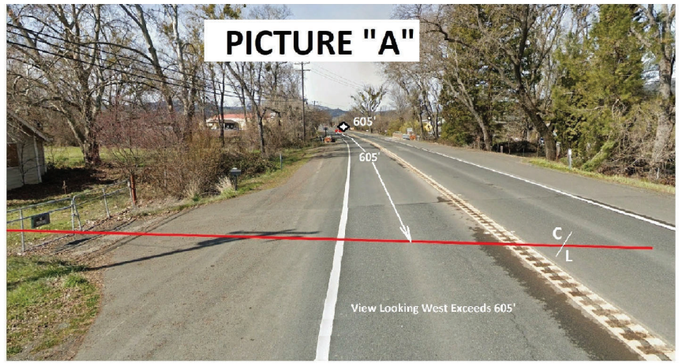
Table 405.1A
Corner Sight Distance
(7-1/2 Second Criteria)

Design Speed (mph)	Corner Sight Distance (ft)
25	275
30	330
35	385
40	440
45	495
50	550
55	605
60	660
65	715
70	770

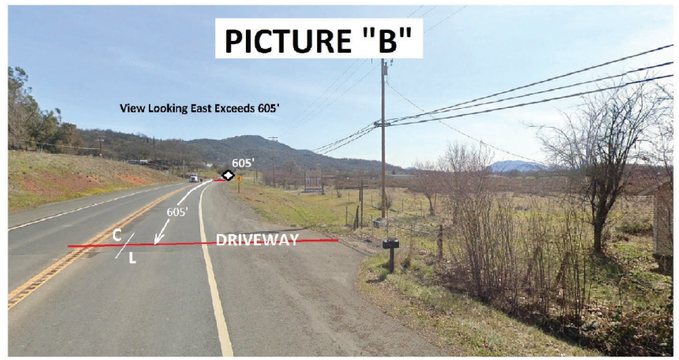
DETAIL REDESIGN OF EXISTING ENCROACHMENT AREA ABOVE



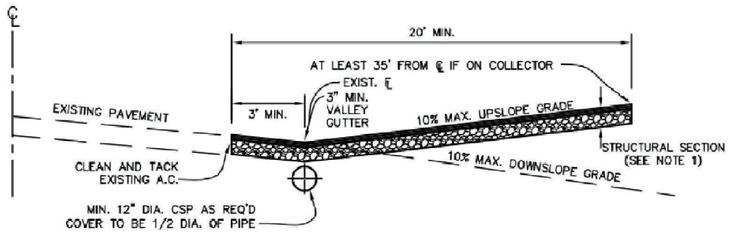
PICTURE "A"



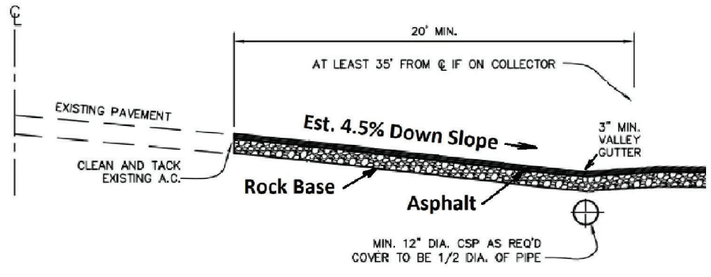
PICTURE "B"



TYPICAL CALTRANS DRIVEWAY DESIGN CRITERIA



PLANNED REDESIGN OF DRIVEWAY @ 4.5% DOWN SLOPE



DRAWING NO.	REFERENCE DRAWINGS

GENERAL - ENCROACHMENT

755 E. HWY 20, UPPER LAKE, CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,
SCOTTS VALLEY ENERGY CORPORATION
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: **GE-0.1**

FIELD
SCALE: NONE
REV.

[LOAD TYPE DEAD + SNOW + WIND]

LOAD DIRECTIONS
- DEAD LOAD: -Z
- SNOW LOAD: -Z
- WIND LOAD: X

Load Type	REACTION (kN)			MOMENT (kNm)		
	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
D+SN+WD	0.07	-0.01	3.06	0	0.04	0
D+SN+WD	0.1	0	3.62	0	0	0
D+SN+WD	0.01	0	3.73	0	0.01	0
D+SN+WD	0.02	0	3.04	0	0.01	0
D+SN+WD	0	0	2.76	0	0.02	0
D+SN+WD	0	0	1.64	0	0	0
D+SN+WD	0	0	1.13	0	0	0
D+SN+WD	0	0	1.56	0	0	0
D+SN+WD	-0.03	0	3.27	0	0	0
D+SN+WD	-0.01	0	3.27	0	0	0
D+SN+WD	-0.66	0	1.96	0	0.07	0
D+SN+WD	4.6	0	1.66	0	0.04	0
D+SN+WD	-3.1	0	-1.87	0	-0.04	0
D+SN+WD	-1.87	0	1.91	0	-0.4	0
D+SN+WD	-0.6	0	1.65	0	0.1	0
D+SN+WD	4.72	0	1.23	0	0.04	0
D+SN+WD	-3.11	0	-1.99	0	-0.04	0
D+SN+WD	-1.69	0	1.34	0	-0.41	0
D+SN+WD	-0.72	0	1.78	0	0.09	0
D+SN+WD	5.03	0	1.12	0	0.05	0
D+SN+WD	-3.16	0	-1.45	0	-0.04	0
D+SN+WD	-1.67	0	1.64	0	-0.4	0
D+SN+WD	4.94	0	1.21	0	0.04	0
D+SN+WD	-3.1	0	-1.95	0	-0.04	0
D+SN+WD	-1.68	0	1.3	0	-0.4	0
D+SN+WD	-0.72	0	1.78	0	0.08	0
D+SN+WD	5.03	0	1.13	0	0.05	0
D+SN+WD	-3.16	0	-1.46	0	-0.04	0
D+SN+WD	-1.67	0	1.64	0	-0.4	0

[LOAD TYPE DEAD + WIND]

LOAD DIRECTIONS
- DEAD LOAD: -Z
- SNOW LOAD: -Z
- WIND LOAD: X

Load Point	Load Type	REACTION (kN)			MOMENT (kNm)		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
a1	D+WD	-0.31	0.04	2.55	-0.01	-0.1	0
a2	D+WD	-0.5	0	-3.76	0	0	0
a3	D+WD	-0.03	0	-4.48	0	0	0
a4	D+WD	0.03	0	-5.79	0	0	0
a5	D+WD	-0.03	0	-5.86	0	0.01	0
a6	D+WD	0	0	-7.05	0	0	0
a7	D+WD	0	0	-5.86	0	0	0
a8	D+WD	0.01	0	-4.52	0	0	0
a9	D+WD	0.37	0	-3.04	0	0	0
a10	D+WD	0.19	-0.02	-3.15	0	0.04	0
b1	D+WD	-2.94	0	-14.51	0	-0.68	0
b2	D+WD	-4.72	0	-2.04	0	-0.26	0
b3	D+WD	4.47	0	-0.06	0	0.05	0
b4	D+WD	2.42	0	-17.55	0	0.57	0
c1	D+WD	-2.93	0	-10.98	0	-0.6	0
c2	D+WD	-4.3	0	-5.48	0	-0.22	0
c3	D+WD	4.28	0	3.14	0	0.05	0
c4	D+WD	2.36	0	-17.43	0	0.57	0
d1	D+WD	-3.19	0	-15.21	0	-0.7	0
d2	D+WD	-4.94	0	-1.48	0	-0.26	0
d3	D+WD	4.72	0	3.84	0	0.05	0
d4	D+WD	2.58	0	-18.34	0	0.61	0
e1	D+WD	-2.93	0	-10.97	0	-0.6	0
e2	D+WD	-4.29	0	-5.49	0	-0.22	0
e3	D+WD	4.27	0	3.14	0	0.05	0
e4	D+WD	2.35	0	-17.44	0	0.57	0
f1	D+WD	-3.19	0	-15.2	0	-0.7	0
f2	D+WD	-4.94	0	-1.48	0	-0.26	0
f3	D+WD	4.72	0	3.83	0	0.05	0
f4	D+WD	2.57	0	-18.33	0	0.61	0

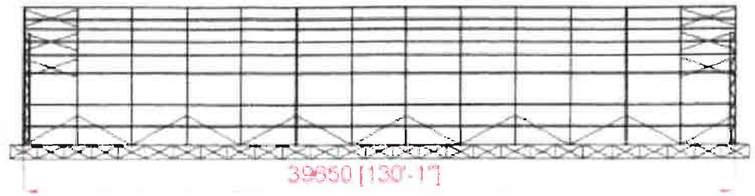
FABRIC AND TRIM COLOUR OPTIONS:

PVC FABRIC OPTIONS:

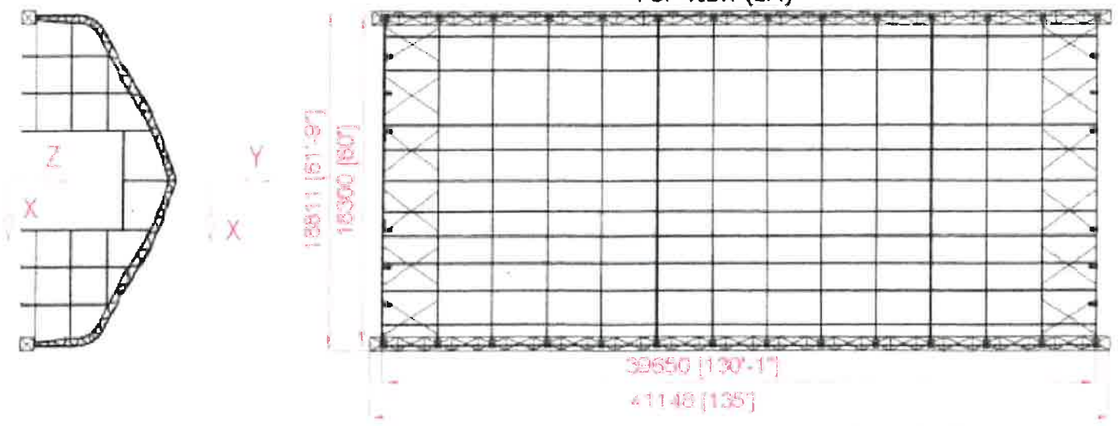
Grey | Dark Grey | Forest Green | Army Green | White

- PVC 450 Fabric – 4 to 7 years
- PVC 610 Fabric – 5 to 8 years
- PVC 750 Fabric – 6 to 10 years
- PVC 900 Fabric – 7 to 12 years

SIDE VIEW (1:4)



TOP VIEW (1:4)



TYPICAL MOUNTING TO CONEX BOX CONFIGURATION

- Meets Building Codes for most snow and wind loads.
- Independent engineer drawings.
- Covered under liability insurance
- Bolt Together Arches & Quad Tension System
- PVC Fabric cover – Allows natural light in while blocking harmful UV; fire retardant; creates comfortable working conditions
- 100% Waterproof – Superior resistance to rain/snow, mold, wind, cuts, and rips
- Double truss, non-rust, heavy duty galvanized steel frame with 6.56', 7.5' or 10' Bay Spacing
- Roll-up mechanical doors – 16' W x 18' H (Note: The passable height is approximately 18" to 30" less depending upon door heights)

ALLOWABLE COMBINED LOAD AS PER BC BUILDING CODE DIV B SECTION 4.1 STRUCTURAL LOAD AND PROCEDURE

- GROUND SNOW LOAD : 3.50 kPA
- REFERENCE WIND VELOCITY PRESSURE : 0.39 kPA

DRAWING NO.	REFERENCE DRAWINGS

ARCHITECTURAL & STRUCTURAL DRAWING

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,
SCOTTS VALLEY ENERGY CORPORATION
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

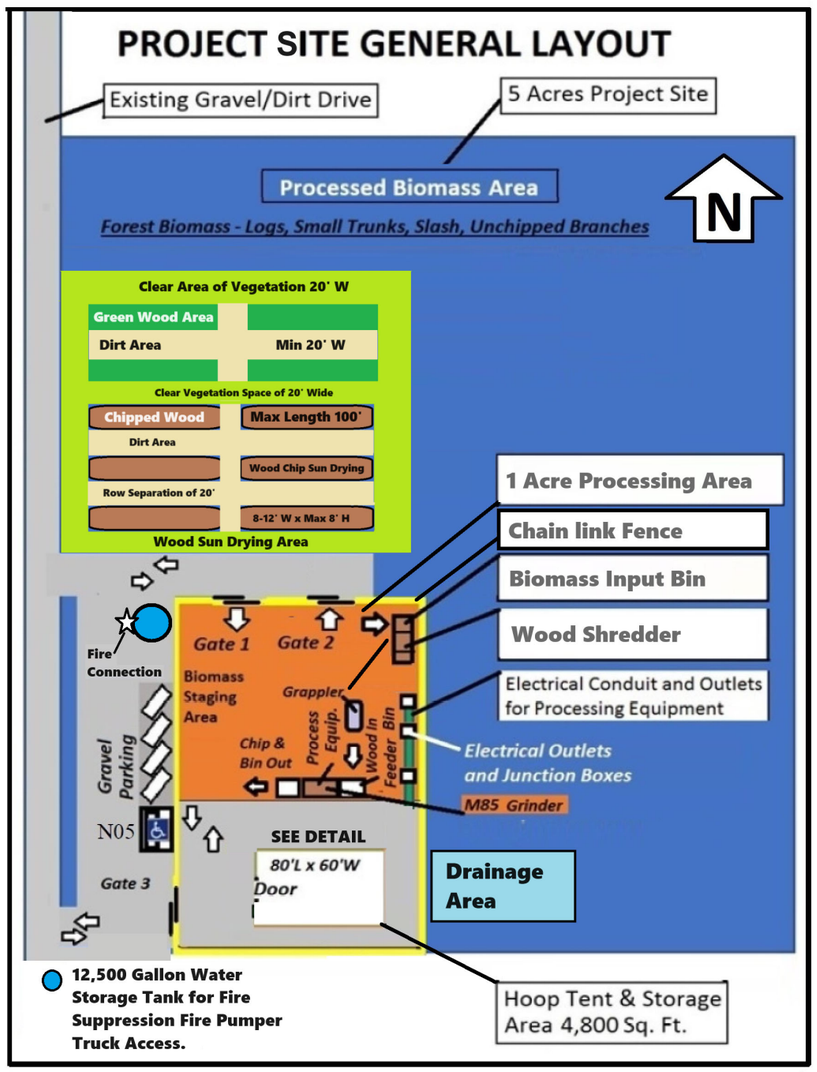
DATE: 5-27-2023
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: **AS-1.1**

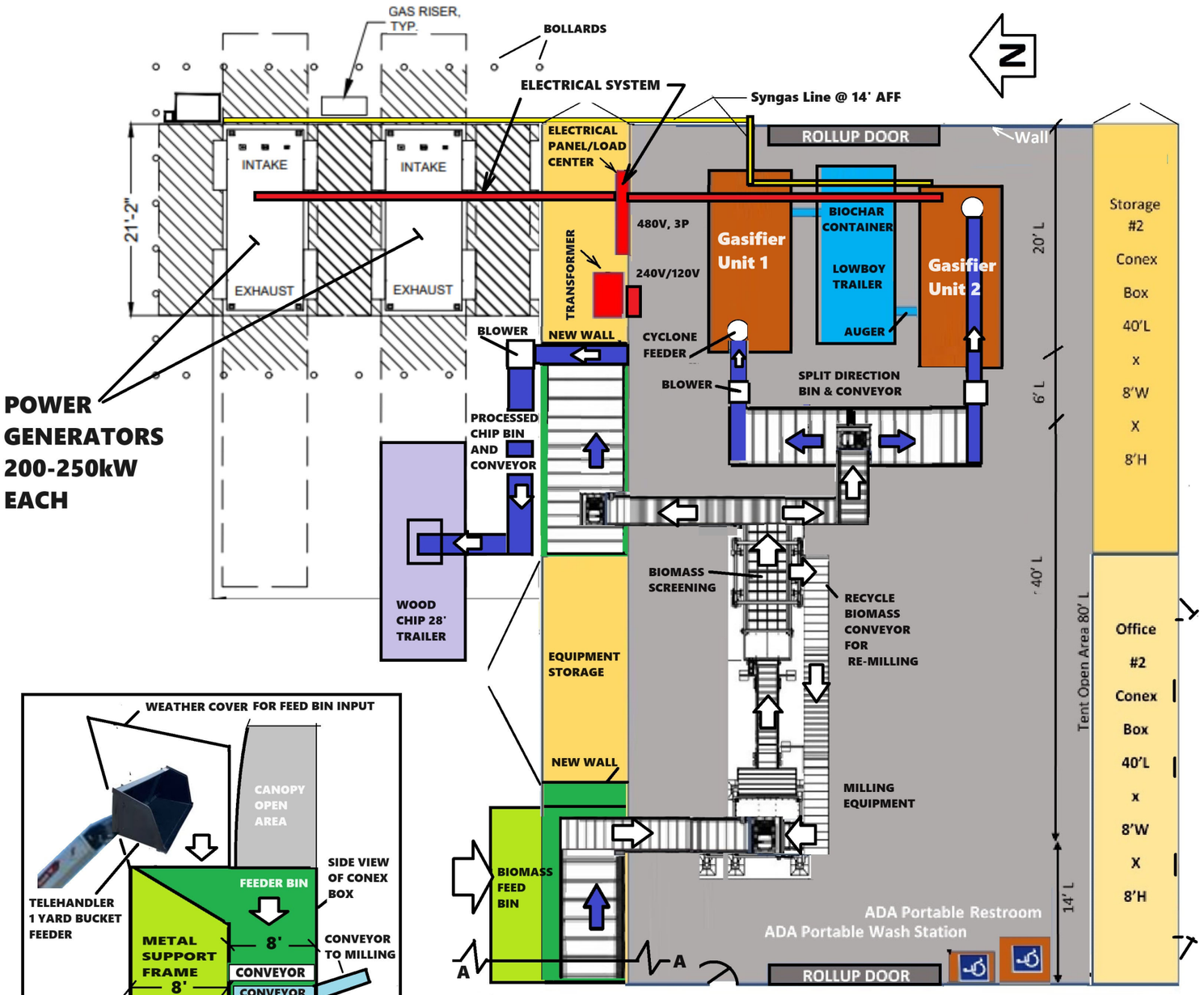
FIELD | SCALE: NONE | REV.

DETAIL "B"



EQUIPMENT LAYOUT OF 5 ACRE LEASED SITE

POWER GENERATORS 200-250kW EACH



DETAIL LAYOUT OF INTERIOR EQUIPMENT LOCATION

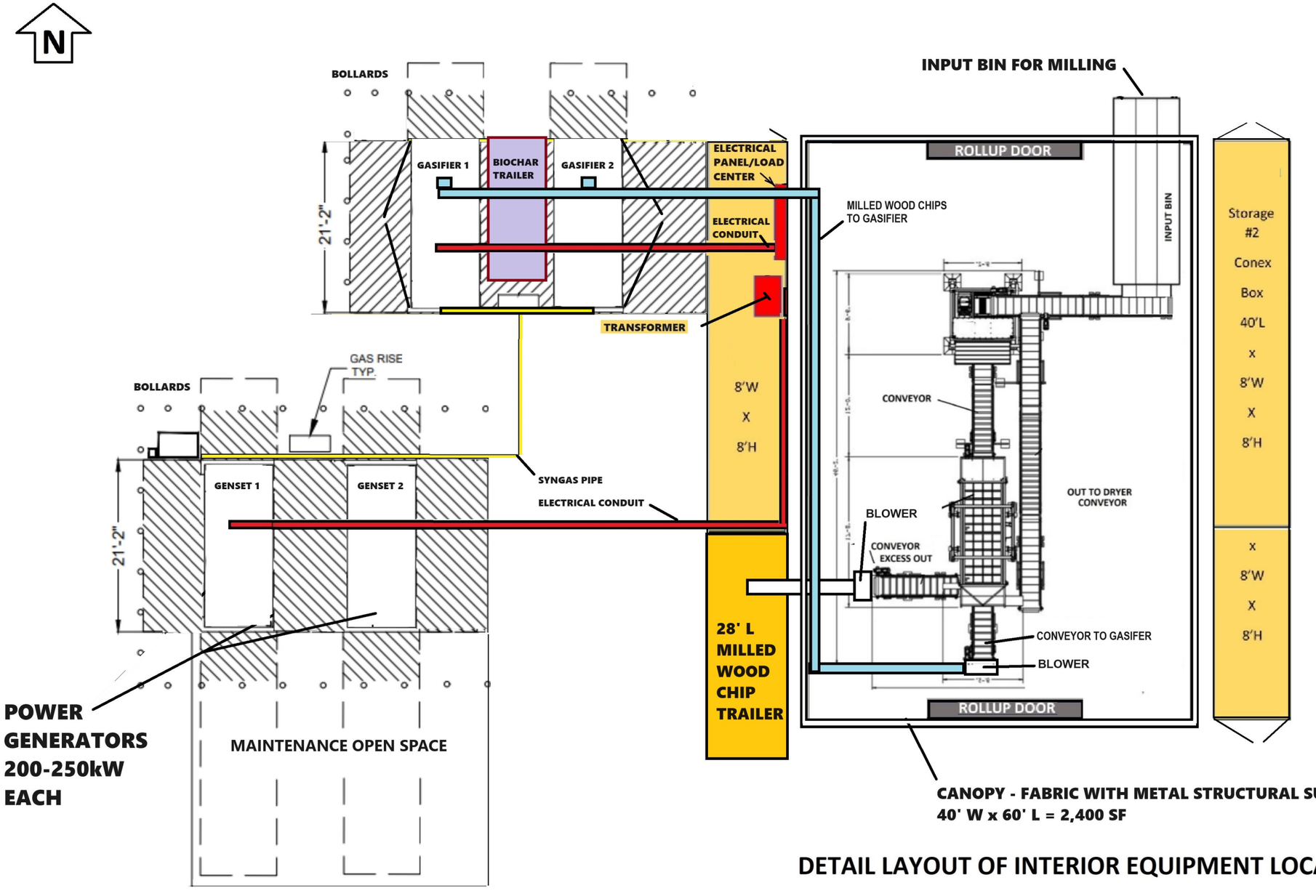
DETAIL "A–A"

DRAWING NO.	REFERENCE DRAWINGS	**ARCHITECTURAL EQUIPMENT DRAWING INTERIOR LAYOUT**	APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN	DATE:: **12-18-2023** DRAWN BY: DESIGN LEAD: PROJECT MANAGER: Steve Rumbaugh PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

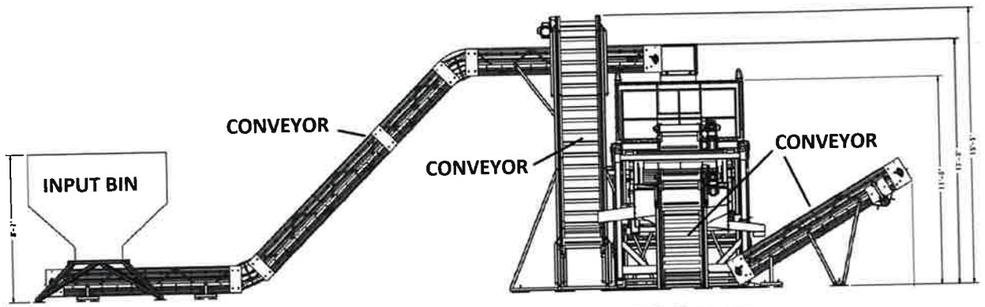
DRAWING NUMBER: **AQ-5.1**

FIELD | SCALE: NONE | REV.

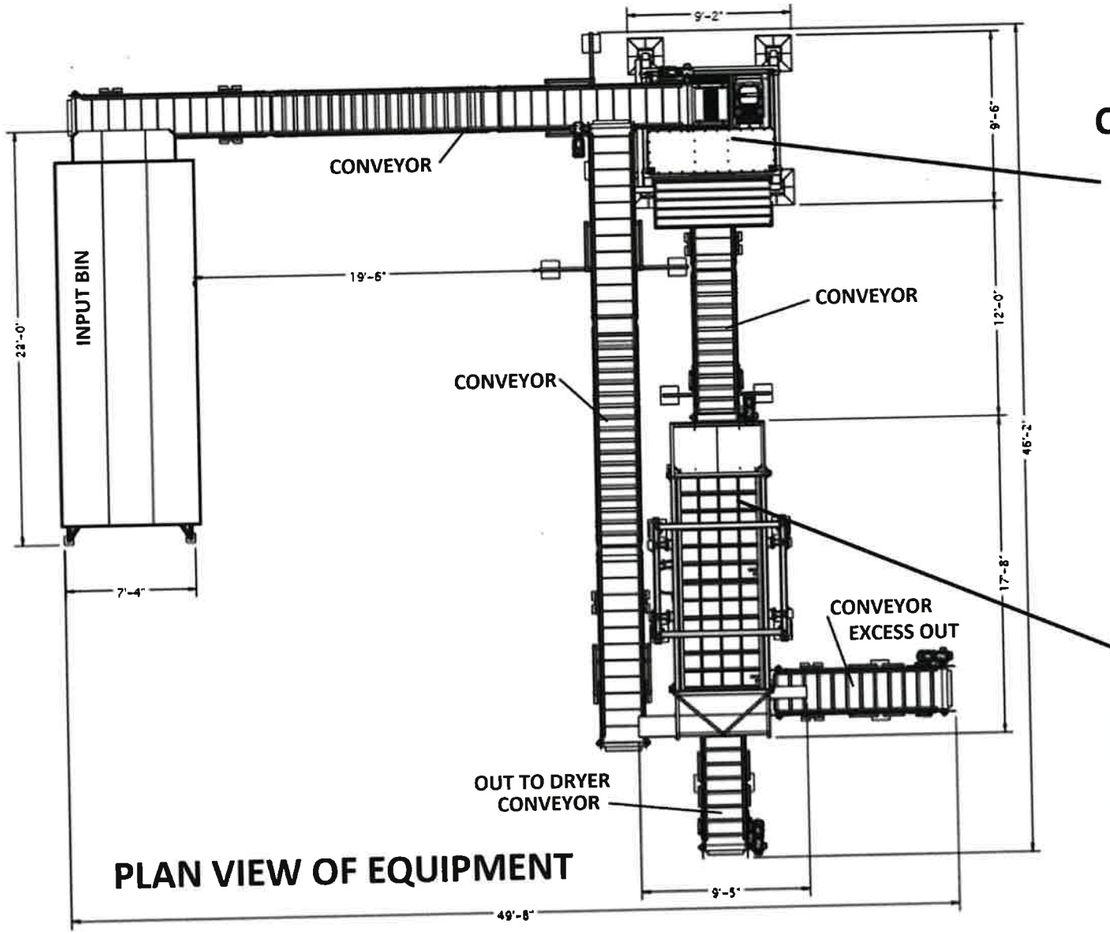


DETAIL LAYOUT OF INTERIOR EQUIPMENT LOCATION

		ARCHITECTURAL EQUIPMENT DRAWING INTERIOR LAYOUT	APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN	DATE:: 1-15-2024 DRAWN BY: DESIGN LEAD: PROJECT MANAGER: Steve Rumbaugh PROJECT ENGINEER:	**SVEC UPPER LAKE PROJECT** DRAWING NUMBER: **AQ-5.1** FIELD / SCALE: NONE / REV.
DRAWING NO.	REFERENCE DRAWINGS				



ELEVATION OF EQUIPMENT



PLAN VIEW OF EQUIPMENT

CRUMBLER / ROTARY SHEAR

Orbital Screen System

PROCESSED WOOD DRYER SYSTEM FOR FEED MATERIAL INTO GASIFIER UNITS.

ARCHITECTURAL EQUIPMENT DRAWING INTERIOR LAYOUT

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,
SCOTTS VALLEY ENERGY CORPORATION
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DRAWING NO. | REFERENCE DRAWINGS

DATE: 5-27-2023
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: **AQ-5.2**

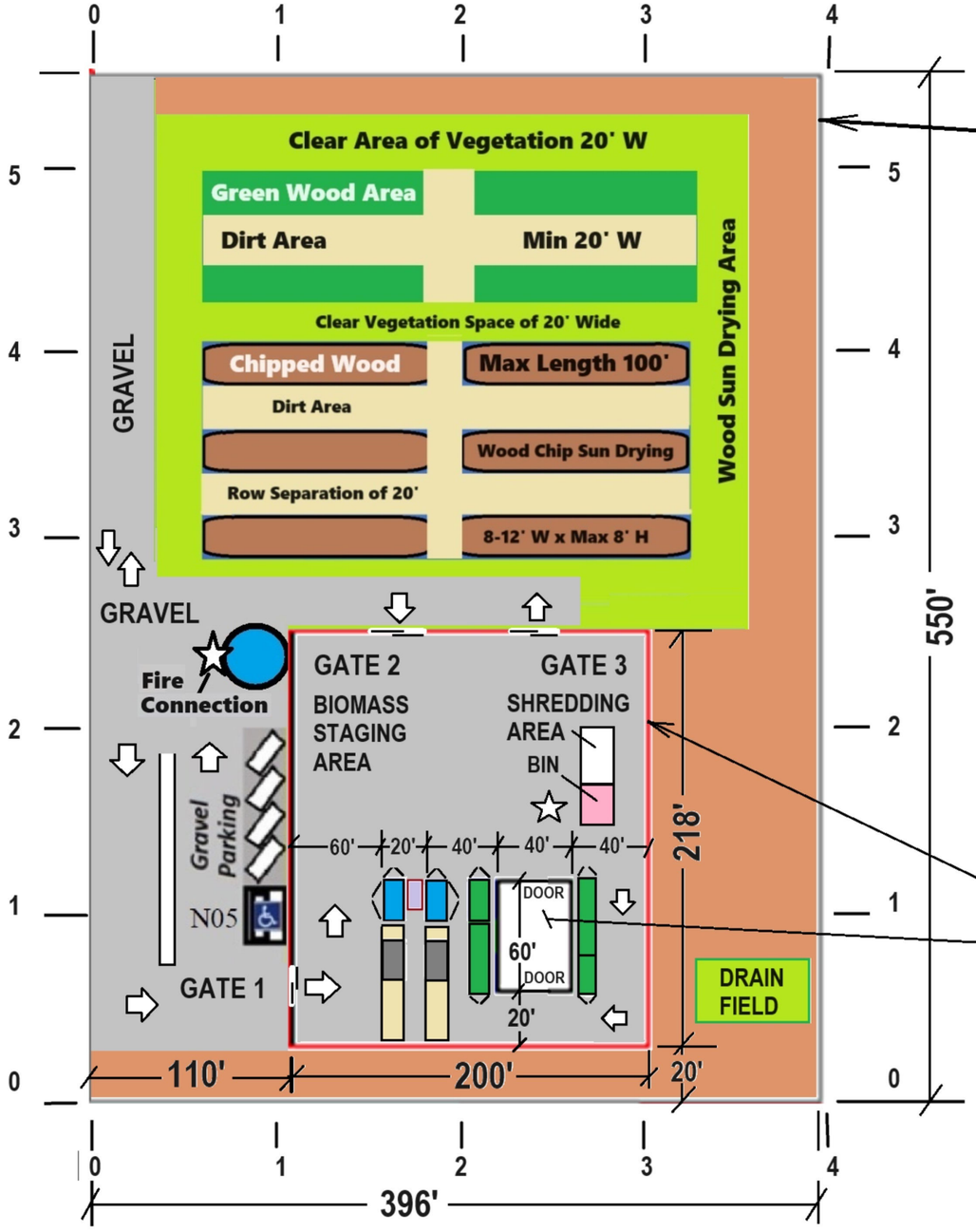
FIELD | SCALE: NONE | REV.

ES10 – 40’ Wide – 23’ High

ES10-406023-PDM

TYPICAL CONEX BOX

NFPA 1142 WATER STORAGE TANK



PROJECT SITE LAYOUT

5 ACRE AREA FOR PROJECT PERIMETER

LEGEND

- 27,625 GALLON RESERVE WATER TANK FOR FIRE TRUCK SUPPORT
- BIOCHAR TRAILER
- CANOPY STRUCTURE
- CONEX BOX DOORS
- CONEXT BOX 20' OR 40'
- CLEAR SPACE
- GASIFIER UNIT
- GENSET UNIT
- RETAINED NATURAL AREA
- TELEHANDLER - GRAPPLER / LOADER
- CHAIN LINK FENCE - 1 ACRE AREA
- FABRIC CANOPY - METAL FRAME STRUCTURE 40'W x 60'L = 2,400 SF
- ROLLUP DOORS ON EACH END
- FOREST WOOD PROCESSING AREA

50' / 50'

N

DRAWING NO.	REFERENCE DRAWINGS	**ARCHITECTURAL EQUIPMENT DRAWING INTERIOR LAYOUT**	APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

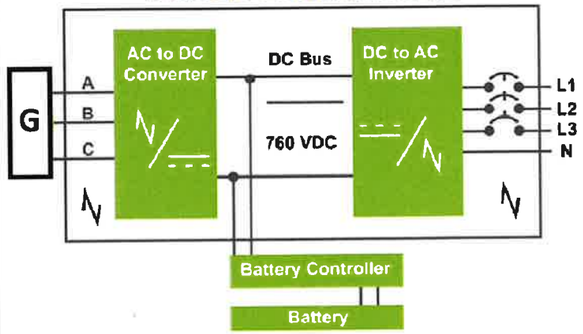
DATE:: 1-15-2024
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: **AQ-5.3**

FIELD | SCALE: NONE | REV.

POWER GENSET
SCHEMATIC OF INVERTER BASED ELECTRICAL

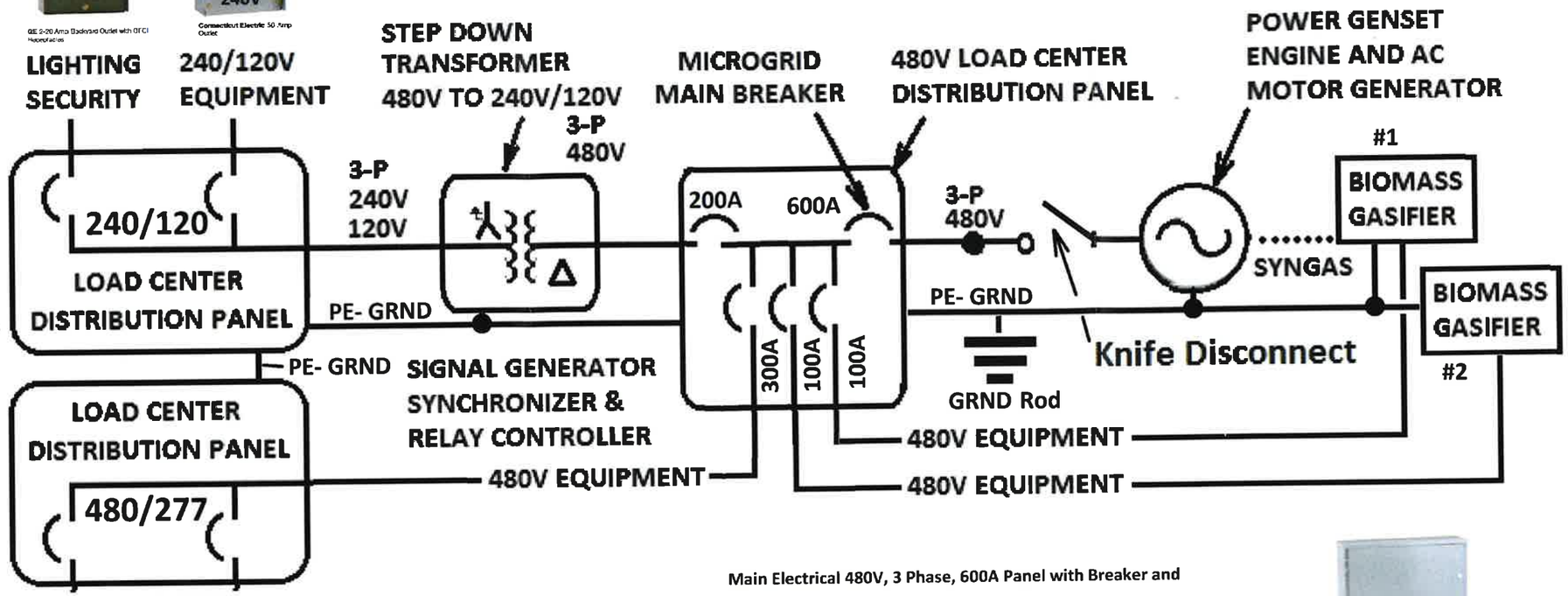


GE 2-20 Amp Backyard Outlet with GFCI Receptacle

Connecticut Electric 50 Amp Outlet

MICROGRID DESIGN SCHEMATIC

GENERAL ELECTRICAL SCHEMATIC OF SITE GENERATION & DISTRIBUTION



Load Center 240/120V, 200A, 3 Phase Subpanel (lighting, Security, Outlets)

Description:

SQD QO342MQ200 LOAD CENTER QO MB 200A 3PH 42 CIRCUIT **COVER NOT INCLUDED ORDER SEPARATELY

Technical Description

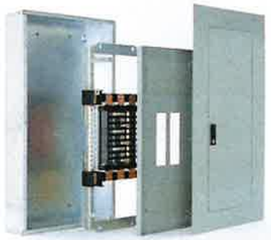
Main Breaker Type; 14.25 Inch Width X 3.75 Inch Depth X 39.37 Inch Height Size; 42 Max. Number of Circuits; 42 Max. Number of Spaces UL Approval

UPC: 78590129056

Part Number: QO342MQ200

Manufacturer: Square D

Mounted on Conex Box



EQUIPMENT LOAD SCHEDULE

1 - BIOMASS DRYER: 460v, 3ph, 50 amp
1 - CRUMBLER-ROTARY SHEAR: 460v, 3ph, 100 amp
1 - ROBITAL SCREEN SYSTEM: 460v, 3ph, 50 amp
6 - CONVEYORS: 240v, 3ph, 30 amp
4 - LIGHTING, WALL OUTLETS AND SECURITY: 120V, 1PH, 20 AMP
2 - MISC. EQUIPMENT 240v, 3ph, 30 amp
2 - MISC. EQUIPMENT 480v, 3ph, 30 amp
2 - MISC. EQUIPMENT 120v, 1ph, 30 AMP

GE Catalog No. AEU3424RCXAXT1B4
3 Phase 42 Circuit Interior with Subfeed Pro-Stock*
3 Phase 42 Circuit Interior with Subfeed 400A

3-PHASE 480V DELTA - 240V DELTA / 120

Attached to Conex Box

480 Δ
240 Δ
/120

Select Winding Material: Copper

Select kVA: 45 kVA SKU # MIT-DRY-111-CU

STEP DOWN TRANSFORMER 480V TO 240V/120V

Main Electrical 480V, 3 Phase, 600A Panel with Breaker and Distribution Load Center Panel (Indoor Rated) Mounted on Conex Box

Description:

SQUARE D HCM14486CU : PANELBOARD INTERIOR ILINE 600A MLO 3PH CU

Technical Description:

Main Lug Type; 27 Max. Number of Spaces; UL Approval; Power Distribution Application; 600 Vac/250 VDC Voltage Rating; 600 Ampere Current Rating; 3 Phase 3 Wire Circuit Configuration; Bottom Feed Location; Copper Bus Material

UPC: 78590115964

Part Number: HCM14486CU

Manufacturer: Square D

MICROGRID MAIN BREAKER

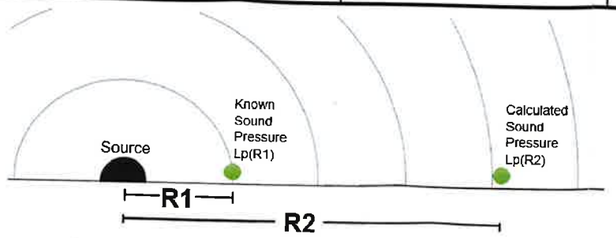
480V LOAD CENTER DISTRIBUTION PANEL

Safety switch, heavy duty, non fusible, 600A, 3 wire, 3 poles, 500hp, 600VAC/DC, Type 3R

HU366R Mounted on Conex Box

Knife Disconnect

		ELECTRICAL DRAWING MICROGRID SCHEMATIC 755 E. HWY 20, UPPER LAKE, CA 95485	APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN	DATE: 5-27-2023 DRAWN BY: DESIGN LEAD: PROJECT MANAGER: Steve Rumbaugh PROJECT ENGINEER:	**SVEC UPPER LAKE PROJECT** DRAWING NUMBER: **E-1.6** FIELD / SCALE: NONE REV.
DRAWING NO.	REFERENCE DRAWINGS				



Sound Attenuation Calculator - Inverse Square Law

The formula to calculate sound attenuation over distance for a point source is:

Lp(R2) = Lp(R1) - 20·Log10(R2/R1)

Where:

Lp(R1) = Known sound pressure level at the first location (typically measured data or equipment vendor data) Normally at 3 feet.

Lp(R2) = Unknown sound pressure level at the second location Location

R1 = Distance from the noise source to location of known sound pressure level

R2 = Distance from noise source to the second location

Noise Level of Equipment

Chain Saw - 110 dBa ☆
Compressed Air - 95 dBa
Alarms - 95 dBa
Front End Loader - 95 dBa
Tractor - 92 dBa
Electric Chipper - 85 dBa

Planned Operational Hours of Equipment Listed Above 7:30am - 5:30pm Weekdays

Note: All Calculations are based on standard conditions.

Chipper Sound Levels - Source ("Exposure to noise in wood chipping operations under the conditions of agro-forestry") Published Nov. 2015

"Noise exposure was highest during chipping time, with 81.8 dB(A). The main source of noise was the powerful diesel engine, followed by the chipper drum: they generated the highest noise levels in the 100–200 Hz and the 20–50 Hz frequency ranges, respectively. Daily noise exposure did not exceed the 80 dB(A) lower action value."

Electric Chipper has highest expected continuous sound levels at site @ 85 dBa

Expected dBa loss is 85 dBa − 37.3 = 47.7 dBa at nearest property line.

SOUND TABLE of LOCATIONS

△ **Ag Building - dBa Loss is 37.3 dBa**
Parcel#: 004-010-29

△ **Nearest Residence - dBa Loss is 51 dBa**
Parcel#: 004-010-05
- **55 dBa Max @ Residence + 51 dBa Loss = 106 dBa @ Source Max.**

△ **Casino Building - dBa Loss is 52.8 dBa**
Parcel#: 004-010-050

☆ **Site Chainsaw Selection < 102.3 dBa Max**

	Model	Type	Noise Level (in dBA)
	Husqvarna 560 XP	Gas	106
☆	Husqvarna 316	Electric	90
	Pouland 261	Gas	107
☆	Makita XCU02PTX1	Battery	89
☆	Remington (Pole)	Electric	98
☆	Poulan Pro	Electric	99
☆	Husqvarna 135	Gas	102
☆	Stihl MSA 160 T	Battery	81
☆	Husqvarna T536Li XP	Battery	93

SOUND LEVEL ANALYSIS

755 E. HWY 20, UPPER LAKE, CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

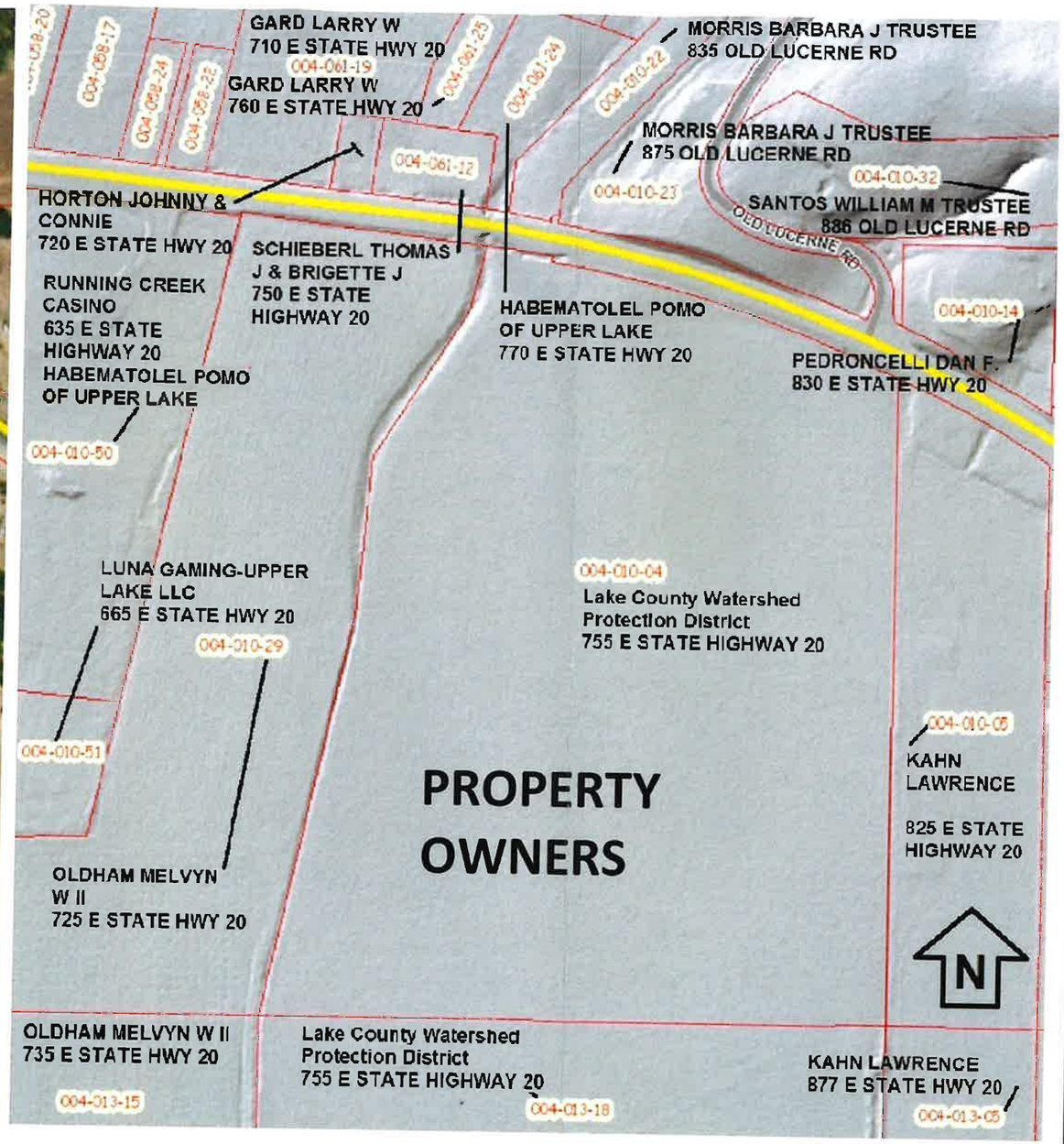
DRAWING NO. | REFERENCE DRAWINGS

DATE: 5-27-2023
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: **X-0.6**

FIELD | SCALE NONE | REV.



LOCAL PROPERTY OWNERS

755 E. HWY 20, UPPER LAKE, CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

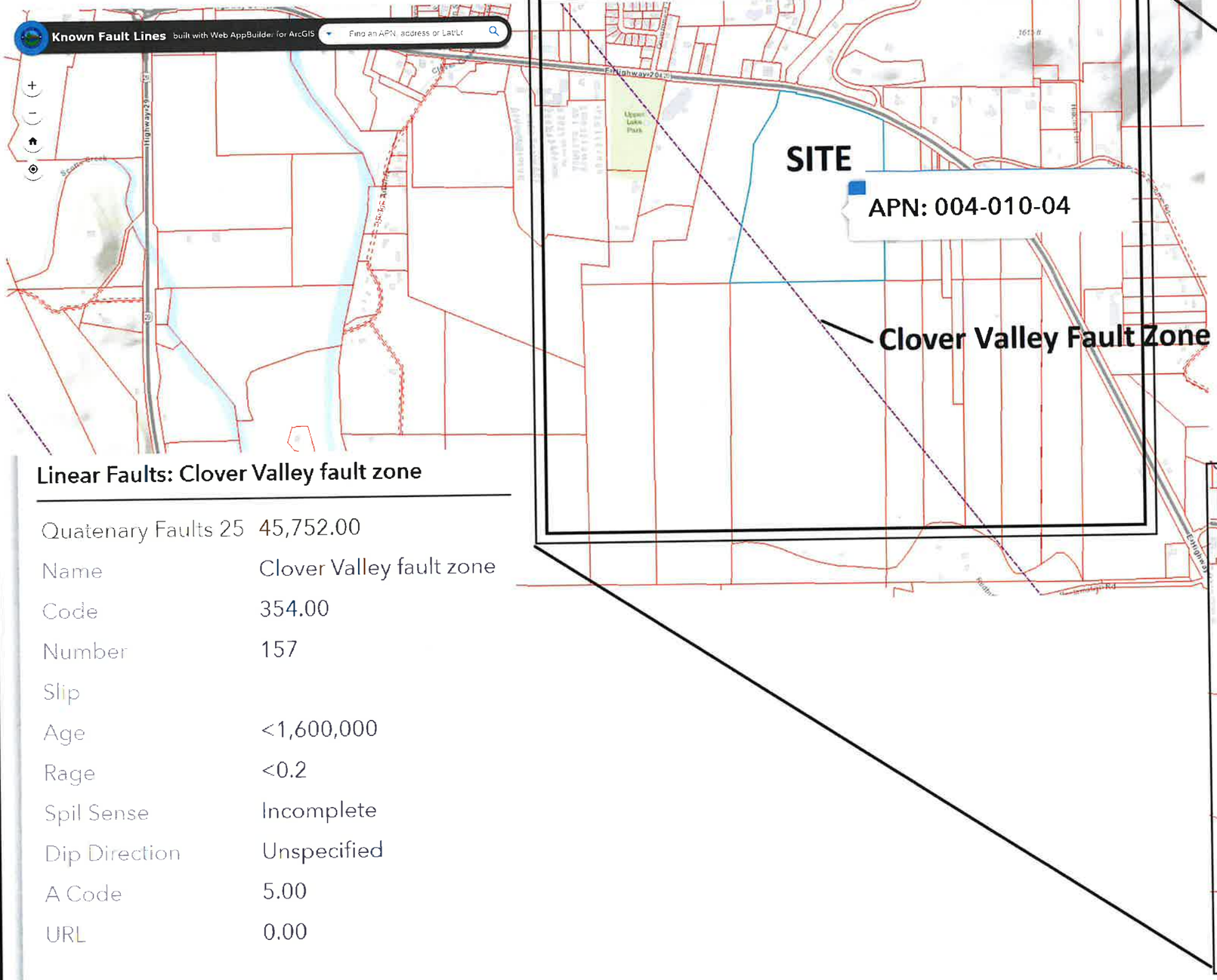
DATE: 5-27-2023
DRAWN BY:
DESIGN LEAD:
PROJECT MANAGER: Steve Rumbaugh
PROJECT ENGINEER:

DRAWING NO.
REFERENCE DRAWINGS

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: **X-0.7**

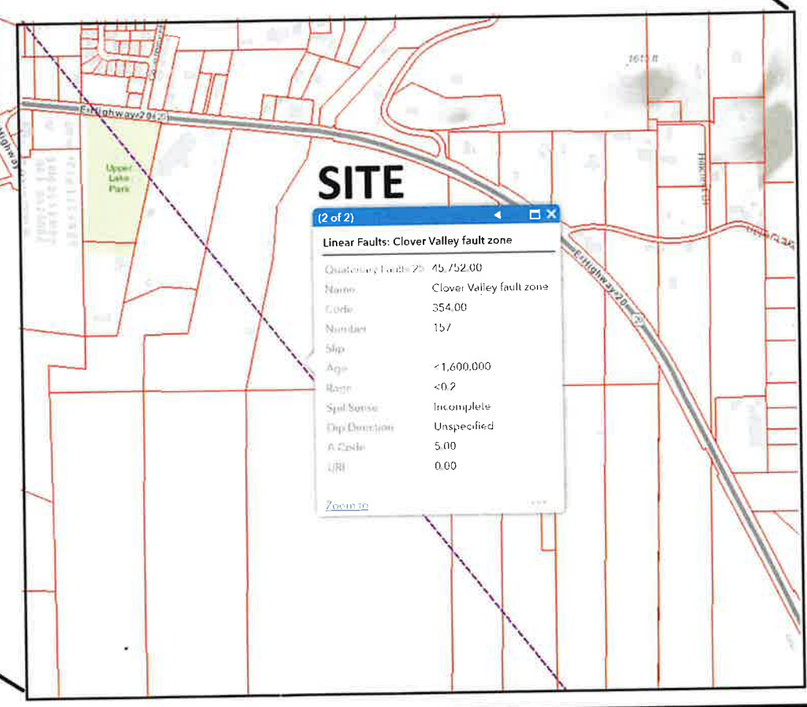
FIELD
SCALE NONE
REV



Linear Faults: Clover Valley fault zone

Quatenary Faults 25	45,752.00
Name	Clover Valley fault zone
Code	354.00
Number	157
Slip	
Age	<1,600,000
Rage	<0.2
Spil Sense	Incomplete
Dip Direction	Unspecified
A Code	5.00
URL	0.00

Fault Line Information



DRAWING NO.	REFERENCE DRAWINGS	**Earthquake Fault Zone Map**	APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN	DATE: 5-27-2023 DRAWN BY: DESIGN LEAD: PROJECT MANAGER: Steve Rumbaugh PROJECT ENGINEER:

SVEC UPPER LAKE PROJECT

DRAWING NUMBER: **X-0.8**

FIELD | SCALE: NONE | REV.

Attachment 3: Biological Resource Assessment with Botanical Survey

BIOLOGICAL RESOURCE ASSESSMENT WITH BOTANICAL SURVEY

For

Wood Forest Material Processing

Facility

755 E. Hwy 20

Upper Lake, CA

Lake County, California

July 15, 2023
Updated: February 20, 2024

Prepared for: Scotts Valley Band of Pomo Indians

1005 Parallel Drive

Lakeport, CA 949

Prepared by: Lawrence Ray,
nativeplantguy@msn.com

Ecological Consultant

201 Navigator Drive Scotts
Valley, CA 95066

CONTENTS

FIGURES AND TABLES

1.0 PROJECT DESCRIPTION

1.1 The project is located in Upper Lake California at 755 E. Hwy 20, Upper Lake, CA. See **Figure 1**: Site Location below. Lake County Parcel #004-010-04 and zoned APZ-SC-WW-FF. Located at 1,336 ft in elevation at GPS 39.15884/122.89998 at the approximate center of the parcel.

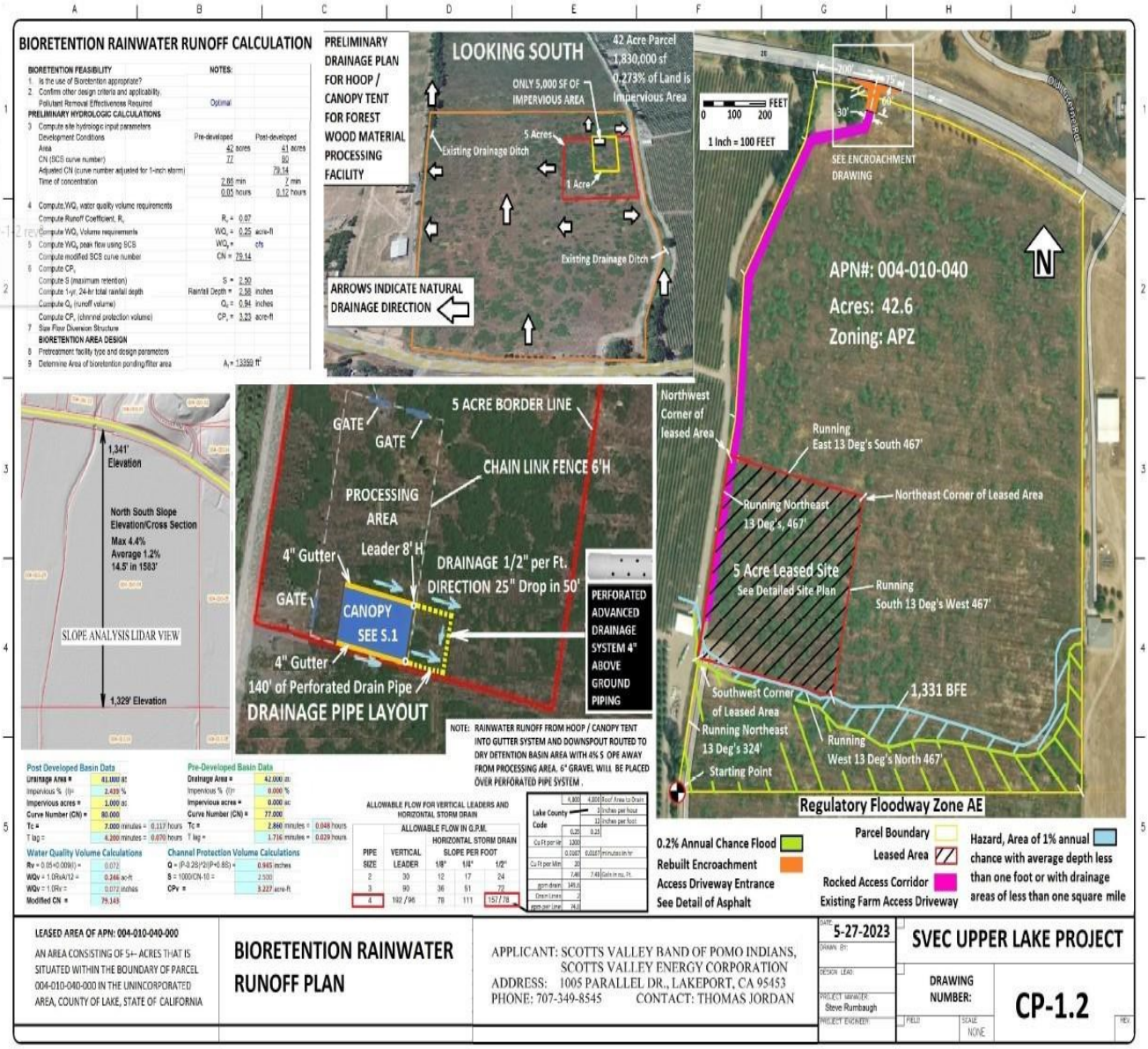
The Scotts Valley Band of Pomo Indians (SVBPI) has received grant funding from the US Department of Commerce's Economic Development Administration ("EDA") to support the development of a new Biomass Processing facility, to be located in an unincorporated area of Lake County immediately southeast of the community of Upper Lake, in Lake County, California. Situated on 5 acres of the 42.6-acre parcel of land, the area to be used is 5 acres, approximately 1,000 ft to the southwest of State Highway 20 (SR 20). The northern property line parallels SR 20 with the eastern property corner located across from Old Lucerne Rd. (Figure 1). The parcel is owned by Lake County Watershed Protection District that has provided a long-term lease to SVBPI.

Figure 1: Site Location

The local permitting agency is requesting completion of a botanical survey and assessment of biological resources on the property as part of the California Environmental Quality Act (CEQA) review required for new development. The initial phase of this assessment evaluates the potential of the property to contain sensitive plant and wildlife habitat. The second phase consists of field surveys, including a botanical survey listing all plant taxa[1]. The biological resource assessment will determine whether the property contains sensitive plants or potentially contains sensitive wildlife requiring mitigation under the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). As used here, the terms sensitive plant or wildlife includes all state or federal rare, threatened, or endangered species and all species listed in the California Natural Diversity Database (CNDDB) list of "Special Status Plants, Animals, and Natural Communities".

A delineation of waters of the U.S. was not conducted due to the lack of water, hydric soil and wetlands plants not present on the parcel. A wetland is defined as 1. The presence of water 2. Hydric soils and 3. Wetland plants. The presence of woody riparian species and the evidence of water flow does qualify as potential wetland. Riparian areas are considered sensitive areas and are to be protected. Setback requirements would not be needed for the existing riparian area as depicted in **Section 3.3, Vegetation Types and graphically on Figure 4, Vegetation Types**). **Figure 2** of this report illustrates that the riparian area will not be altered or encroached upon in any significant way from the actions proposed in the project.

Figure 2: Proposed Project



1.2 Proposed Project

The facility will operate as a central processing system for forest thinning biomass collected in Lake County. The site, which will include sorting, grinding/shredding, milling, processing, and on-site bioenergy/biochar production equipment, will transform incoming biomass into a form that is ready for multiple, economically resilient downstream uses. These will include processing of wood for offsite production of firewood, pellet based fuels, engineered woods, and bioenergy production. Once fully constructed and operational, the biomass processing facility will connect forest biomass material collection efforts to downstream markets for wood products.

The facility will support the development of markets for locally derived forest biomass, to support forest fuel reduction, improved ecological function, and other positive-impact forest management activities. Concurrently, the project will support new jobs and economic development activities / support revenue generation for the SVBPI. To this end, the facility will be designed to process, store, and convert incoming forest biomass into useable / saleable products, while also enabling the conversion of biomass to 100% renewable electricity on site. This electricity production will be used to power the operation of onsite equipment.

2.0 ASSESSMENT METHODOLOGY

The basis of the biological resource assessment is a comparison of existing habitat conditions within the project boundaries to the geographic range and habitat requirements of sensitive plants and wildlife. It includes all sensitive species that occupy habitats similar to those found in the project area and whose known geographic ranges encompass it. The approach is conservative in that it tends to over-estimate the actual number of species present. The analysis includes the following site characteristics:

- Location of the project area with regard to the geographic range of sensitive plant and wildlife species
- Location(s) of known populations of sensitive plant and wildlife species as mapped in the California Natural Diversity Database (CNDDB)
- Soils of the project area
- Elevation
- Presence or absence of special features such as vernal pools and serpentine soils
- Plant communities existing within the project area

In addition to knowledge of the local plants and wildlife, the following computer databases were used to analyze the suitability of the site for sensitive species:

- California Department of Fish and Wildlife (CDFW), *California Natural Diversity Database (CNDDB)*; RareFind 5, 2021
- California Native Plant Society's (CNPS) *Electronic Inventory of Rare and Endangered Vascular Plants of California* (v9-01 0.0)
- California Department of Fish and Wildlife, *California Wildlife Habitat Relationships System (CWHR Version 9.0)*

The CNDDB and RareFind 5 databases consist of maps and records of all known populations of sensitive plants and wildlife in California. This data is continually updated by the CDFW with new sensitive species population data.

The CNPS database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself eliminate the need for an in-season botanical survey, it can, when used in conjunction with other information, provide a very good indication of the suitability of a site as habitat for sensitive plant species.

In addition, the California Department of Fish and Wildlife (CDFW) “Protocols for the Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Species Natural Communities” (March 20, 2018) was incorporated into field methodology. No special status plants nor suitable habitat was encountered during field surveys.

The CWHR database operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and special features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

Sensitive plants and wildlife are subspecies or varieties which are taxonomic subcategories of species. The term "taxa" refers to species and their sub-specific categories.

2.1 Botanical Survey Methods: An in-season botanical survey was conducted for the project site. The CNDDB report and maps for the Upper Lake, CA quadrangle were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of *A Manual of California Vegetation* (Sawyer, Keeler-Wolf, andEvens, 2009), and mapped on a 1"=600' aerial photo (due to the large size of the survey area). Vegetation type names are based on an assessment of dominant cover species.

Plants occurring on the site were identified using *The Jepson Manual, Higher Plants of California,* 2012. Where necessary, species names were updated based on the 6th edition, *CNPS Inventory of Rare and Endangered Plants of California*. A map of the vegetation types at the site is provided in **Figure 4.**

2.2 Delineation Methods: Asa part of the botanical survey, careful attention was paid to the presence of wetland indicators as prescribed in the *Corps of Engineers Wetlands Delineation Manual,* January 1987, and the *Arid West 2008 Supplement.* Plant taxonomy and nomenclature is from the *Jepson Manual, Higher Plants of California*, 2012. Other texts, such as Munz's *A California Flora and Supplement*, 1973, and Mason's *Flora of the Marshes of California,* 1957, were used as supplemental texts. The survey included use of lidar mapped overlays and an extensive foot survey. No areas were encountered that were found to possess the necessary attributes to be determined as wetlands.

2.3 Survey Dates: Site visits for the plant surveys, vegetation mapping, and the delineation were conducted on May 21/22, and June 29/30, 2023.

2.4 Biological Assessment Staff: The field surveys, plant taxonomy, and vegetation mapping, were conducted by Lawrence Ray principal biologist. Mr. Ray has a Master of Science Degree in Ecology from the Antioch University/UC Berkeley and a Bachelor of Science Degree in Environmental Studies from the Antioch University. He has over 35 years of experience as a biologist in the government and private sectors. Support staff was provided by Austin Ray who holds an AA Degree in Horticulture from Cabrillo College.

3.0 SITE CHARACTERISTICS

3.1 Site Topography and Drainage: The existing project site has a 4 degree to flat slope, ranging from 1,334 feet above mean sea level (msl) in the northwestern corner to 1,330 ft msl along the southern side of the overall parcel. The site was historically used for farming (vineyard). The site has been fallowed for several years, however, and is currently vegetated with blackberry thickets and other primarily nonnative vegetation.

Drainage from the area surrounding the project site is illustrated on **Figure 2; Proposed Project, Bioretention Rainwater Runoff Plan**. The diagram shows a series of drain-pipes and retention structures designed to retain and absorb rainwater into the soil. The Cole Variant clay loam soil is dense and resists erosion (see description in 3.2 Soils).

A dashed" blueline" appears on the soils map (Figure 3; Soils Map) and Vegetation Map(Figure 4), entering at the north central boundary at Hwy 20, turning to the east and continuing south along the eastern portion of the parcel

A careful investigation looking for the presence of this unnamed stream found no evidence of it. Further field investigations and discussions with neighboring landowners revealed the presence of a culvert and ditch conveying water to the drainage ditch previously mentioned to the west. The culvert is located at datum 122.90058/39.1622 and flows approximately 45 yards to the western ditch at datum 122.900111/39.16127.

This ditch is illustrated on **Figure 4** as a yellow line and is not located on the parcel, but within the Hwy 20 CalTrans State Hwy Right of Way. No water crossings are located on this parcel.

3.2 Soils: Based on the *Soil Surveys of Lake County California* prepared by the U.S. Resource Conservation Service, the survey area contains the follo Figure 3; wing soil types:

124-Cole Variant clay loam. This very deep, moderately well drained soil is on flood plains. It formed in alluvium derived from mixed rock sources. Slope is 0 to 2 percent. The vegetation in areas not cultivated is mainly annual grasses, forbs, and a few scattered oaks. Elevation is 1,300 to 2,400 feet. The average annual precipitation is 25 to 35 inches, the average annual air temperature is 55 to 59 degrees F, and the average frost-free period is 150 to 205 days.

Typically, the surface layer is grayish brown clay loam8 inches thick. The underlying material to a depth of 60 inches or more is dark gray and grayish brown clay.

Included in this unit are small areas of Clear Lake, Lupoyoma, and Still soils. Also included are small areas of soils that are similar to this Cole Variant soil but have

, a calcareous substratum. Included areas make up about20 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Cole Variant soil is slow. Available water capacity is 8 to 10 inches. Effective rooting depth is 60 inches or more. Surface runoff is slow, and the hazard 0f erosion is slight. The shrink-swell potential is high. This soil is subject to rare periods of flooding or ponding during prolonged, high-intensity storms.

Most areas of this unit are used for orchards, vineyards, and hay and pasture. Some areas are used for homesite development. The major crops grown on this unit are wine grapes, pears, and walnuts. Irrigation commonly is used for maximum production of these crops. The main limitations are the slow permeability and the hazard of flooding or ponding. Because of the slow permeability, the application of irrigation water should be regulated so that water does not stand on the surface for long periods. Capital improvements should be designed to withstand flooding.

If this unit is used for hay and pasture, the main limitation is slow permeability.

The application of irrigation water should be regulated so that water does not stand on the surface for long periods of time and damage the crops.

If this unit is used for homesite development, the main limitations are the slow permeability, high shrink-swell potential, low load bearing capacity, and the hazard of flooding. Increasing the size of the septic tank absorption field or using a specially designed sewage disposal system can help to compensate for the slow permeability. The high shrink-swell potential and the low load bearing capacity of the soil should be considered when designing and constructing foundations, concrete structures, and paved areas. The effects of shrinking and swelling can be reduced by maintaining a constant soil moisture content around the foundation area and by backfilling with material that has low shrink-swell potential. If the soil in this unit is used as a base for roads and streets, it can be mixed with sand and gravel to increase its strength and stability. Dikes and channels that have outlets for floodwater can be used to protect buildings and onsite sewage disposal systems from flooding. Roads and streets should be located above the expected flood level.

This map unit is in capability unit lls-3 (14), irrigated, and Ills-3 (14), nonirrigated.

158-Lupoyoma silt loam, protected. This very deep, moderately well drained soil is on flood plains. It formed in alluvium derived from mixed rock sources.

Slope is 0 to 2 percent. The vegetation in areas not cultivated is mainly annual grasses and scattered oaks. Elevation is 800 to 1,450 feet. The average annual precipitation is 25 to 40 inches, the average annual air temperature is 55 to 59 degrees F, and the average frost-free period is 150 to 205 days.

Typically, the surface layer is brown silt loam 31 inches thick. The underlying material to a depth of 84 inches is brown and very dark grayish brown silt loam. In some areas the surface layer is loam.

Included in this unit are small areas of Cole Variant, Kelsey, and Maywood Variant soils and Xer ofluvents. Xerofluvents are along drainageways. Also included are soils that are similar to this Lupoyoma soil but are well drained. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Lupoyoma soil is moderately slow. Available water capacity is 8.5 to 11.0 inches. Effective rooting depth is 60 inches or more. Surface runoff is very slow, and the hazard of erosion is slight. This soil is subject to rare periods of flooding in winter and early in spring. Some areas are not subject to flooding because of the development of flood control structures. This unit is used mainly for orchards, vineyards, and hay and pasture. It is also used for homesite development.

The main crops grown on the unit are pears, walnuts, and wine grapes (fig. 3). The main limitation is the hazard of flooding. Capital improvements should be designed to withstand flooding.

This unit is well suited to hay and pasture.

If this unit is used for homesite development, the main limitations are the moderately slow permeability and the hazard of flooding. If this unit is used for septic tank absorption fields, increasing the size of the absorption field or using a specially designed sewage disposal system can help to compensate for the moderately slow permeability. Dikes and channels that have outlets for floodwater can be used to protect buildings and onsite sewage disposal systems from flooding. Roads and streets should be located above the expected flood level.

This map unit is in capability class I (14), irrigated, and capability unit Illc-1 (14), nonirrigated.

Figure 3; Soils Map

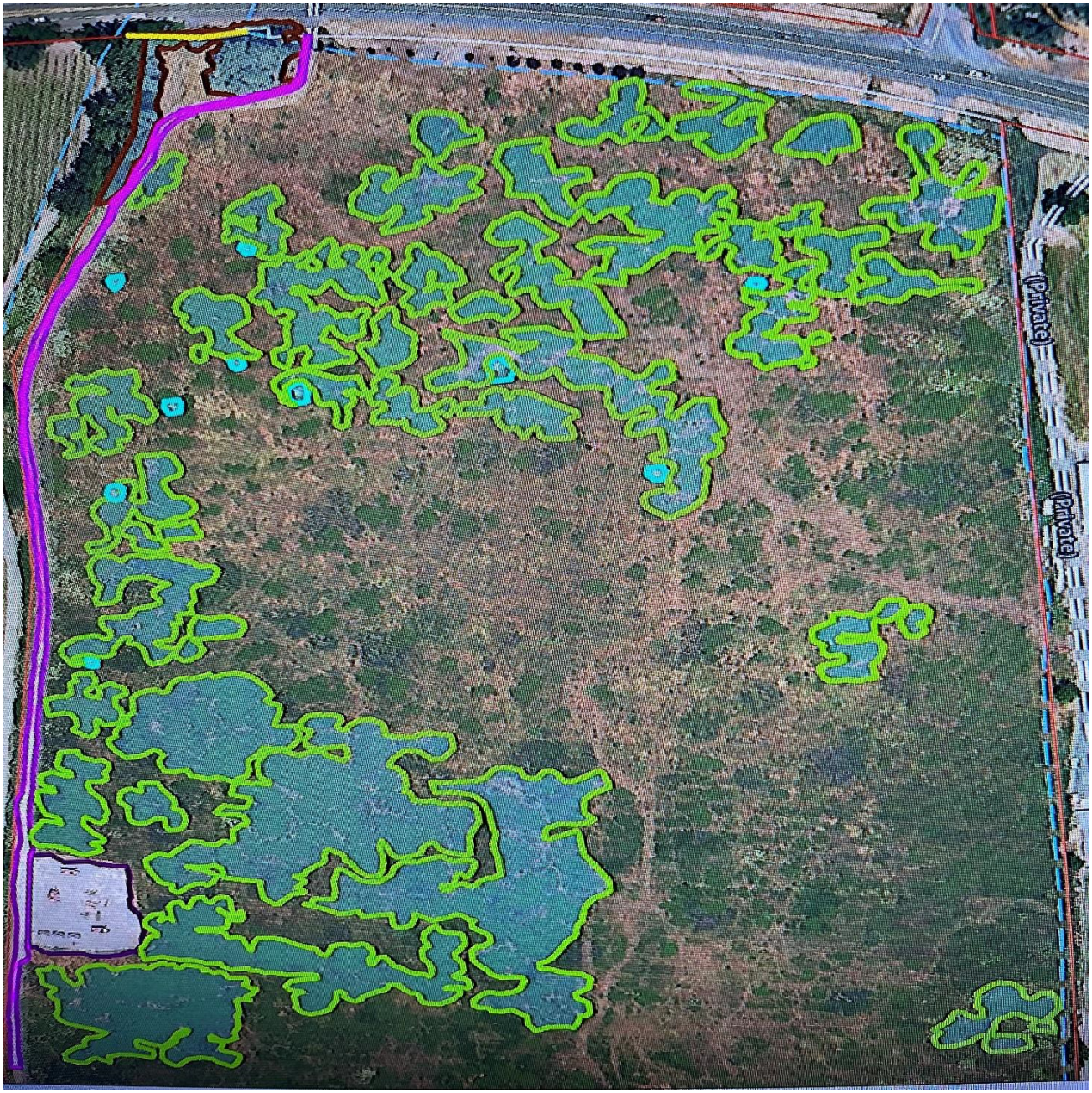


Figure 4: Vegetation Types

Figure 4 Legend

1. Rubus armeniacus (light green polygons)
2. Annual brome- all other areas (no polygons)
3. Valley oak woodlands (Brown polygon)
4. Salix exigua (light blue polygons)
5. Ruderal (pink and purple polygons)
6. Roadside drainage ditch (former blue-line)

TABLE 1. PLANT COMMUNITIES AND OTHER COVER TYPES PRESENT

3.0 **Vegetation Types:** The entire property was mapped for vegetation in order to provide project context. The project contains sixteen plant communities or vegetation types based on or derived from the "Standardized Classification" scheme described in the California Native Plant Society (CNPS) *A Manual of California Vegetation.* These vegetation types and other cover types are listed in **Table 1.** They are described below and shown in the vegetation map provided in **Figure 4.**

It is important to note that these are highly dynamic communities, changing seasonally and annually based on overall rain year. The vegetation map provided in **Figure 4** should be considered as a "snapshot" of the vegetative cover on this property as it occurred during the growing season of 2023. Community boundaries – and occasionally presence – can be expected to change on the more level ground due to even slight changes in hydrology.

Table 1: Vegetative Cover

COVER TYPE	Total Acres of Cover Type on Property	Percent of Property Supporting Cover Type
Rubus armeniacus, Himalayan black berry brambles	10.68	25
Annual brome grasslands Bromus(diandrus,hordeaceus)	30.64	72
Valley Oak woodlands	0.37	0.9
Salix exigua Sandbar willow thickets	0.47	1.1
Ruderal non-specific waste area	0.44	1
Total	**42.6**	**100.00**

1. ***Rubus armeniacus* Himalayan blackberry brambles**:

Himalayan blackberry occurs as dense, impenetrable brambles along berms and beneath the canopy of riparian woodlands. The community is homogenous and too dense to permit other shrubs or an herbaceous ground cover. Small patches occur within the Annual brome grasslands, #2 veg type.

1A. Poison Hemlock Patches:

This vegetation type exists in association with Rubus armeniacus described above. While poison hemlock occurs as scattered individuals and small patches throughout the mesic plant communities on the property, it occurs as dense, relatively homogenous patches along the access road and in a few locations along the drainage channel along the western edge of the property. There is also a dense patch in the NE corner extending south on the eastern edge of the property line.

2. **Annual brome grasslands/*Bromus (diandrus, hordeaceus) – Brachypodium distachyon***Bromus diandrus, B. hordeaceus, or Brachypodium distachyon is dominant or co- dominant with non-natives in the herbaceous layer. Emergent trees and shrubs may be present at low cover. Herbs < 75 cm; cover is intermittent to continuous. **Habitats:** All topographic settings in foothills, waste places, rangelands, openings in woodlands. **Elevation**: 0-2200 m.

This highly variable and heterogeneous grassland community is typically dominated by Mediterranean barley (*Hordeum marinum ssp. gussoneanum*) but includes a broad mix, often in small dominant patches, of other grass and forb species. These include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*) perennial rye, foxtail barley (*Hordeum jubatum*), orchard morning glory, pallid owl clover (*Castilleja lineariloba*), white lawn clover (*Trifolium repens*), and many other upland forbs and grasses. This grassland often invades surrounding upland communities as a low ground cover. Small patches of Rubus armeniacus occur within the Annual brome vegetation type.

2A. Harding Grass Sward:

Pure stands of this grass are mixed within the Annual Brome grasslands previously described. This tall, invasive bunch grass occupies areas that would qualify biologically as wetland but due to changes in the federal list of wetland indicator plants, the species no longer has status as a wetland indicator. Consequently, areas dominated by this plant do not qualify under the Corps of Engineers wetland definition as Waters of the U.S. Harding grass (*Phalaris aquatica*) dominates this community as large hummocks of previous years' stems and leaves. The distribution can vary from dense stands to moderately (3-5') spaced plants within a matrix of the surrounding plant community. On this property it occurs within a matrix of annual brome grassland.

- **3.Quercus lobata Woodland Alliance (Valley Oak Woodland):**

  This mature woodland community occurs along the north-western cornernearHwy20andalongtheexcavated channel along the western edge of the property. It is likely that this woodland was once far more extensive on the uplands of the property prior to its conversion to agricultural use.

  The woodland is dominated by mature California valley oak (*Quercus lobata*) with sub-dominant Oregon ash (*Fraxinus latifolia*). Red willow (*Salix laevigata*), Fremont cottonwood *(Populus fremontii*) and boxelder (*Acer negundo var. californicum*) are also present as scattered trees throughout the lower canopy. The shrub layer is sparse, probably due to active maintenance along the property edges. Where present, it consists of poison oak (*Toxicodendron diversilobum*) and Himalayan blackberry (*Rubus armeniacus*). In more mesic (shaded and moist soil) sites, California wild grape (*Vitis californica*) festoons the shrub layer and lower branches of the tree canopy. The ground cover consists of the surrounding herb layer varying from annual brome grassland to foxtail.

4. Salix exigua Shrubland Alliance; Sandbar willow thickets

This plant type is occupying low pools and slow draining depressions that may be seasonally wet during the rainy season and dry up once spring has arrived due to the slow draining soil of the northern portion of the parcel.

- **5. Ruderal:**

  This term refers to areas disturbed by human activity and are consequently not vegetated. On this property this consists of the access road and the equipment storage area in the SW corner of the parcel.

4.0 PRE-SURVEY RESEARCH RESULTS

4.1 **CNPS On-Line Electronic Inventory Analysis:** A California Native Plant Society (CNPS) analysis was conducted for all plants with federal and state regulatory status, and all non-status plants on the CNPS Lists 1B through 4. The query included all plants within this area of the county occurring within the plant communities identified on the project site. The inventory lists species potentially occurring at the site; these are listed in **Table 2**. These species were included in the list of potentially sensitive species specifically searched for during field surveys. It is important to note that this list includes species for which appropriate habitat is not present on the parcel. The CNPS database search does not allow fine tuning for specific soil types and many specific habitats.

Note: *The CNPS list is used to broaden the list of sensitive species considered during the subsequent field surveys; however, it must be used with discretion because the database search does not allow fine-tuning for specific soil types or for many specific habitats required by sensitive plant taxa. Consequently, the CNPS list generated for a site may include several taxa for which the required habitat is not present.*

4.2 **California Natural Diversity Database:** The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the Upper Lake 7½' and adjacent quadrangles were reviewed for this project. **Table 3** presents a list of sensitive plant and wildlife species known to occur within this quadrangle. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species. **Appendix A** at the end of this report lists the species within the nine quadrangles in the vicinity of this property.

California Department of Fish and Wildlife, California Wildlife Habitat Relationships System (CWHR), Version 9.0The CNDDB and RareFind 5 databases consist of maps and records of all known populations of sensitive plants and wildlife in California. This data is continually updated by the CDFW with new sensitive species population data. The CNPS database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself eliminate the need for an in-season botanical survey, it can, when used in conjunction with other information, provide an exceptionally good indication of the suitability of a site as habitat for sensitive plant species. The CWHR database operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and distinctive features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

TABLE 2. CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND ENDANGERED PLANTS

Selected CNPS Plants by Scientific Name:

Wood Forest Material Processing Facility, Upper Lake, California

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat/Micro-Habitat
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	None	None	Mar-Jun	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Ericaceae	perennial evergreen shrub	1B.3	None	None	(Jan)Mar-May(Jul)	Chaparral, Cismontane woodland, Lower montane coniferous forest
Astragalus breweri	Brewer's milk-vetch	Fabaceae	annual herb	4.2	None	None	Apr-Jun	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	2B.3	None	None	Jun-Sep	Marshes and swamps
Erythranthe nudata	bare monkeyflower	Phrymaceae	annual herb	4.3	None	None	May-Jun	Chaparral, Cismontane woodland
Fritillaria purdyi	Purdy's fritillary	Liliaceae	perennial bulbiferous herb	4.3	None	None	Mar-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest
Hesperolinon adenophyllum	glandular western flax	Linaceae	annual herb	1B.2	None	None	May-Aug	Chaparral, Cismontane woodland, Valley and foothill grassland
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	1B.2	None	None	Apr-May	Chaparral, Cismontane woodland, Valley and foothill grassland
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	4.2	None	None	Apr-Jul	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat/Micro-Habitat
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	4.3	None	None	Apr-Jun	Broadleaved upland forest, Cismontane woodland
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	4.2	None	None	Feb-May	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools
Tracyina rostrata	beaked tracyina	Asteraceae	annual herb	1B.2	None	None	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland

Key for Table 2:

CNPS Rare Plant-Threat Rank Definitions:

1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2 = Rare, threatened, or endangered in California and elsewhere; moderately threatened in California
1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A = Presumed extinct in California, but extant elsewhere

2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.
2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; moderately threatened in Calif.
2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.

California Natural Diversity Database: *The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the Lower Lake 7½' and adjacent quadrangles were reviewed for this project.* ***Table 3*** *presents a list of sensitive plant and wildlife species known to occur within this quadrangle. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species.* ***Appendix A*** *at the end of this report lists the species within then in equadrangles in the vicinity of this property.*

State and Federal Status:

CESA= California Endangered Species Act FESA = Federal Endangered Species Act

SR = State. Rare — *SE = State Endangered.*

ST = State. Threatened — *SD = State Delisted*

SSC = CDFW Species of Special Concern — *FP = CDFW Fully Protected*
WL = CDFW Watch List — *FE = Federal Endangered*

FT = Federal Threatened — *FD = Federal Deliste*

TABLE 3. CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE Upper Lake, CALIF. 7½' QUAD.

Habitat Type	Habitat Present
Upland, drainage canal, Ag field	Yes, along canal

Plant Species	Common Name	Habitat Requirements/ Fed-State-CNPS* Status	Blooming Season/Form	Habitat Present
Amsinckia lunaris	bent-flowered fiddleneck	Coastal bluff scrub, cismontane woodland, valley & foothill grassland; --/--/1B.2	March-June ann. herb	Grassland habitat present; not found during surveys
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Chaparral, cismontane woodland, lower montane conif. forest/volcanic; --/--/1B.3	March-May everg. shrub	Habitat not present
Astragalus breweri	Brewer's milk-vetch	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland (open, often gravelly)/often serpentinite, volcanic; --/--/4.2	April-June ann. herb	Poor habitat present
Brasenia schreiberi	watershield	Marshes & swamps/freshwater; --/--/2B.3	March-Sept rhizom. herb	Habitat not present
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Chaparral/openings, usually serpentinite; --/--/4.2	April-June ann. herb	Habitat not present
Cryptantha dissita	serpentine cryptantha	Chaparral/serpentine outcrops; --/--/1B.2	April-June ann. herb	Habitat not present
Erythranthe nudata	bare monkeyflower	Chaparral, cismontane woodland, serpentinite seeps; --/--/4.3	May-June ann. herb	Habitat not present
Fritillaria purdyi	Purdy's fritillary	Chaparral, cismontane woodland, lower montane coniferous forest; usually serpentinite; --/--/4.3	March-June bulb. herb	Habitat not present
Hesperolinon adenophyllum	glandular western flax	Chaparral, cismontane woodland, valley & foothill grassland/usually serpentine chaparral; --/--/1B.2	May-Aug. ann. herb	Habitat not present
Layia septentrionalis	Colusa layia	Chaparral, cismontane woodland, valley & foothill grassland/sandy or serpentine; --/--/1B.2	April-May ann. herb	Habitat not present
Leptosiphon acicularis	bristly leptisiphon	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; --/--/4.2	April-July ann. herb	Habitat not present

Plant Species	Common Name	Habitat Requirements/ Fed-State-CNPS* Status	Blooming Season/Form	Habitat Present
Leptosiphon latisectus	broad-lobed leptosiphon	Broad-leaved upland forest, cismontane woodland; --/--/4.3	April-June ann. herb	Habitat not present
Plagiobothrys lithocaryus	Mayacamas popcorn-flower	Chaparral, cismontane woodland, valley & foothill grassland; mesic; --/--/1A/GH/SH (presumed extinct)	April-May ann. herb	Habitat not present
Ranunculus lobbii	Lobb's aquatic buttercup	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools/mesic--/--/4.2	Feb.-May ann. herb (aquatic)	Poor habitat present; not found during surveys
Tracyina rostrata	beaked tracyina	Cismontane woodland, valley & foothill grassland; --/--/1B.2	May-June ann. herb	Poor habitat present; not found during surveys

*See CNPS list for key

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Gonidea angulata	western ridged mussel	Freshwater mussel: inhabits creeks and rivers of all sizes. Can be found on substrates varying from firm mud to coarse particles; is rarely found in lakes or reservoirs; G3/S1S2	year-round	Habitat is not present on the site
Andrena blennospermatis	Blennosperma vernal pool andrenid bee	Ground nests in uplands near vernal pools; G2/S2	year-round	Habitat is not present on site
Bombus occidentalis	western bumblebee	Once common in the western U.S., these bees are important pollinators of both wild plants and crops. Threats to be bee include insecticides, loss of habitat, climate change and diseases from commercial bee rearing. G4/S1	year-round	Habitat may be present on project site. Not found during surveys
Dubiraphia brunnescens	brownish dubiraphian riffle beetle	Inhabits exposed, wave-washed willow roots in shallow water. Known only from NE shore of Clear Lake; G1/S1	year-round	Habitat is not present on site
Archoplites interruptus	Sacramento perch	Warm water: sloughs, slow-moving rivers, ponds. Has not be found in Clear Lake since 1937; SSC/G2G3/S1	year-round	Habitat is not present on site

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Hysterocarpus traskii lagunae	Clear Lake tule perch	Inhabit Clear Lake and Blue Lakes; require warm shallow lakes. Require cover provided by tules, rocks, other vegetation, etc.; SSC/G5T2/S2S3	year-round	Likely to be present in Clear Lake near project
Lavinia exilicauda chi	Clear Lake hitch	Found only in Clear Lake, Lake County and assoc. ponds. Spawns in streams flowing to Clear Lake; SSC/ST/G4/S1	year-round	Likely to be present in Clear Lake near project
Rana boylii	foothill yellow-legged frog	Riparian/aquatic: partly-shaded, shallow streams & riffles with a rocky substrate in variety of habitats; SSC/SCT/G3/S2S3	year-round	Unlikely to be present on the project site
Emys marmorata	western pond turtle	Aquatic turtle found in ponds, lakes, rivers, creeks, marshes & irrigation ditches with abundant vegetation and rocky or muddy bottoms; In woodland, forest, & grasslands; SSC/G3G4/S3	year-round	Unlikely to be seasonally present on the site
Agelaius tricolor	tricolored blackbird	Fresh emergent wetland (marshes) with cattails, tules, sedges. Largely endemic to California; SCE/G2G3/S1S2	year-round	Potentially present seasonally within the drainage ditch
Ardea herodias	great blue heron	Shallow ponds and estuaries, & salt and fresh emergent wetlands; G5/S4	sometimes migratory	Potentially present within the woodland community
Ardea alba	great egret	Fresh & saline emergent wetlands, swampy woods, tidal estuaries, mangroves, streams, ponds; also fields and meadows; G5/S4	sometimes migratory	Potentially present within the woodland community
Egretta thula	snowy egret	Shallow water such as fresh & saline emergent wetlands, ponds, shore. Nest in trees, shrubs, other vegetation; G5/S4	sometimes migratory	Potentially present within the woodland community
Pandion haliaetus	osprey	Large, fish-bearing waters usually in mixed conifer habitats/typically nests are within 15 miles of good fish-producing body of water; WL/G5/S4	sometimes migratory	Potentially present within the woodland community

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Phalacrocorax auritus	double-crested cormorant	Along coast, inland lakes; fresh, salt & estuarine waters; WL/G5/S4	sometimes migratory	Potentially present within the woodland community
Nycticorax nycticorax	black-crowned night heron	Shallow freshwater and saltwater marshes, swamps, lakeshores, wooded streams, and ponds. Roosts by day in mangroves or swampy woodland. Often nests with other herons; G5/S3	migratory	Potentially present within the woodland community
Elanus leucurus	white-tailed kite	Open areas and marshes near woodlands and water; SFP/G5/S3	year-round	Potentially present within the woodland and grassland communities
Haliaeetus leucocephalus	bald eagle	Large bodies of water with adjacent snags. Nests in large old-growth or dominant live tree (often ponderosa pine) with open branches; FD/SE/SFP/G5/S2	wintering and nesting	May occur in the area hunting over Clear Lake but unlikely to nest on the property
Pekania pennanti	fisher, West Coast DPS	No. Coast conifer forest: old-growth conifer or riparian forests; cavities, snags, logs, rocky areas; SCT/SSC/G5/S3	year-round	Habitat does not occur in project area
Taxidea taxus	American badger	Dryer open stages of shrub, forest, & herbaceous habitats. Needs friable soils for burrows and open uncultivated ground; SSC/G5/S3	year-round	Habitat does not occur in project area

Key for Table 3:

SE/ST/SD=State Endangered/Threatened/Delisted

G1/S1 = Global/State Critically Imperiled

SC/SCD=State Candidate for Listing/Delisting

G2/S2 = Global/State Imperiled

SSC=CDFW Species of Special Concern *G3/S3 = Global/State Vulnerable*

SFP=CDFW Fully Protected *G4/S4 = Global/State Apparently Secure*

WL=CDFW Watch List *G5/S5 = Global/State Secure*

FE/FT/FD=Federal Endangered/Threatened/Delisted *SNR=Not rated*

FPE/FPT/FPD/FP=Federal Proposed Endangered/Threatened/Delisting *FC=Federal Candidate*

4.3 **Wildlife Habitat Analysis Results:** The California Wildlife Habitat Relationships analysis lists a number of native species with sensitive and non- sensitive status as potentially occurring on the site based on the geographic location and wildlife habitats present. This list is included as **Appendix B**.

4.4 **Wildlife Assessment:** Based on the pre-survey research conducted for this study, a total of 15 sensitive wildlife species need to be accounted for within the project area. These consist of the species identified as present within and adjacent to the Lower Lake quadrangle by the CNDDB and CWHR, Version 9.0 . Accepted protocol requires that all CNDDB species in the surrounding U.S.G.S. quadrangle be discussed even through suitable habitat may not occur on the site.

- **Western bumble bee (*Bombus occidentalis*):**
  Once common in the western and northwestern U.S., these bees are important pollinators of both wild plants and crops and has been commercially reared to pollinate crops such as greenhouse tomatoes and cranberries; they also have been an important pollinator of alfalfa, avocado, apples, cherries, blackberries, and blueberry. Since 1998 populations have declined due to insecticides, loss of habitat, climate change and diseases from commercial bee rearing. This bumblebee is a generic forager and its habitat requirements are non-specific. Identification of bees is based on their sex and markings.

- **Obscure bumble bee (*Bombus oliginosus*):**
  This bumblebee is native to the west coast; in the Coast Range it inhabits meadows. It is similar in appearance and co-exists with the common *Bombus vosnesenskii* and may be mistaken for this bee. *B. oliginosus* is threatened by climate change and loss of habitat, and does not thrive in developed urban or agricultural areas. Its food sources include plant genera *Baccharis, Cirsium, Lupinus, Lotus, Grindelia*, and *Phacelia*. There is a low potential for it to occur on the property.

- **Red-bellied newt (*Taricha rivularis*):**
  This species is often found under rocks, logs, soil or duff, or in rodent burrows in coastal woodlands and redwood forests. Newts occur near high to moderate gradient streams and rivers, in riffles, and pools. Newts burrow in soil or debris near water, and emerge during fall rains to breed; and may migrate up to a mile or more between terrestrial habitat and stream breeding sites. They usually breed in flowing water, from late February through May. Appropriate habitat for newts does not occur within the streams on the project site. Streams on the surrounding slopes are short-term seasonal drainages, these drainages generally are unsuitable for this species.

- **Foothill yellow-legged frog (*Rana boylii*):**
  These frogs are relatively common along the shaded banks of perennial headwater streams. They are heavily dependent on the presence of perennial water and are seldom far from pools where they can seek shelter from predation. The larvae require three to four months to mature, making most ephemeral (seasonal) streams unsuitable as breeding sites. The drainage ditch may provide suitable habitat for this species. These frogs may spend dry summer months in shallows and backwaters after stream channels become dry, which do not appear to occur on this parcel.

- **Western pond turtle (*Emys marmorata*):**
  These turtles prefer slow or ponded water with sheltering vegetation but will range widely through less suitable habitat in search of these sites. Eggs are laid on land in sheltered nests. Stream channels are often used as movement corridors between waterways or ponds. While turtles may use the stream corridor , there is no suitable habitat on this parcel for them to remain.

- **White-tailed kite (*Elanus leucurus*):**
  Usually found near agricultural areas, the kite prefers open terrain near woodlands and water. These raptors hunt over open country and prefer large, deciduous trees surrounded by expanses of grassland, meadows, farmland, and/or wetlands for nesting and roosting sites. The property contains woodlands adjacent to expanses of open grasslands with nearby water (Clearlake); this would provide marginal habitat for kites for both nesting and hunting. This is a California Fully Protected species. All raptors are protected under the Migratory Bird Treaty Act and California Department of Fish and Wildlife code.

- **Northern harrier (*Circus cyaneus hudsonius*):**
  This raptor occurs in annual grassland and is also found at high elevations. It inhabits meadows, open grasslands and rangelands, and emergent wetlands; it prefers habitat such as the broad, open grasslands and wetlands of the Sacramento Valley where this species is commonly seen. It is seldom found in wooded or agricultural areas. Formerly called the “marsh hawk”, it nests on the ground in dense shrubby vegetation in and near wetlands. The harrier feeds on insects and small mammals, birds, etc., and competes with the red-tailed hawk for food. These raptors nest from April to August and have California Species of Concern status during that period. This parcel does not provide habitat for harriers.

- **Osprey (*Pandion haliaetus*):**
  This species occurs near large, fish-bearing waters in ponderosa pine or mixed conifer habitats where it feeds on open waters for fish, although it also takes small birds and mammals. It hunts over wide expanses of open water and usually nests in the tops of large isolated trees near shorelines. Nests are made on platforms of sticks on top of large snags, dead-topped trees, or man-made structures. Nests are usually within close proximity of large fish-producing water bodies. The stick nests constructed by this species are readily apparent when present. Ospreys prefer to nest near large bodies of water and are unlikely to nest on the property.

- **Tricolored blackbird (*Agelaius tricolor*):**
  These blackbirds are colony nesters in fresh emergent wetland habitat (tule or cattail marsh), but may also occur in dense blackberry or willow shrub communities adjacent to water. Cover is required for nesting. Proximity to insects is preferred, although food includes seeds and grain. Breeding occurs April through June. The species is usually readily observed when present and has a distinctive call. This site does not contain suitable habitat for this species.

- **Grasshopper sparrow (*Ammodramus savannarum*):**
  This sparrow is a summer resident in foothills and lowlands west of the Cascade-SierraNevada crest from Mendocino and Trinity counties to southern California. It occurs in dry, dense grasslands with scattered shrubs for singing perches. Grasshopper sparrows are secretive in winter. They need thick grasslands and forbs for cover, and nest in small depressions on the ground. They breed from April to mid-July. Sparrows feed primarily on insects but also eat other invertebrates, grains, and forb seeds. They search for food on the ground. They may be present in the grasslands.

- **Townsend's western big-eared bat (*Corynorhinus townsendii ssp. townsendii*):**
  This bat is a California Species of Special Concern. Physical traits include bilateral nose lumps and very large ears. The most restrictive resource required by this species is daytime roosting habitat. This bat prefers caves and mines and is easily observed when present, hanging from open surfaces in mines and caves. Less frequently it will roost in tunnels, bridges, or other human-made structures, or hollow trees. Roost sites may vary from year to year. These bats typically prefer relatively mesic (moist) habitat such as streams near woodland habitats and may travel long distances for foraging. The majority of their diet consists of moths. This species is extremely sensitive to disturbance of roosting sites: These sites are frequently abandoned after being visited by humans. This property contains a riparian corridor, however it is low quality habitat for this species.

- **Pallid bat (*Antrozous pallidus*):**
  Optimal habitat for these bats consists of open, dry habitats with rocky areas, but the bats are also found in oak savanna grasslands, and in open forest and woodlands with access to riparian and open water for feeding and drinking. Foraging occurs over open country. These bats prefer the cool summer temperatures of caves, crevices, and mines as roosting sites where they are known to wedge themselves into small spaces; they will also roost in buildings, bridges, and hollow trees. Preferred roosts are high above the ground and inaccessible to terrestrial predators, although they are occasionally found roosting on the ground underneath sacks, tarps, and other objects left by humans.

  The bats have a home range of 1 to 3 miles and are known to roost with other bat species. This species of bat does not migrate long distances between seasons. It is extremely sensitive to human disturbance of roosting sites. Populations in California have declined due to habitat destruction and use of pesticides. The project site contains oak woodlands with limited water, which may provide some habitat for this species.

- **Pacific fisher, West Coast DPS (*Martes pennanti*):**
  Fishers are found mostly in dense coniferous or deciduous riparian habitats that include older trees and snags. Fishers are mainly carnivorous, eating smaller mammals, rodents, birds, carrion, and fruits. They hunt for prey on the ground and in trees. Cover is provided by cavities in large trees, snags and logs and their nests are built in protected cavities, brush-piles or logs. Young are born between February and May. Fishers are listed for a distant quad in the CNDDB near Scotts Creek, but the species has not been reported in this area since 1941. While there is no chance that they occur on this parcel due to no dense forest on this parcel.

- **American badger (*Taxidea taxus*):**
  Badgers are found mostly in drier open stages of shrub, forest, and herbaceous habitats with friable soils such as open grasslands, fields, and pastures. They are found from high alpine meadows to sea level and occur throughout the state except for the northern North Coast. This species is carnivorous, eating mostly fossorial rodents; they also will eat reptiles, insects, birds, eggs, and carrion. They dig burrows in friable or sandy soil for cover and nesting, and often reuse old burrows. Breeding occurs in late summer or fall. Nests are in areas with little overstory cover, often a grass-lined den, and young are born mostly in March and April. Young become independent in 5 or 6 months. The single occurrence mapped by CNDDB within the Lakeport quadrangle is near the west boundary of the City of Lakeport on an unknown date. They would be unlikely to occur on this property.

- **North American porcupine (*Erethizon dorsatum*):**
  This large, primarily nocturnal rodent prefers conifer and hardwood forests and woodlands, but is also found in forested wetlands and chaparral. They can withstand extreme cold temperatures. Porcupines use downed logs and debris, as well as snags and tree hollows, as cover and dens. Food is vegetation including twigs, berries, roots, seeds, needles, and bark; porcupines commonly climb trees for food. The porcupine breeds from September to November or December, giving birth in the spring. Lifespan is relatively long.
  Porcupines may occur in the area and on the property. This species is listed in the CNDDB as "G5" (Global Secure) and "SNR" (Species Not Rated-California). It is therefore not a species with sensitive regulatory status although its local accounts are included in the database.

- **Bald eagle (*Haliaeetus leucocephalus*):**
  Bald eagles require large bodies of water with abundant fish, and adjacent snags or perches. They are known to fish in Clear Lake and nest in large structures near the lake. However, there is no suitable nesting or roosting habitat on the project site for this large bird.

Additionally, the presence of the woodland, grasslands, and marshes and wetlands adjacent to Clear Lake provide a wide variety of upland and wetland habitats used by many animal species. Small, medium, and large mammals with sensitive and non- sensitive status such as rodents, bats, rabbits, skunks, deer, as well as woodpeckers, wrens, warblers, red-tailed hawks, crows and ravens, owls and other passerines and raptors may inhabit or feed on this property.

Note: Even when lacking sensitive status, migratory passerines and birds of prey are protected under the Migratory Bird Treaty Act and California Fish and Game Code. Removal or trimming of trees has a potential to result in an incidental take of eggs, or nestlings if clearing of tree habitat occurs during the nesting season (February 1 through August 31).

Raptors and passerines lacking sensitive regulatory status but otherwise protected under the Migratory Bird Treaty Act may also be present on the property in their sensitive status.

5.0 FIELD SURVEY RESULTS

5.1 Botanical Field Survey Results: Table 4 presents the results of the botanical survey for the project. Each of the sensitive plant species potentially occurring at the site and listed in Tables 2 and 3 was specifically searched for during the surveys. The surveys identified a total of 42 plant taxa on the property.

TABLE 4. Flora of 755 E. Highway 20

Habitat	Scientific name	Common name	Family	Indicator status	origin
forb	*Conium maculatum*	poison hemlock	Apiaceae	FACW	A
forb	*Centaurea solstitialis*	yellow star thistle	Asteraceae	NI	A
forb	*Lactuca seriola*	prickly lettuce	Asteraceae	NI	A
forb	*Senecio vulgaris*	common butterweed	Asteraceae	FACU	A
forb	*Taraxacum officinale*	common dandelion	Asteraceae	FACU	A
forb	*Tragopogon porrifolius*	salsify	Asteraceae	NI	A
forb	*Brassica nigra*	black mustard	Brassicaceae	NI	A
forb	*Convolvulus arvensis*	orchard morning-glory	Convolvulaceae	NI	A
forb	*Dipsacus fullonum*	fuller's teasel	Dipsacaceae	FAC	A
forb	*Lotus corniculatus*	bird's-foot trefoil	Fabaceae	FAC	A
forb	*Melilotus indicus*	annual yellow sweetclover	Fabaceae	FACU	A
forb	*Trifolium dubium*	little hop clover	Fabaceae	UPL	A
forb	*Trifolium repens*	white lawn clover	Fabaceae	FACU	A
forb	*Vicia sativa ssp. nigra*	narrow-leaved vetch	Fabaceae	FACU	A
forb	Erodium botrys	Broad leaf filaree	Geraniaceae	NI	A
forb	*Erodium cicutarium*	red-stem storksbill	Geraniaceae	NI	A
forb	*Plantago lanceolata*	English plantain	Plantaginaceae	FAC	A
forb	*Rumex crispus*	curly dock	Polygonaceae	FAC	A
grass	*Avena barbata*	slender wild oat	Poaceae	NI	A
grass	*Bromus diandrus*	ripgut brome, ripgut grass	Poaceae	NI	A
grass	*Bromus hordeaceus*	soft chess	Poaceae	FACU	A
grass	*Bromus hordeaceus*	soft chess	Poaceae	FACU	A
grass	*Elymus caput-medusae*	medusahead	Poaceae	NI	A
grass	*Elymus trachcaulus*	Slender wheat grass	Poaceae	FACU	A
grass	*Festuca arundinacea*	tall fescue	Poaceae	NI	A

grass	*Festuca perennis*	perennial ryegrass, Italian rye grass	Poaceae	FAC	A
grass	*Phalaris aquatica*	Harding grass	Poaceae	FACU	A
rush	*Juncus patens*	spreading rush	Juncaceae	FACW	N
sedge	*Carex preslii*	Presl's sedge	Cyperaceae	FACU	N
shrub	*Rubus armeniacus*	Himalayan blackberry	Rosaceae	FACW	A
tree	*Acer negundo var. californicum*	box elder	Aceraceae	FACW	N
tree	*Quercus lobata*	California valley oak	Fagaceae	FACU	N
tree	*Fraxinus latifolia*	Oregon ash	Oleaceae	FACW	N
tree	*Populus fremontii var. fremontii*	Fremont cottonwood	Salicaceae	FAC	N
tree	*Salix laevigata*	red willow	Salicaceae	FACW	N
forb	*Daucus carota*	Queen Anne's lace	Apiaceae	UPL	A
grass	*Phalaris angusta*	Timothy canarygrass	Poaceae	FAC	N
forb	*Dipsacus fullonum*	fuller's teasel	Dipsacaceae	FAC	A
vine	*Vitus vinifera*	Wine grape	Vitacaea	NI	A
	Phytolacca americana	pokeweed	Phytloaccaceae	NI	A
tree	*Prunus domentica*	Domestic plum	Rosaceae	NI	A
tree	*Platanus × acerifolia*,	London plane	Platinaceae	NI	A
tree	Salix exigua	Sandbar willow	Salicaceae	FACW	N

A=Alien, N=Native

*Wetland Indicator Status:

OBL = Occurs in wetlands 100% of time
FACW = Occurs in aquatic resources 67-99% of time
FAC = Occurs in aquatic resources 34-66% of time
FACU = Occurs in aquatic resources 1-33% of time
UPL = Upland species
NI = Non-indicator

6.0 SUMMARY AND RECOMMENDATIONS

6.1 Summary: This biological resource assessment involved the following analyses and surveys for sensitive plants and wildlife potentially occurring in the vicinity of the project:

- Review of current California Natural Diversity Database (CNDDB) mapping of known sensitive plant and wildlife populations within the region.
- An analysis of the suitability of the site for sensitive plants and wildlife using the California Native Plant Society *On-line Inventory of Rare and Endangered Vascular Plants of California,* and the California Department of Fish and Wildlife's *California Wildlife Habitat Relations System*.
- A California Department of Fish and Wildlife protocol, floristic-level field survey of the plants occurring within the property.
- A delineation of waters of the U.S.

Sensitive Plants: A total of 42 native and introduced plant taxa were identified within the survey areas during the in-season botanical survey. As used here, the term sensitive includes species having state or federal regulatory status, included on Lists 1B through 4 by the California Native Plant Society, or otherwise listed in the California Natural Diversity Database.

Sensitive Wildlife: A total of 15 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the quadrangleand the CWHR database. Based on the habitat assessment, the following conclusions are made regarding species with sensitive regulatory status:

- Sensitive status species that have a potential to be present in their sensitive state:

  Obscure bumble bee, Foothill yellow legged frog; Western pond turtle; White- tailed kite; Northern harrier; Tricolored blackbird; Grasshopper sparrow; Townsend's big-eared bat; Pallid bat; American badger; Pacific fisher; North American porcupine

Possible Waters of the U.S.: A small riparian area is adjacent to this parcel. It is of very low quality and does not exhibit all three criteria for designation as wetland.

6.2 Potential Impacts and Proposed Mitigation for Biological Resources:

(For all recommended mitigation measures accepted as conditions of approval, the text should be modified to use declarative language, i.e. "should" should become "shall", etc.)

- Habitat Fragmentation

Potential Impacts: The proposed processing facility shown in Figure 2 are comparatively small and unlikely to significantly impair wildlife movement through the corridor. Use of outdoor lighting has a potential to disrupt wildlife movement, much of which occurs at night. Proposed lighting will be limited to 1 acre in low quality habitat and conforms with Dark Sky Approved fixtures.

Proposed Mitigation for Habitat Fragmentation:

Measure 1: The use of deer fencing should be restricted to the perimeters of the proposed facility. No deer fencing or other obstacles to wildlife passage will be installed that will restrict wildlife movement.

Measure 2: Outdoor lighting, if used, should be restricted to the processing facility and should be directed downward so as not to illuminate adjacent areas. All lighting being proposed conforms with IDA Dark Sky approved fixtures that will reduce impacts.

- Woodland and Forest Resources

Potential Impact: As shown in **Table 1**, the property contains a combined total of 0.37 acres of woodland. The proposed project design limits project components to the existing infrastructure areas and would not impact woodland resources.

Proposed Mitigation for Impacts to Woodland and Forest: No mitigation recommended if the project is constructed within the area proposed.

- Sensitive Plants and Wildlife

  Potential Impacts:

  Plants: No plants with sensitive regulatory status were found on the property during the floristic-level botanical survey.

  Wildlife: The following wildlife species have a potential to be present on the property:

  - Obscure bumble bee
  - Western pond turtle
  - White-tailed kite
  - Northern harrier
  - Grasshopper sparrow
  - Pallid bat
  - American badger
  - North American porcupine

  Use of pesticides resulting in drift has a potential to result in the incidental take of the obscure bumble bee, if present. Pesticide contamination of waterways or direct impacts to waterways has a potential to result in incidental take of foothill yellow-legged frog and/or western pond turtle downstream from the project area.

  Other sensitive species listed above depend primarily on woodland, forest, and grassland habitats. Woodland and forest habitat would not be impacted by this project. Impacts to grasslands would be minimal based on the current project design.

Proposed Mitigation for impacts to Wildlife:

Measure 3: To mitigate potential impacts to obscure bumble bee, foothill yellow-legged frog, and western pond turtle, State and Federal regulations on pesticide selection and use should be strictly followed. Pesticide use should not occur during periods when winds may transport spray to adjacent areas.

- Waters of the U.S.

Potential Impacts: As shown in **Figure 2**, the development would not significantly alter the existing riparian area.

Placement of fill within Waters of the U.S. may require a Nationwide permit by the Corps of Engineers (possibly a non-reporting permit under the Nationwide Permit Program), along with a 401 Water Quality Certification from the Regional Water Quality Control Board, and 1604 Stream Alteration Agreement from the California Department of Fish and Wildlife. The County of Lake may require stream setbacks

Erosion Control:

Potential Impacts: Vegetation clearing and grading activities have a potential to result in sediment runoff to the drainage ditch.

Proposed Mitigation: All work in or near waterways and wetlands should incorporate extensive erosion control measures consistent with Lake County Grading Regulations in order to avoid erosion and the potential for transport of sediments to the existing drainage ditch. Coverage under the National Pollutant Discharge Elimination System (NPDES), General Permit for Storm Water Discharges associated with a Construction Activity (General Permit) and a Storm Water Pollution Prevention Plan (SWPPP)may be required.

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APPENDIX A

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

RESULTS

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

supported by the

CALIFORNIA INTERAGENCY WILDLIFE TASK GROUP

and maintained by the

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Database Version: 9.0

SPECIES SUMMARY REPORT

FE = Federal Endangered
FT = Federal Threatened
CE = California Endangered
CT = California Threatened
CF = California Fully Protected
CP = California Protected
SC = California Species of Special Concern
PE = Federally-Proposed Endangered
PT = Federally-Proposed Threatened
FC = Federal Candidate
BL = BLM Sensitive
FS = USFS Sensitive
CD = CDF Sensitive
HA = Harvest

Note: Any given status code for a species may apply to the full species or to only one or more subspecies or distinct population segments.

ID	Species Name	Status	Native/Introduced
A004	CALIFORNIA GIANT SALAMANDER		NATIVE
A006	ROUGH-SKINNED NEWT		NATIVE
A007	CALIFORNIA NEWT	SC	NATIVE
A012	COMMON ENSATINA	SC BL FS	NATIVE
A014	CALIFORNIA SLENDER SALAMANDER		NATIVE
A020	SPECKLED BLACK SALAMANDER		NATIVE
A022	ARBOREAL SALAMANDER		NATIVE
A032	WESTERN TOAD		NATIVE
A039	PACIFIC TREEFROG		NATIVE
A048	COASTAL GIANT SALAMANDER		NATIVE
A071	CALIFORNIA RED-LEGGED FROG	FT SC	NATIVE
B003	COMMON LOON	SC	NATIVE
B049	AMERICAN BITTERN		NATIVE
B050	LEAST BITTERN	SC	NATIVE
B051	GREAT BLUE HERON	CD	NATIVE
B052	GREAT EGRET	CD	NATIVE
B053	SNOWY EGRET		NATIVE
B057	CATTLE EGRET		NATIVE
B058	GREEN HERON		NATIVE
B059	BLACK-CROWNED NIGHT HERON		NATIVE
B067	TUNDRA SWAN		NATIVE
B071	SNOW GOOSE	HA	NATIVE
B075	CANADA GOOSE	HA	NATIVE
B076	WOOD DUCK	HA	NATIVE
B077	GREEN-WINGED TEAL	HA	NATIVE
B079	MALLARD	HA	NATIVE

B080	NORTHERN PINTAIL							HA	NATIVE
B083	CINNAMON TEAL							HA	NATIVE
B084	NORTHERN SHOVELER							HA	NATIVE
B085	GADWALL							HA	NATIVE
B086	EURASIAN WIGEON							HA	NATIVE

ID	Species Name	Status							Native/Introduced
B087	AMERICAN WIGEON							HA	NATIVE
B089	CANVASBACK							HA	NATIVE
B091	RING-NECKED DUCK							HA	NATIVE
B093	GREATER SCAUP							HA	NATIVE
B094	LESSER SCAUP							HA	NATIVE
B101	COMMON GOLDENEYE							HA	NATIVE
B102	BARROW'S GOLDENEYE			SC				HA	NATIVE
B103	BUFFLEHEAD							HA	NATIVE
B104	HOODED MERGANSER							HA	NATIVE
B105	COMMON MERGANSER							HA	NATIVE
B106	RED-BREASTED MERGANSER							HA	NATIVE
B107	RUDDY DUCK							HA	NATIVE
B108	TURKEY VULTURE								NATIVE
B110	OSPREY						CD		NATIVE
B111	WHITE-TAILED KITE		CF			BL			NATIVE
B113	BALD EAGLE	CE	CF			BL	FS	CD	NATIVE
B114	NORTHERN HARRIER			SC					NATIVE
B115	SHARP-SHINNED HAWK								NATIVE
B116	COOPER'S HAWK								NATIVE
B117	NORTHERN GOSHAWK			SC		BL	FS	CD	NATIVE
B119	RED-SHOULDERED HAWK								NATIVE
B123	RED-TAILED HAWK								NATIVE
B124	FERRUGINOUS HAWK								NATIVE
B125	ROUGH-LEGGED HAWK								NATIVE
B126	GOLDEN EAGLE		CF			BL		CD	NATIVE
B127	AMERICAN KESTREL								NATIVE
B128	MERLIN								NATIVE
B129	PEREGRINE FALCON		CF					CD	NATIVE
B131	PRAIRIE FALCON								NATIVE
B140	CALIFORNIA QUAIL			SC				HA	NATIVE
B141	MOUNTAIN QUAIL							HA	NATIVE
B145	VIRGINIA RAIL								NATIVE
B146	SORA								NATIVE
B148	COMMON GALLINULE							HA	NATIVE
B149	AMERICAN COOT							HA	NATIVE
B158	KILLDEER								NATIVE
B165	GREATER YELLOWLEGS								NATIVE
B166	LESSER YELLOWLEGS								NATIVE
B199	WILSON'S SNIPE								NATIVE

B251	BAND-TAILED PIGEON				HA	NATIVE
B255	MOURNING DOVE				HA	NATIVE
B259	YELLOW-BILLED CUCKOO	CE		PT BL FS		NATIVE
B260	GREATER ROADRUNNER					NATIVE

ID	Species Name	Status			Native/Introduced
B262	BARN OWL				NATIVE
B263	FLAMMULATED OWL				NATIVE
B264	WESTERN SCREECH OWL				NATIVE
B265	GREAT HORNED OWL				NATIVE
B267	NORTHERN PYGMY OWL				NATIVE
B269	BURROWING OWL		SC	BL	NATIVE
B270	SPOTTED OWL	FT	SC	BL FS CD	NATIVE
B272	LONG-EARED OWL		SC		NATIVE
B273	SHORT-EARED OWL		SC		NATIVE
B274	NORTHERN SAW-WHET OWL				NATIVE
B277	COMMON POORWILL				NATIVE
B281	VAUX'S SWIFT		SC		NATIVE
B282	WHITE-THROATED SWIFT				NATIVE
B287	ANNA'S HUMMINGBIRD				NATIVE
B291	RUFOUS HUMMINGBIRD				NATIVE
B292	ALLEN'S HUMMINGBIRD				NATIVE
B293	BELTED KINGFISHER				NATIVE
B294	LEWIS' S WOODPECKER				NATIVE
B296	ACORN WOODPECKER				NATIVE
B299	RED-BREASTED SAPSUCKER				NATIVE
B302	NUTTALL'S WOODPECKER				NATIVE
B303	DOWNY WOODPECKER				NATIVE
B304	HAIRY WOODPECKER				NATIVE
B305	WHITE-HEADED WOODPECKER				NATIVE
B307	NORTHERN FLICKER				NATIVE
B309	OLIVE-SIDED FLYCATCHER		SC		NATIVE
B311	WESTERN WOOD-PEWEE				NATIVE
B317	HAMMOND'S FLYCATCHER				NATIVE
B318	DUSKY FLYCATCHER				NATIVE
B320	PACIFIC-SLOPE FLYCATCHER				NATIVE
B321	BLACK PHOEBE				NATIVE
B323	SAY'S PHOEBE				NATIVE
B326	ASH-THROATED FLYCATCHER				NATIVE
B333	WESTERN KINGBIRD				NATIVE
B337	HORNED LARK				NATIVE
B338	PURPLE MARTIN		SC		NATIVE
B339	TREE SWALLOW				NATIVE
B340	VIOLET-GREEN SWALLOW				NATIVE

B341	NORTHERN ROUGH-WINGED SWALLOW			NATIVE
B342	BANK SWALLOW	CT	BL	NATIVE
B343	CLIFF SWALLOW			NATIVE
B346	STELLER'S JAY			NATIVE

ID	Species Name	Status		Native/Introduced
B348	WESTERN SCRUB-JAY			NATIVE
B350	CLARK'S NUTCRACKER			NATIVE
B352	YELLOW-BILLED MAGPIE			NATIVE
B353	AMERICAN CROW		HA	NATIVE
B354	COMMON RAVEN			NATIVE
B356	MOUNTAIN CHICKADEE			NATIVE
B357	CHESTNUT-BACKED CHICKADEE			NATIVE
B358	OAK TITMOUSE			NATIVE
B360	BUSHTIT			NATIVE
B361	RED-BREASTED NUTHATCH			NATIVE
B362	WHITE-BREASTED NUTHATCH			NATIVE
B363	PYGMY NUTHATCH			NATIVE
B364	BROWN CREEPER			NATIVE
B367	CANYON WREN			NATIVE
B368	BEWICK'S WREN	SC		NATIVE
B369	HOUSE WREN			NATIVE
B370	WINTER WREN			NATIVE
B372	MARSH WREN	SC		NATIVE
B375	GOLDEN-CROWNED KINGLET			NATIVE
B376	RUBY-CROWNED KINGLET			NATIVE
B377	BLUE-GRAY GNATCATCHER			NATIVE
B380	WESTERN BLUEBIRD			NATIVE
B381	MOUNTAIN BLUEBIRD			NATIVE
B382	TOWNSEND'S SOLITAIRE			NATIVE
B385	SWAINSON'S THRUSH			NATIVE
B386	HERMIT THRUSH			NATIVE
B389	AMERICAN ROBIN			NATIVE
B390	VARIED THRUSH			NATIVE
B391	WRENTIT			NATIVE
B393	NORTHERN MOCKINGBIRD			NATIVE
B398	CALIFORNIA THRASHER			NATIVE
B404	AMERICAN PIPIT			NATIVE
B407	CEDAR WAXWING			NATIVE
B408	PHAINOPEPLA			NATIVE
B410	LOGGERHEAD SHRIKE	FE	SC	NATIVE
B415	CASSIN'S VIREO			NATIVE
B417	HUTTON'S VIREO		SC	NATIVE

B418	WARBLING VIREO		NATIVE
B425	ORANGE-CROWNED WARBLER		NATIVE
B426	NASHVILLE WARBLER		NATIVE
B430	YELLOW WARBLER	SC	NATIVE
B435	YELLOW-RUMPED WARBLER		NATIVE
B436	BLACK-THROATED GRAY WARBLER		NATIVE

ID	Species Name	Status	Native/Introduced
B437	TOWNSEND'S WARBLER		NATIVE
B438	HERMIT WARBLER		NATIVE
B460	MACGILLIVRAY'S WARBLER		NATIVE
B461	COMMON YELLOWTHROAT	SC	NATIVE
B463	WILSON'S WARBLER		NATIVE
B467	YELLOW-BREASTED CHAT	SC	NATIVE
B471	WESTERN TANAGER		NATIVE
B475	BLACK-HEADED GROSBEAK		NATIVE
B477	LAZULI BUNTING		NATIVE
B482	GREEN-TAILED TOWHEE		NATIVE
B483	SPOTTED TOWHEE	SC	NATIVE
B484	CALIFORNIA TOWHEE	FT CE	NATIVE
B487	RUFOUS-CROWNED SPARROW	SC	NATIVE
B489	CHIPPING SPARROW		NATIVE
B493	BLACK-CHINNED SPARROW		NATIVE
B495	LARK SPARROW		NATIVE
B497	BELL'S SPARROW	FT SC	NATIVE
B499	SAVANNAH SPARROW	CE SC	NATIVE
B501	GRASSHOPPER SPARROW	SC	NATIVE
B504	FOX SPARROW		NATIVE
B505	SONG SPARROW	SC	NATIVE
B506	LINCOLN'S SPARROW		NATIVE
B509	GOLDEN-CROWNED SPARROW		NATIVE
B510	WHITE-CROWNED SPARROW		NATIVE
B512	DARK-EYED JUNCO		NATIVE
B519	RED-WINGED BLACKBIRD	SC	NATIVE
B520	TRICOLORED BLACKBIRD	SC BL	NATIVE
B521	WESTERN MEADOWLARK		NATIVE
B522	YELLOW-HEADED BLACKBIRD	SC	NATIVE
B524	BREWER'S BLACKBIRD		NATIVE
B528	BROWN-HEADED COWBIRD		NATIVE
B532	BULLOCK'S ORIOLE		NATIVE
B536	PURPLE FINCH		NATIVE
B537	CASSIN'S FINCH		NATIVE
B538	HOUSE FINCH		NATIVE
B539	RED CROSSBILL		NATIVE

B542	PINE SISKIN		NATIVE
B543	LESSER GOLDFINCH		NATIVE
B544	LAWRENCE'S GOLDFINCH		NATIVE
B545	AMERICAN GOLDFINCH		NATIVE
B546	EVENING GROSBEAK		NATIVE
B548	CLARK'S GREBE		NATIVE
B554	PLUMBEOUS VIREO		NATIVE

ID	Species Name	Status	Native/Introduced
B656	RED PHALAROPE		NATIVE
B699	BARRED OWL		NATIVE
B773	AMERICAN REDSTART		NATIVE
B798	WHITE-THROATED SPARROW		NATIVE
B799	HARRIS'S SPARROW		NATIVE
B809	INDIGO BUNTING		NATIVE
M006	ORNATE SHREW	FE SC	NATIVE
M012	TROWBRIDGE'S SHREW		NATIVE
M015	SHREW-MOLE		NATIVE
M018	BROAD-FOOTED MOLE	SC	NATIVE
M023	YUMA MYOTIS	BL	NATIVE
M025	LONG-EARED MYOTIS	BL	NATIVE
M027	LONG-LEGGED MYOTIS		NATIVE
M028	CALIFORNIA MYOTIS		NATIVE
M030	SILVER-HAIRED BAT		NATIVE
M031	CANYON BAT		NATIVE
M033	WESTERN RED BAT	SC FS	NATIVE
M034	HOARY BAT		NATIVE
M037	TOWNSEND'S BIG-EARED BAT	SC BL FS	NATIVE
M038	PALLID BAT	SC BL FS	NATIVE
M039	BRAZILIAN FREE-TAILED BAT		NATIVE
M045	BRUSH RABBIT	FE CE HA	NATIVE
M047	AUDUBON'S COTTONTAIL	HA	NATIVE
M051	BLACK-TAILED JACKRABBIT	SC HA	NATIVE
M055	YELLOW-PINE CHIPMUNK		NATIVE
M057	SHADOW CHIPMUNK		NATIVE
M059	SONOMA CHIPMUNK		NATIVE
M072	CALIFORNIA GROUND SQUIRREL		NATIVE
M075	GOLDEN-MANTLED GROUND SQUIRREL		NATIVE
M077	WESTERN GRAY SQUIRREL	HA	NATIVE
M079	DOUGLAS' SQUIRREL	HA	NATIVE
M080	NORTHERN FLYING SQUIRREL	SC FS	NATIVE
M081	BOTTA'S POCKET GOPHER		NATIVE
M084	MAZAMA POCKET GOPHER		NATIVE

M105	CALIFORNIA KANGAROO RAT				SC				NATIVE
M112	AMERICAN BEAVER							HA	NATIVE
M113	WESTERN HARVEST MOUSE								NATIVE
M117	DEER MOUSE				SC				NATIVE
M119	BRUSH MOUSE								NATIVE
M127	DUSKY-FOOTED WOODRAT	FE			SC				NATIVE
M134	CALIFORNIA VOLE	FE	CE		SC		BL		NATIVE
M139	COMMON MUSKRAT							HA	NATIVE

ID	Species Name	Status							Native/Introduced
M146	COYOTE							HA	NATIVE
M147	RED FOX			CT			FS	HA	NATIVE
M149	GRAY FOX							HA	NATIVE
M151	BLACK BEAR							HA	NATIVE
M152	RINGTAIL			CF					NATIVE
M153	RACCOON							HA	NATIVE
M154	MARTEN				SC		FS		NATIVE
M155	FISHER				SC		FC BL FS		NATIVE
M156	ERMINE							HA	NATIVE
M157	LONG-TAILED WEASEL							HA	NATIVE
M158	AMERICAN MINK							HA	NATIVE
M160	AMERICAN BADGER				SC			HA	NATIVE
M162	STRIPED SKUNK							HA	NATIVE
M163	NORTHERN RIVER OTTER				SC				NATIVE
M165	MOUNTAIN LION				SC				NATIVE
M166	BOBCAT							HA	NATIVE
M177	ELK							HA	NATIVE
M181	MULE DEER							HA	NATIVE
R004	WESTERN POND TURTLE				SC		BL FS		NATIVE
R022	WESTERN FENCE LIZARD								NATIVE
R023	COMMON SAGEBRUSH LIZARD						BL		NATIVE
R036	WESTERN SKINK				SC		BL		NATIVE
R039	TIGER WHIPTAIL								NATIVE
R040	SOUTHERN ALLIGATOR LIZARD								NATIVE
R042	NORTHERN ALLIGATOR LIZARD								NATIVE
R046	NORTHERN RUBBER BOA			CT			FS		NATIVE
R048	RING-NECKED SNAKE						FS		NATIVE
R049	COMMON SHARP-TAILED SNAKE								NATIVE
R051	NORTH AMERICAN RACER								NATIVE
R053	STRIPED RACER		FT	CT					NATIVE
R057	GOPHERSNAKE				SC				NATIVE
R058	EASTERN KINGSNAKE								NATIVE
R059	CALIFORNIA MOUNTAIN KINGSNAKE				SC		BL FS		NATIVE

R060	LONG-NOSED SNAKE		NATIVE
R061	COMMON GARTERSNAKE	FE CE CF SC	NATIVE
R062	TERRESTRIAL GARTERSNAKE		NATIVE
R071	DESERT NIGHTSNAKE		NATIVE
R076	WESTERN RATTLESNAKE		NATIVE
R078	AQUATIC GARTERSNAKE		NATIVE

Total Number of Species: 283

Query Parameters

Included Locations

Lake Co

Included Location Seasons

Migrant, Summer, Winter, Yearlong

Included Habitats & (Stages)

Annual Grassland, Closed-cone Pine-cypress, Fresh Emergent Wetland, Lacustrine, Mixed Chaparral, Montane Hardwood, Ponderosa Pine, Valley Foothill Riparian, Wet Meadow

Habitat Suitability Threshold

Reproduction - Low, Cover - Low, Feeding - Low

Included Habitat Seasons

Migrant, Summer, Winter, Yearlong

Excluded Elements

Barren, Bogs, Brush Pile, Buildings, Campground, Cave, Dump, Fences, Jetty, Lakes, Lithic, Mine, Mud Flats, NestBox,

Nest Island, Nest Platform, Pack Stations, Rivers, Salt Ponds, Sand Dune, Shrub/agriculture, Soil - Saline, Soil -Sandy,

Springs - Hot, Springs - Mineral, Talus, Tidepools, Transmission Lines, Trees - Fir, Vernal Pools, Water - Fast,Wharf

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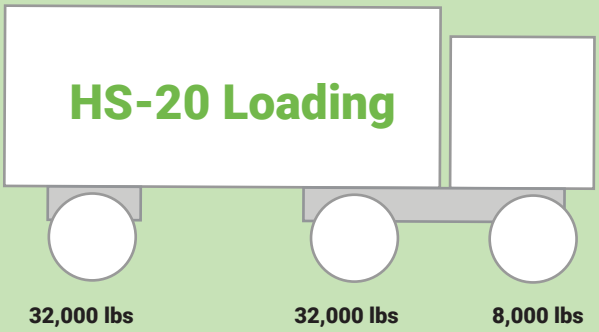
Attachment 4: TrueGrid Pavers

HEAVY LOADING ON TRUEGRID®

H-20 & HS-20 to H-25 & HS-25 Loading Examples

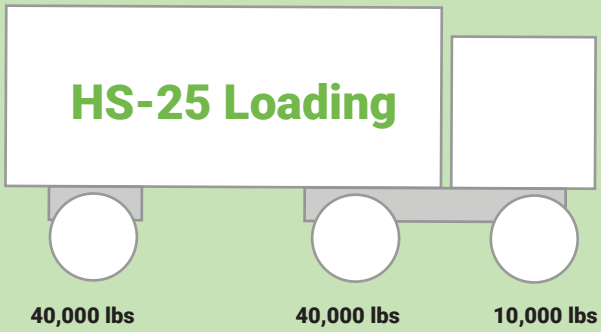
Surface Pressure



H-20 & HS-20 = 32,000 lbs for the rear axles
32,000 lbs / 2 tires per rear axle = 16,000 lbs
200 sq inches contact* (20" x 10 ")
16,000 lbs / 200 sq inches = 80 PSI

80 PSI (552 kPa) Static

Surface Pressure



H-25 & HS-25 = 40,000 lbs for the rear axles
40,000 lbs / 2 tires per rear axle = 20,000 lbs
200 sq inches contact* (20" x 10 ")
20,000 lbs / 200 sq inches = 100 PSI

100 PSI (689 kPa) Static

TRUEGRID® PRO LITE

TRUEGRID® PRO LITE has been tested for a compressive strength of over 17,000 PSI when filled

17,000 PSI / 100 PSI = 170
17,000 PSI / 80 PSI = 212

Loading	Safety Factor
H-25 & HS-25	**170x**
H-20 & HS-20	**212x**

TRUEGRID® PRO PLUS

TRUEGRID® PRO PLUS has been tested for a compressive strength of over 17,000 PSI when filled

17,000 PSI / 100 PSI = 170
17,000 PSI / 80 PSI = 212

Loading	Safety Factor
H-25 & HS-25	**170x**
H-20 & HS-20	**212x**

**AASHTO 3.30 Tire Contact Area*

Attachment 5: Artis 200 R2 Carbon Negative Fuel & Energy

ARTIS 200 R2

Carbon Negative Fuel & Energy

Pyrolysis Biomass System for Renewable Energy Generation

No to Low Emissions - Continuous Feed Airlock System

Continuous Feed Hopper with Airlock Pyrolysis System

Biomass Power Plant Based on Wood Produced Gas

As a full-service provider in the field of electricity and heat generation from wood, we provide you with a complete solution for your wood combined heat and power project: from feeding systems, conveyors to wood gasification technology.

24/7-Energy Generation, Variable Power Adaptation, CO2-Neutral, Value CHP Compatible, Quick startup, Long-term Reliability 90% or Better Uptime, Proven Technology.

OPERATIONAL	SPECIFICATIONS
RELATIVE HUMIDITY - NOMINAL	<75%
ROOM TEMPERATURE	10-40c / 50-104f Ambient
AIR EXCHANGE IN ROOM	8 Times per Hr.
SOUND PRESSURE @ 1 Meter	<75 dba
BIOMASS CONSUMPTION	148kg-220 kg/h @ Max Rate
FEED AUGER RATE	5.2 RPM - PLC Adjusted

PERFORMANCE	
CONTINUOUS METERED FEED	Gate Oxygen Restricted
FEEDSTOCK FILL LOCK HOPPER	1.08 cf, 6”D x 59”H
MILLED WOOD CHIPS INPUT	1/4” or Less
GATE OPEN-CLOSE TIME	Less than 1/2 second
FEEDER GATES CONTROL: DIGITAL PLC I/O	Oneida Air Pneumatic Slide
MATERIAL MOISTURE CONTENT	<30%, Ideal: 18%
FEED OPEN CYCLE TIME	Less than 1 minute, adj.
OVERFILL PROTECTION	Software / Laser Sensors
ERROR HANDLING	Alarms and Safe Recovery

ELECTRICAL	SPECIFICATIONS
AC VOLTAGE	480
AMPS	100
PHASES	3
Hz	60
INTERNAL FUSES	3 – 125A
AC DISCONNECT	3-Phase On-Off Switch
OCP Breaker Size	125A
WIRE Copper / Aluminum	1 AWG, 2/0 AWG Minimum
EMT CONDUIT MINIMUM	MIN.: 1-1/4” CU., 1-1/2” AL

SYSTEM	SPECIFICATIONS
FOOTPRINT/MAIN FRAME	7’-6”W, 7’-3”H, 14’-2”L
FILL FUNNEL CYCLONE TOP	16’-0”
AC COOLING UNIT: Optional	Control Cabinet Only
AIR COOLING: EXTERNAL FANS	Glycol Water Mix

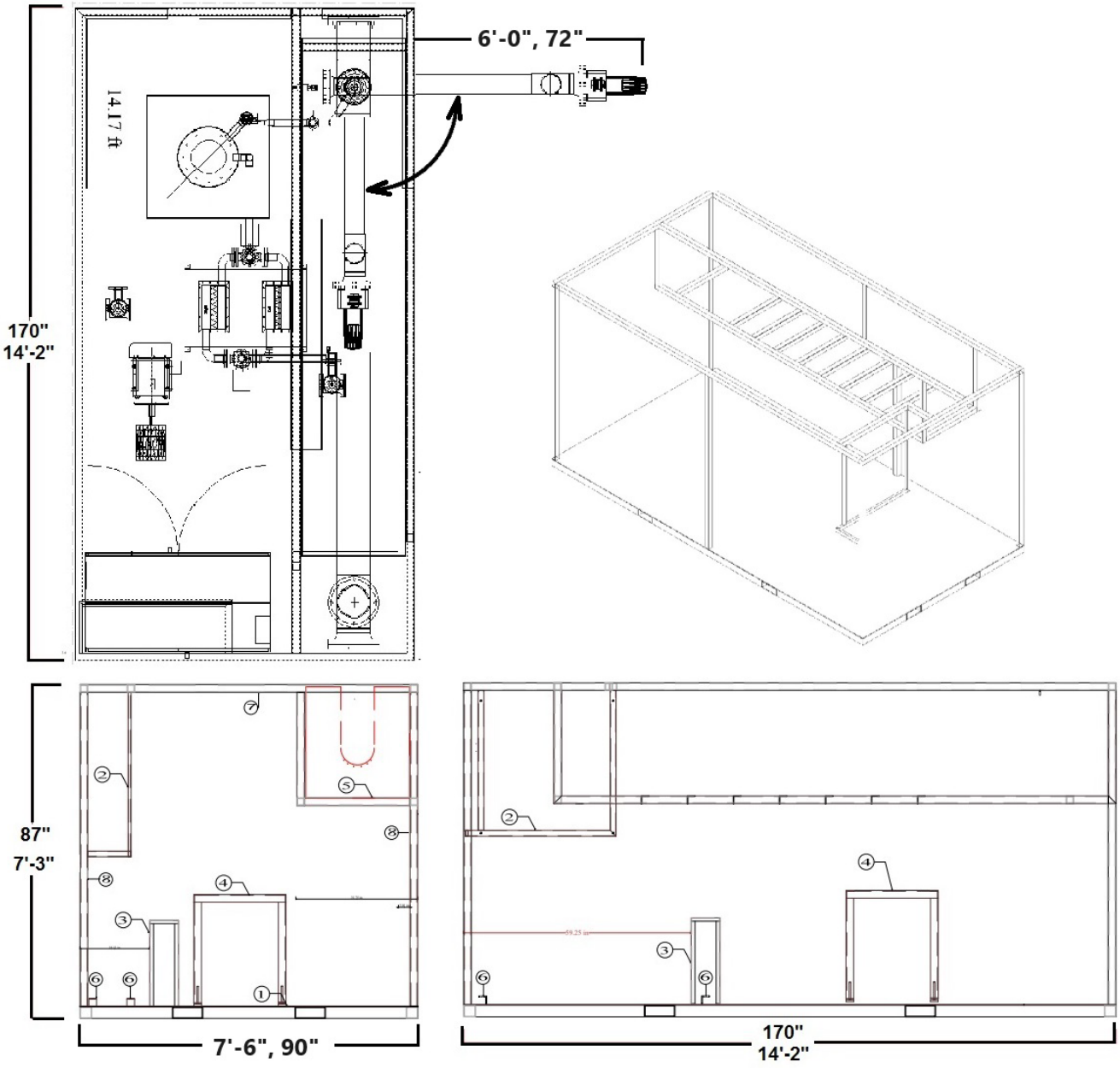
GENERAL	SPECIFICATIONS
SAFETLY VENTING LINE PRESSURE REGULATOR	Exterior Vent 7’ From Structure @14’H Shielded
TOTAL SYSTEM WEIGHT	5,000 Lb’s (47 Lb per SF)

GAS / CHP OUTPUT	SPECIFICATIONS
THERMAL ENERGY-CHP ONLY	50% with Genset
ELECTRICAL ENERGY	39.6% with Genset
GAS COMPOSITION OUT: INTO GENSET	CO 45-49%, H2 40-44%, CH4 5-7%, CO2 2-4%, <3%
FLOW RATE / HEAT VALUE	752 Nm3/h, 5.6MJ/Nm3

Omni BioEnergy, 529 Garcia Ave., Suite F, Pittsburg CA 94565 U.S.A.
Phone: +1-(415) 302-1245, Email¨jeffd@omnibioenergy.com Web: omnibioenergy.com

DESCRIPTION

Skid Base
Instrument cabinet mounting bracket
Liquid Knockout support frame
HHCC support frame
Reactor Furnace support frame
Power cabinet mounting bracket (4 req)
Top Frame
Support column
(2"x2"-11Ga x 81.75") (4 req)

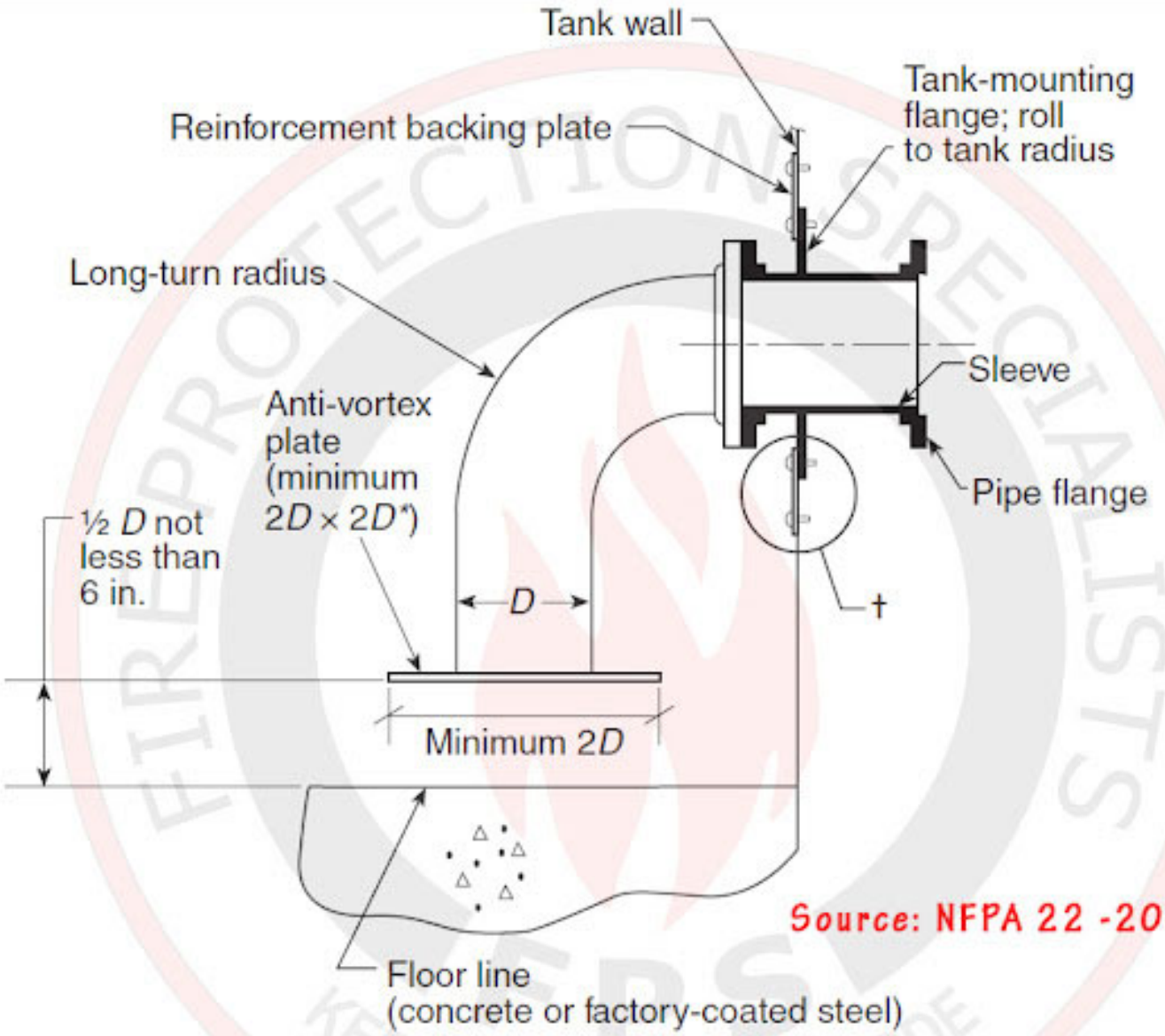


SKID ASSEMBLE

Omni BioEnergy, 529 Garcia Ave. Suite F, Pittsburg CA 94565 U.S.A.
Phone: +1-(415) 302-1245, Email: jeffd@omnibioenergy.com Web: omnibioenergy.com

Attachment 6: Water Tank NFPA 22 Compliant and Typical Suction Nozzle with Anti-Vortex

Diameter	Capacity	Eave Height	Total Height
Ft' In"	US Gallons	Ft' In"	Ft' In"
17' 11"	13,812	7' 4"	12' 6"
	27,625	14' 8"	19' 6"



Source: NFPA 22 -2018 edition

For SI units, 1 in. = 25.4 mm.
*Frequently, a 48 in. × 48 in. size is used as a standard size that will work for any situation.
†For reinforcement requirements, see AWWA D103.

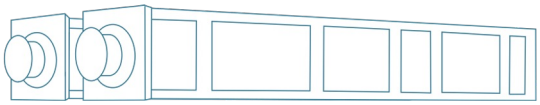
Typical Suction Nozzle with Anti-Vortex Plate for Lap-Jointed Bolted Tanks.

Attachment 7: The Mainspring Linear Generator

The Mainspring Linear Generator

Local, scalable, fuel-flexible power for commercial and industrial customers, biogas developers, utilities, municipalities, and datacenters

Easy, Modular Installation
High Availability & Low Maintenance
Up to 25 MW per Acre Scalability



Each package contains two linear generator cores, operated in tandem

Breakthrough design enables an unmatched combination of features and benefits.

High Efficiency
Direct conversion of linear motion into electricity

Near-Zero NOx
Low-temperature, non-combustion reaction without a flame or burning

Permitting Anywhere
Meets any air permitting requirements in the US

Fuel Flexibility
Continuous, adaptive control without mechanical constraints

Fully Dispatchable
Load-tracking, fast on/off, black start, and islanding

Controllable & Configurable
Integrates seamlessly with site components & requirements

Performance Specifications

Outputs[1]	Power (net AC)	230 kW
	Electrical	400/480 V, 3 Phase, 50/60 Hz
Inputs[2]	Fuels	Any blend of Biogas, Natural Gas, Hydrogen, and Propane
	Input Pressure	5-25 psig (15 psig nominal)
	Water Consumption	None
Efficiency[3]	Electrical (LHV, net AC)	45%
	Heat Rate (HHV, net AC)	8,416 BTU/kWh
Emissions[4]	NO_x	< 2.5 ppm (<0.07 lb/MWh)
	Noise	< 70 dBA @ 6 feet
Physical	Weight	20 tonnes
	Dimensions (L x W x H)	20.5' x 8.5' x 9.5'

Environment	Temperature Range	-30 to 50 C
	Humidity	0 to 100%
Operations	Power Output Range	0 to 100% power output
	Grid Parallel to Island Transfer[5]	< 10 sec
	Maximum Step Load	300 kVA for up to 10 sec
	Building Soft Start Capability	Yes
Other	• UL 2200 package • UL 1741 SB grid-tie inverter • Compliant with CA Rule 21	• Remote monitoring • Secure customer portal • Modbus interface

[1] Rated capacity may vary by fuel type.
[2] 100% hydrogen requires greater than 125 psig.
[3] Measured according to ASME PTC 50 at 15 C and 1 atm on natural gas and biogas. Rated efficiency may vary by fuel type.
[4] Products comply with emissions limits in South Coast AQMD.
[5] Performance with purchase and installation of external site relays and controls equipment.

All data is subject to technical development and modification. R30041

About Mainspring Energy

Driven by its vision of the affordable, reliable, zero carbon grid of the future, Mainspring is delivering a breakthrough new category of power generation - the linear generator - to customers to increase their energy resilience, generate cost savings, and meet their sustainability and climate goals.

3601 Haven Avenue
Menlo Park, CA 94025
mainspringenergy.com

Capstone Green Energy

Energy Conversion Products

C200S Microturbine

Digester Gas

Achieve ultra-low emissions and reliable electrical generation from digester gas.

C200S Microturbine

Electrical Performance[1]

Electrical Power Output[2]	200kW
Voltage	400/480 VAC
Electrical Service	3-Phase, 4 Wire Wye
Frequency	50/60 Hz
Electrical Efficiency LHV	33%

Fuel/Engine Characteristics[1]

Digester Gas HHV	20.5–32.6 MJ/m^3 (550–875 BTU/scf)
H_2S Content	< 5,000 ppmv
Inlet Pressure	517–552 kPa gauge (75–80 psig)
Fuel Flow HHV	2,400 MJ/hr (2,280,000 BTU/hr)
Net Heat Rate LHV	10.9 MJ/kWh (10,300 BTU/kWh)

Exhaust Characteristics[1]

NOx Emissions @ 15% O_2	9 ppmvd (18 mg/m^3)
Exhaust Mass Flow	1.3 kg/s (2.9 lbm/s)
Exhaust Gas Temperature	280°C (535°F)

Benefits

- **Ultra-low emissions**
- **Accepts sour gas fuels with up to 5,000 ppm H_2S**
- **One moving part – minimal maintenance and downtime**
- **Patented air bearings – no lubricating oil or coolant**
- **Integrated utility synchronization – no external switchgear**
- **Compact modular design allows for easy, low-cost installation**
- **Multiple units easily combined – act as single generating source**
- **Remote monitoring and diagnostic capabilities**
- **Proven technology with tens of millions of operating hours**
- **Various Factory Protection Plans available**

Smarter Energy for a Cleaner Future

Dimensions & Weight[3]

Width x Depth x Height	3.0 x 2.5 x 3.0 m (117 x 100 x 119 in)
Weight - Grid Connect Model	5,200 kg (11,400 lbs)
Weight - Dual Mode Model	5,850 kg (12,900 lbs)

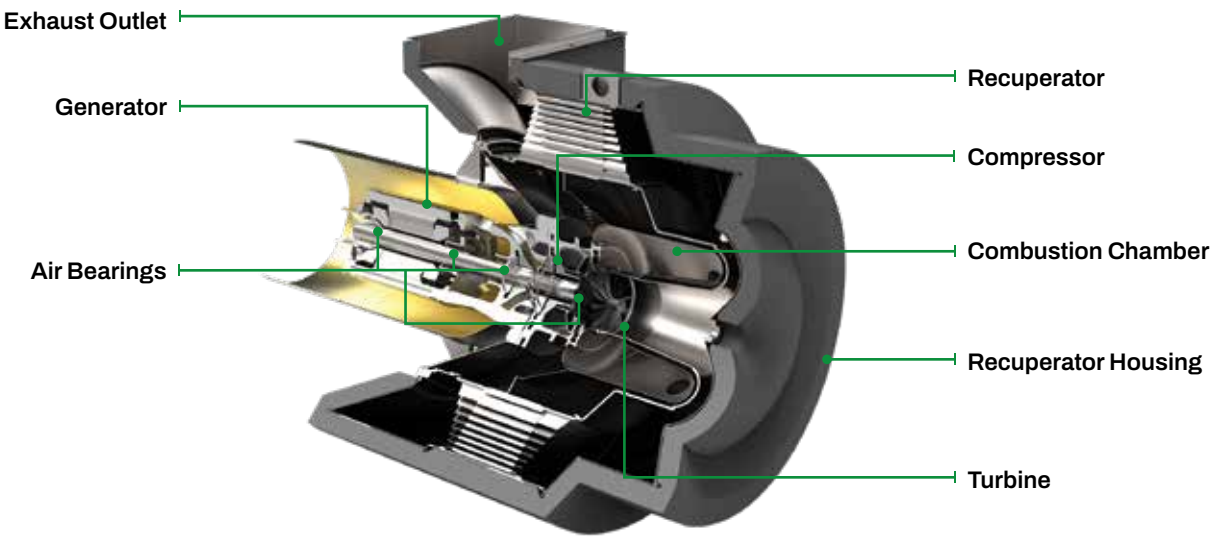
Minimum Clearance Requirements[4]

Horizontal Clearance	
Left	1.5 m (60 in)
Right	0.0 m (0 in)
Front	1.7 m (65 in)
Rear	2.2 m (85 in)

Certifications

- **UL 2200 Listed**
- **CE Certified**
- **Certified to the following grid interconnections standards: UL 1741-SA, VDE, BDEW, CEI 0-16, and AS4777**
- **Compliant to California Rule 21**

C200 Engine Components



(1) Nominal full power performance at ISO conditions: 15˚C (59˚F), 14.696 psia, 60% RH
(2) Minimum power output is 35kW when operating in Grid Connect Mode
(3) Approximate dimensions and weights
(4) Clearance requirements may increase due to local code considerations
Specifications are not warranted and are subject to change without notice.

Call us (toll free) 1.866.422.7786 | Tel: 1.818.734.5300 | www.capstonegreenenergy.com

Capstone Green Energy

Attachment 8: Land Evaluation & Site Assessment (LESA)

NOTES

Calculation of the Land Evaluation (LE) Score

Part 1. Land Capability Classification (LCC) Score:

(1) Determine the total acreage of the project.
(2) Determine the soil types within the project area and enter them in **Column A** of the **Land Evaluation Worksheet** provided on page 2-A.
(3) Calculate the total acres of each soil type and enter the amounts in **Column B**.
(4) Divide the acres of each soil type (**Column B**) by the total acreage to determine the proportion of each soil type present. Enter the proportion of each soil type in **Column C**.
(5) Determine the LCC for each soil type from the applicable Soil Survey and enter it in **Column D**.
(6) From the LCC Scoring Table below, determine the point rating corresponding to the LCC for each soil type and enter it in **Column E**.

LCC Scoring Table

LCC Class	I	IIe	IIs,w	IIIe	IIIs,w	IVe	IVs,w	V	VI	VII	VIII
Points	100	90	80	70	60	50	40	30	20	10	0

(7) Multiply the proportion of each soil type (**Column C**) by the point score (**Column E**) and enter the resulting scores in **Column F**.
(8) Sum the LCC scores in **Column F**.
(9) Enter the LCC score in box <1> of the **Final LESA Score Sheet** on page 10-A.

Part 2. Storie Index Score:

(1) Determine the Storie Index rating for each soil type and enter it in **Column G**.
(2) Multiply the proportion of each soil type (**Column C**) by the Storie Index rating (**Column G**) and enter the scores in **Column H**.
(3) Sum the Storie Index scores in **Column H** to gain the Storie Index Score.
(4) Enter the Storie Index Score in box <2> of the **Final LESA Score Sheet** on page 10-A.

Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
hf6k	10.4	0.24	I	100	24	77	18.48
hf5g	32.2	0.76	IIs	80	60.8	86	65.36
Totals	42.6	(Must Sum to 1.0)		***LCC Total Score***	84.8	***Storie Index Total Score***	83.84

Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
	10.4		
	32.2		
Total Acres	42.6		
Project Size Scores	80		

Highest Project Size Score 80

NOTES

Calculation of the Site Assessment (SA) Score

Part 1. Project Size Score:.

(1) Using **Site Assessment Worksheet 1** provided on page 2-A, enter the acreage of each soil type from **Column B** in the **Column - I, J or K** - that corresponds to the LCC for that soil. (Note: While the Project Size Score is a component of the Site Assessment calculations, the score sheet is an extension of data collected in the Land Evaluation Worksheet, and is therefore displayed beside it).
(2) Sum **Column I** to determine the total amount of class I and II soils on the project site.
(3) Sum **Column J** to determine the total amount of class III soils on the project site.
(4) Sum **Column K** to determine the total amount of class IV and lower soils on the project site.
(5) Compare the total score for each LCC group in the Project Size Scoring Table below and determine which group receives the highest score.

Project Size Scoring Table

Class I or II		**Class III**		**Class IV or Lower**	
Acreage	Points	Acreage	Points	Acreage	Points
>80	100	>160	100	>320	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
10<	0	20-39	30	40<	0
		10-19	10		
		10<	0		

(6) Enter the **Project Size Score** (the highest score from the three LCC categories) in box <3> of the **Final LESA Score Sheet** on page 10-A.

NOTES

Part 2. Water Resource Availability Score:

(1) Determine the type(s) of irrigation present on the project site, including a determination of whether there is dryland agricultural activity as well.

(2) Divide the site into portions according to the type or types of irrigation or dryland cropping that is available in each portion. Enter this information in **Column B** of **Site Assessment Worksheet 2. - Water Resources Availability**.

(3) Determine the proportion of the total site represented for each portion identified, and enter this information in **Column C**.

(4) Using the Water Resources Availability Scoring Table, identify the option that is most applicable for each portion, based upon the feasibility of irrigation in drought and non-drought years, and whether physical or economic restrictions are likely to exist. Enter the applicable Water Resource Availability Score into **Column D**.

(5) Multiply the Water Resource Availability Score for each portion by the proportion of the project area it represents to determine the weighted score for each portion in **Column E**.

(6) Sum the scores for all portions to determine the project's total Water Resources Availability Score

(7) Enter the Water Resource Availability Score in box <4> of the **Final LESA Score Sheet** on page 10-A.

Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1	Groundwater wells	1	75	75
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	75

Water Resource Availability Scoring Table

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

Updated 2011

NOTES

Part 3. Surrounding Agricultural Land Use Score:

(1) Calculate the project's Zone of Influence (ZOI) as follows:

(a) a rectangle is drawn around the project such that the rectangle is the smallest that can completely encompass the project area.

(b) a second rectangle is then drawn which extends one quarter mile on all sides beyond the first rectangle.

(c) The ZOI includes all parcels that are contained within or are intersected by the second rectangle, less the area of the project itself.

(2) Sum the area of all parcels to determine the total acreage of the ZOI.

(3) Determine which parcels are in agricultural use and sum the areas of these parcels

(4) Divide the area in agriculture found in step (3) by the total area of the ZOI found in step (2) to determine the percent of the ZOI that is in agricultural use.

(5) Determine the Surrounding Agricultural Land Score utilizing the Surrounding Agricultural Land Scoring Table below.

Surrounding Agricultural Land Scoring Table

Percent of ZOI in Agriculture	Surrounding Agricultural Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

(5) Enter the Surrounding Agricultural Land Score in box <5> of the **Final LESA Score Sheet** on page 10-A.

Site Assessment Worksheet 3.
Surrounding Agricultural Land and Surrounding Protected Resource Land

A	B	C	D	E	F	G
Zone of Influence						
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (A/B)	Percent Protected Resource Land (A/C)	Surrounding Agricultural Land Score (From Table)	Surrounding Protected Resource Land Score (From Table)
320	178	82	55.6	25.6	40	0

NOTES

Part 4. Protected Resource Lands Score:

The Protected Resource Lands scoring relies upon the same Zone of Influence information gathered in Part 3, and figures are entered in Site Assessment Worksheet 3, which combines the surrounding agricultural and protected lands calculations.

(1) Use the total area of the ZOI calculated in Part 3. for the Surrounding Agricultural Land Use score.

(2) Sum the area of those parcels within the ZOI that are protected resource lands, as defined in the California Agricultural LESA Guidelines.

(3) Divide the area that is determined to be protected in Step (2) by the total acreage of the ZOI to determine the percentage of the surrounding area that is under resource protection.

(4) Determine the Surrounding Protected Resource Land Score utilizing the Surrounding Protected Resource Land Scoring Table below.

Surrounding Protected Resource Land Scoring Table

Percent of ZOI Protected	Protected Resource Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

(5) Enter the Protected Resource Land score in box <6> of the **Final LESA Score Sheet** on page 10-A.

NOTES

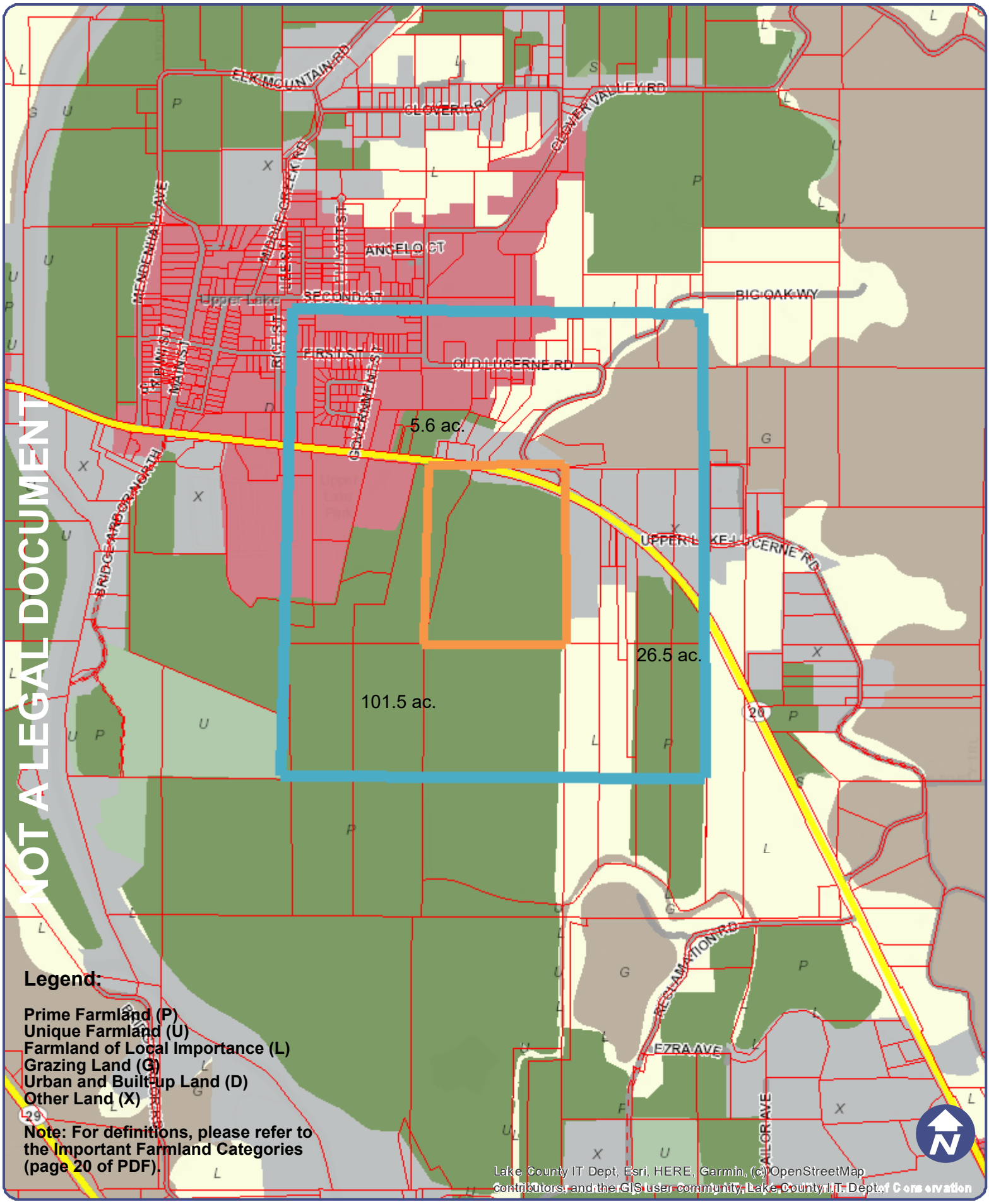
Final LESA Score Sheet

Calculation of the Final LESA Score:

(1) Multiply each factor score by the factor weight to determine the weighted score and enter in Weighted Factor Scores column.
(2) Sum the weighted factor scores for the LE factors to determine the total LE score for the project.
(3) Sum the weighted factor scores for the SA factors to determine the total SA score for the project.
(4) Sum the total LE and SA scores to determine the Final LESA Score for the project.

	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	<1> 84.8	0.25	21.5
Storie Index	<2> 83.84	0.25	20.96
LE Subtotal		***0.50***	42.46
SA Factors			
Project Size	<3> 80	0.15	12
Water Resource Availability	<4> 75	0.15	11.25
Surrounding Agricultural Land	<5> 40	0.15	6
Protected Resource Land	<6> 0	0.05	0
SA Subtotal		***0.50***	18
		Final LESA Score	60.46

For further information on the scoring thresholds under the California Agricultural LESA Model, consult Section 4 of the Instruction Manual.



Lake County, CA

Zone of Influence

Ag Forest Wood Processing Project (IS 23-10)

mi
0 0.25 0.5

All parcel boundaries are *approximate*. Discrepancies in acerage, shape and location are common.
This map is not the legal survey document to be used in single site determinations. Consult your deed for a legal parcel description.

Print Date: 2/5/2024

California Revised Storie Index (CA)

The Revised Storie Index is a rating system based on soil properties that govern the potential for soil map unit components to be used for irrigated agriculture in California.

The Revised Storie Index assesses the productivity of a soil from the following four characteristics:

- Factor A: degree of soil profile development

- Factor B: texture of the surface layer

- Factor C: steepness of slope

- Factor X: drainage class, landform, erosion class, flooding and ponding frequency and duration, soil pH, soluble salt content as measured by electrical conductivity, and sodium adsorption ratio

Revised Storie Index numerical ratings have been combined into six classes as follows:

- Grade 1: Excellent (81 to 100)

- Grade 2: Good (61 to 80)

- Grade 3: Fair (41 to 60)

- Grade 4: Poor (21 to 40)

- Grade 5: Very poor (11 to 20)

- Grade 6: Nonagricultural (10 or less)

Reference:

O'Geen, A.T., Southard, S.B., Southard, R.J. 2008. A Revised Storie Index for Use with Digital Soils Information. University of California Division of Agriculture and Natural Resources. Publication 8355. http://anrcatalog.ucanr.edu/pdf/8335.pdf

Report—California Revised Storie Index (CA)

California Revised Storie Index (CA)–Lake County, California			
Map symbol and soil name	Pct. of map unit	California Revised Storie Index (CA)	
		Rating class	Value
124—Cole variant clay loam			
Cole, variant	85	Grade 2 - Good	77
158—Lupoyoma silt loam, protected			
Lupoyoma	85	Grade 1 - Excellent	86

Data Source Information

Soil Survey Area: Lake County, California
Survey Area Data: Version 20, Aug 28, 2023

Land Capability Classification

The land capability classification of map units in the survey area is shown in this table. This classification shows, in a general way, the suitability of soils for most kinds of field crops (United States Department of Agriculture, Soil Conservation Service, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

- Class 1 soils have slight limitations that restrict their use.
- Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.
- Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.
- Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.
- Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.
- Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion.

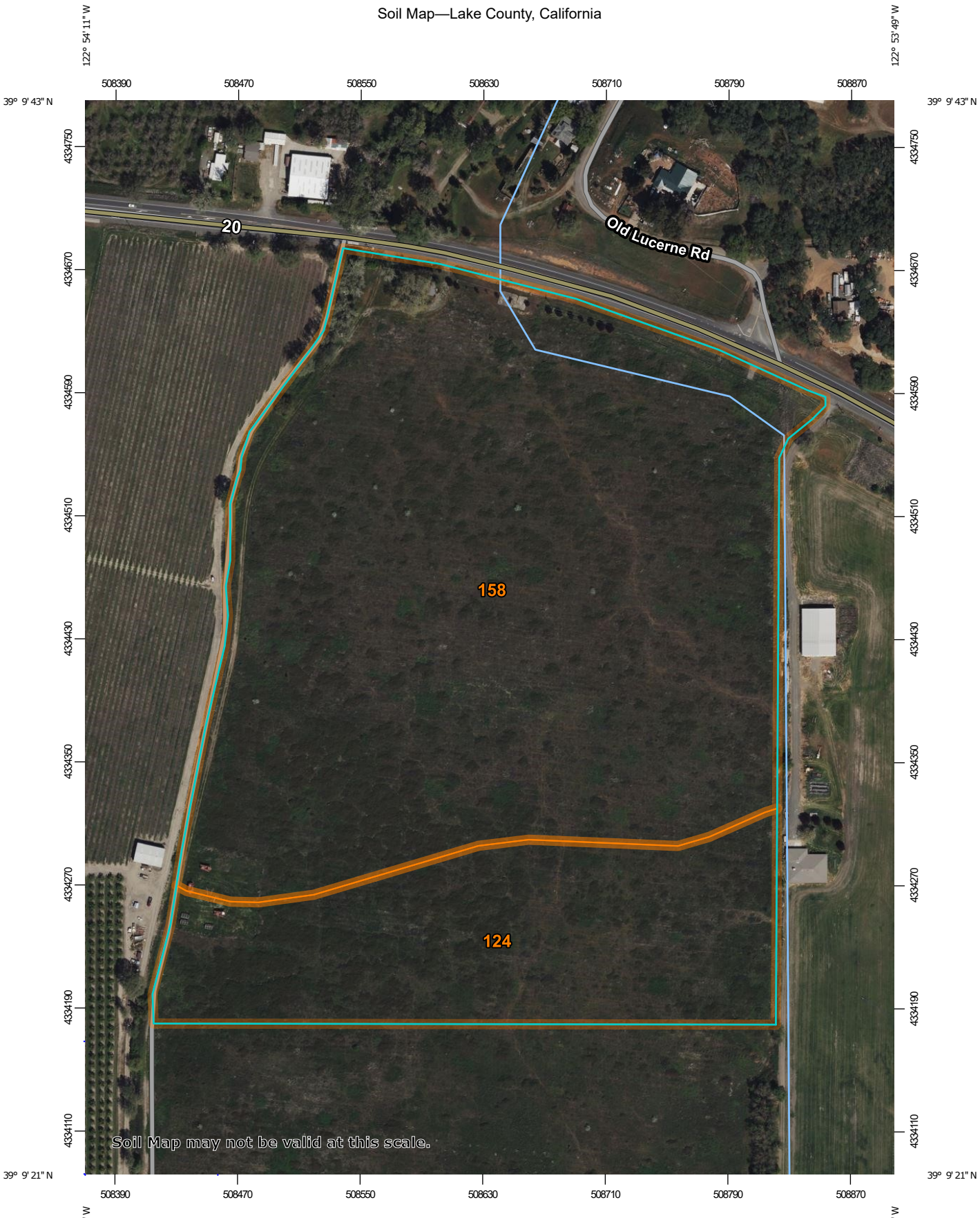
Report—Land Capability Classification

Land Capability Classification–Lake County, California				
Map unit symbol and name	Pct. of map unit	Component name	Land Capability Subclass	
			Nonirrigated	Irrigated
124—Cole variant clay loam				
	85	Cole, variant	3s	2s
	4	Lupoyoma	—	—
	4	Clear lake	—	—
	4	Still	—	—
	3	Unnamed	—	—
158—Lupoyoma silt loam, protected				
	85	Lupoyoma	3c	1
	3	Xerofluvents	—	—
	3	Cole, variant	—	—
	3	Kelsey	—	—
	3	Maywood, variant	—	—
	3	Unnamed	—	—

Data Source Information

Soil Survey Area: Lake County, California
Survey Area Data: Version 20, Aug 28, 2023

Soil Map—Lake County, California



Map Scale: 1:3,400 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lake County, California
Survey Area Data: Version 20, Aug 28, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 7, 2022—May 31, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
124	Cole variant clay loam	10.4	24.6%
158	Lupoyoma silt loam, protected	32.2	75.4%
Totals for Area of Interest		**42.6**	**100.0%**

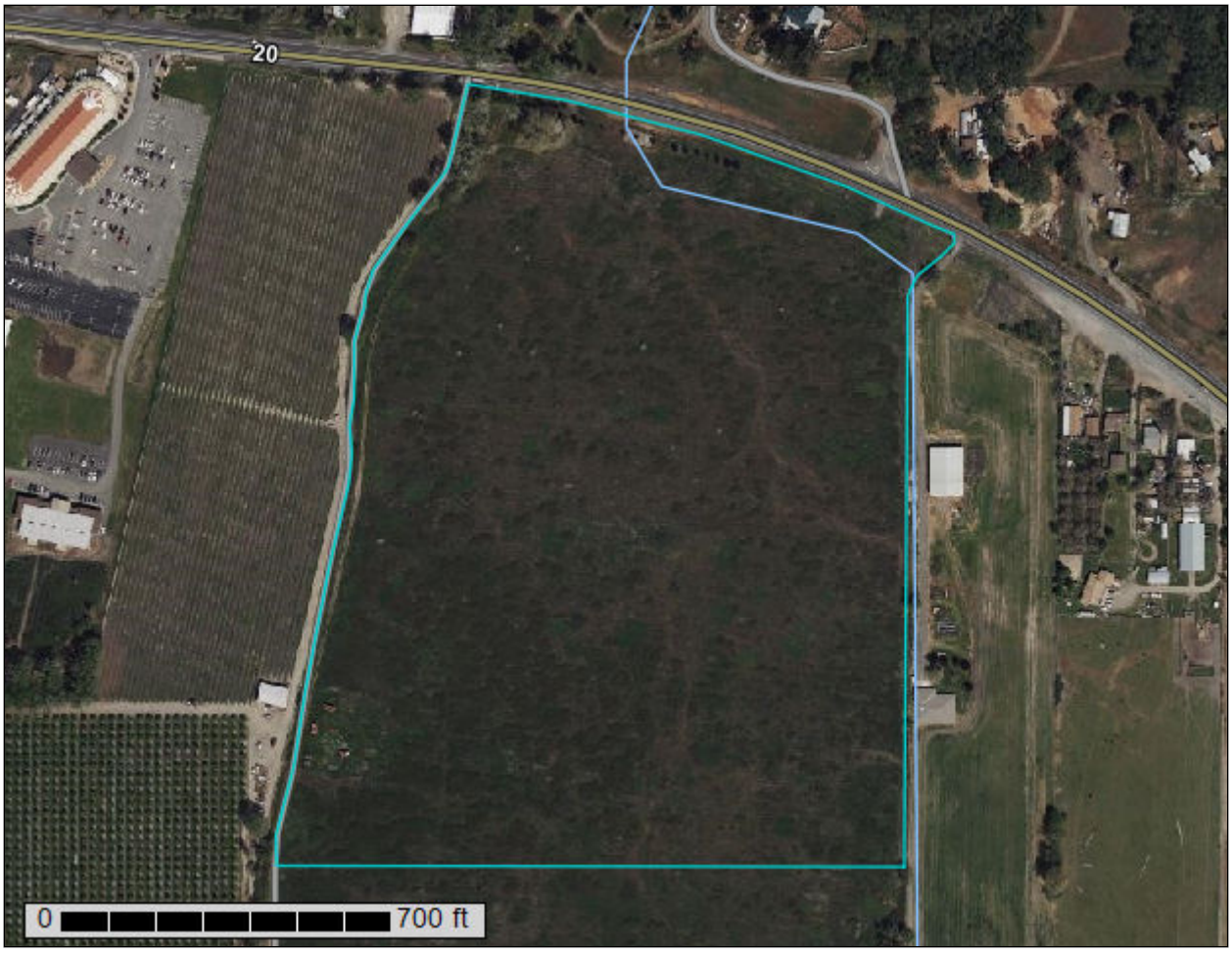
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Lake County, California



February 21, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

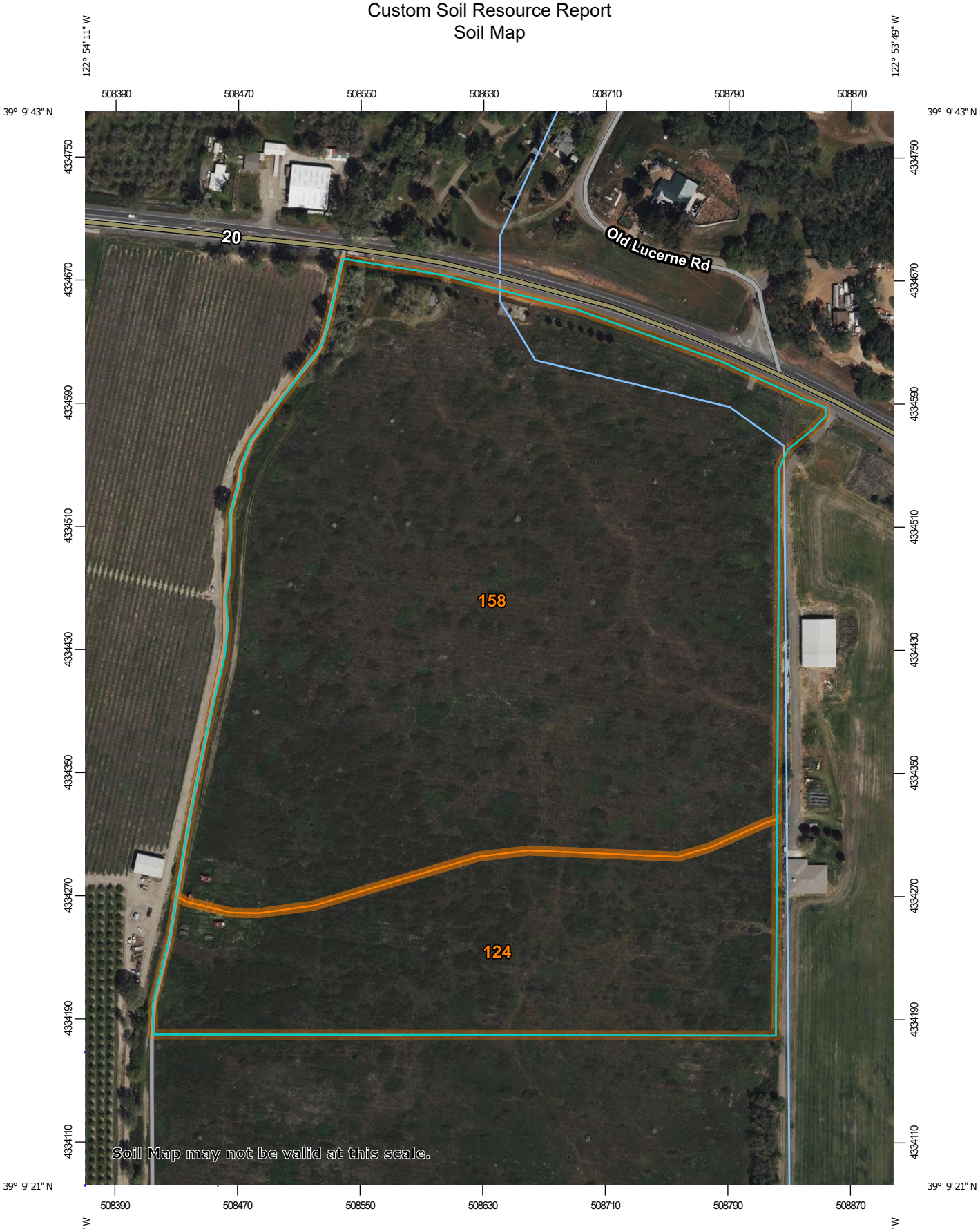
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,400 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
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- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
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- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
124	Cole variant clay loam	10.4	24.6%
158	Lupoyoma silt loam, protected	32.2	75.4%
Totals for Area of Interest		**42.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Lake County, California

124—Cole variant clay loam

Map Unit Setting

National map unit symbol: hf5g
Elevation: 1,300 to 1,400 feet
Mean annual precipitation: 28 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 150 to 205 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Cole, variant, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cole, Variant

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 8 inches: clay loam
H2 - 8 to 60 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: R014XG905CA - Clayey Bottom
Hydric soil rating: No

Minor Components

Lupoyoma

Percent of map unit: 4 percent
Hydric soil rating: No

Clear lake
Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Still
Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 3 percent
Hydric soil rating: No

158—Lupoyoma silt loam, protected

Map Unit Setting
National map unit symbol: hf6k
Elevation: 800 to 1,450 feet
Mean annual precipitation: 25 to 40 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 150 to 205 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Lupoyoma and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lupoyoma

Setting
Landform: Flood plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile
H1 - 0 to 31 inches: silt loam
H2 - 31 to 84 inches: stratified very fine sandy loam to silty clay loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare

Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: R014XG907CA - Loamy Bottom
Hydric soil rating: No

Minor Components

Xerofluvents

Percent of map unit: 3 percent
Landform: Fans
Hydric soil rating: Yes

Cole, variant

Percent of map unit: 3 percent
Hydric soil rating: No

Kelsey

Percent of map unit: 3 percent
Hydric soil rating: No

Maywood, variant

Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 3 percent
Hydric soil rating: No

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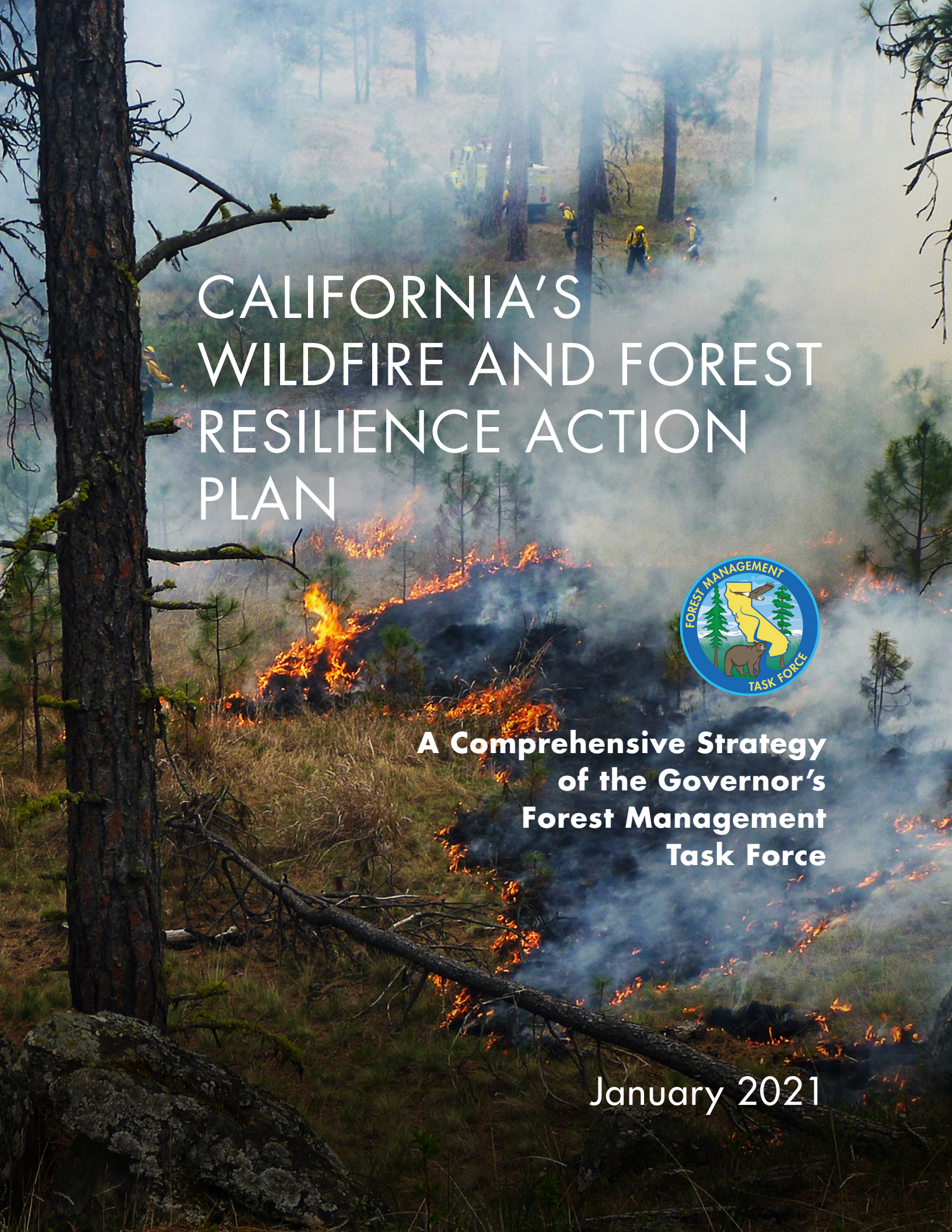
Attachment 9: Californias Wildfire and Forest Resilience Action Plan



CALIFORNIA'S WILDFIRE AND FOREST RESILIENCE ACTION PLAN

A Comprehensive Strategy of the Governor's Forest Management Task Force

January 2021

California's Wildfire and Forest Resilience Action Plan

January 2021

STATE OF CALIFORNIA
Gavin Newsom, Governor

Task Force Co-Chairs

CALIFORNIA NATURAL RESOURCES AGENCY
Wade Crowfoot, Secretary

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
Jared Blumenfeld, Secretary

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
Thom Porter, Director

Thank you to the
numerous federal, state and local agencies and
non-governmental organizations who
contributed to this plan.

This Action Plan is located on the
Forest Management Task Force website:
https://fmtf.fire.ca.gov/

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CALIFORNIA'S WILDFIRE AND FOREST RESILIENCE ACTION PLAN

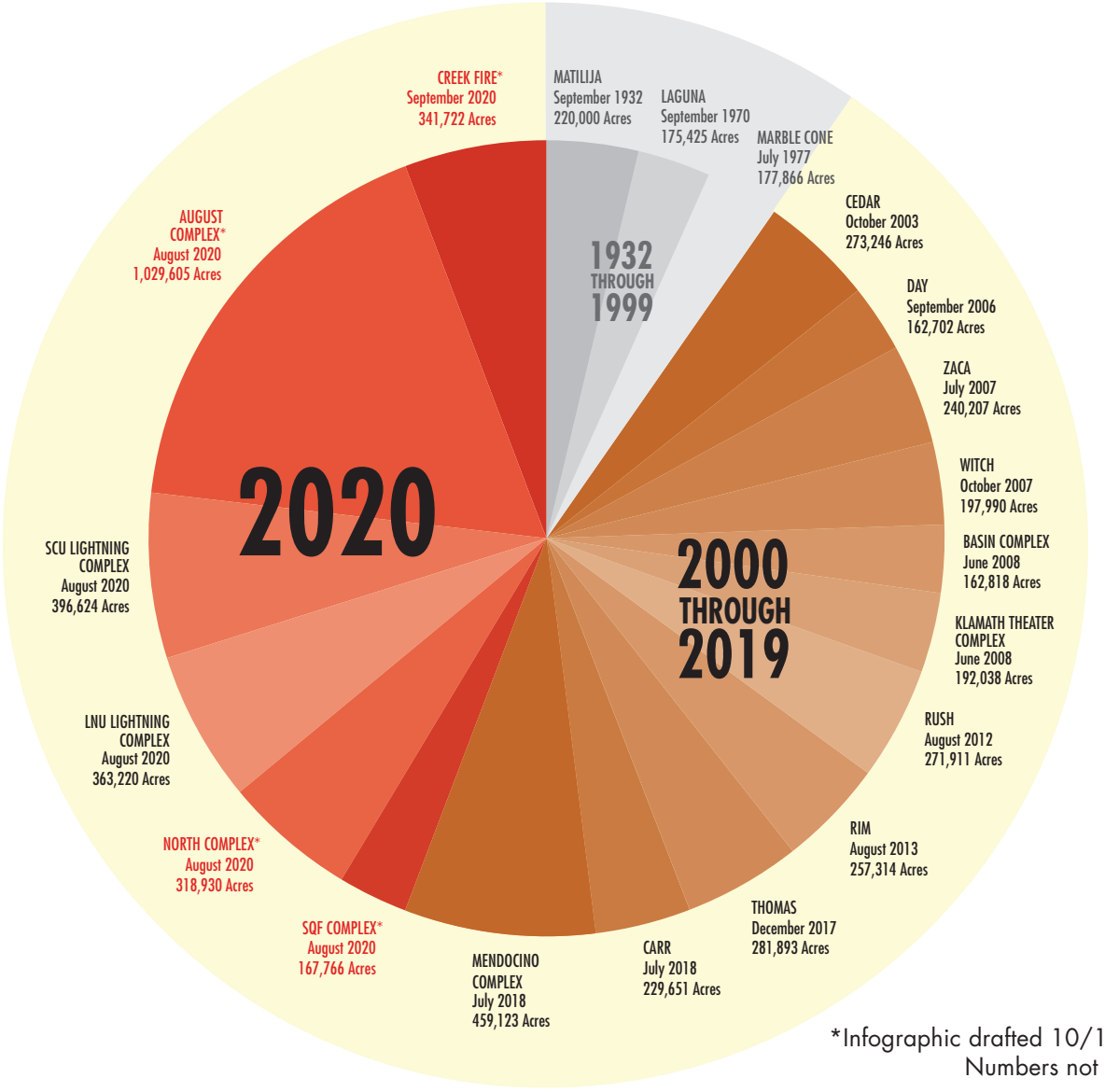
Recommendations of the Governor's Forest Management Task Force » 2021

CALL TO ACTION

California is facing a growing forest and wildfire crisis. Decades of fire suppression, coupled with the increasing impacts of climate change, have dramatically increased wildfires' size and intensity throughout the state.

The 2020 fire season broke numerous records. Five of California's six largest fires in modern history burned at the same time, destroying thousands of buildings, forcing hundreds of thousands of people to flee their homes, and exposing millions of residents to dangerously unhealthy air. More than 4 million acres burned across the state, double the previous record.

TOP 20 LARGEST CALIFORNIA WILDFIRES



*Infographic drafted 10/13/2020. Numbers not finalized.

Building on important work started during the previous administration, state policymakers and agencies have bolstered efforts and expanded investments in unprecedented ways over the past two years to address this crisis. Despite this progress, bolder action is required to address the key drivers of catastrophic fires, significantly increase the pace and scale of forest management, and improve the resilience of increasingly threatened communities.

First, we recognize that climate change increases the frequency and severity of catastrophic wildfires. More than 100 peer-reviewed studies published since 2013 demonstrate a strong consensus that climate change extends the periods of wildfire risk and enhances the likelihood of fires. Land use and forest management practices are also contributing factors but cannot fully explain the magnitude of wildfires in recent years.

Second, California's diverse landscapes and communities require regionally tailored strategies and actions. Protecting California's communities and natural places from the impacts of catastrophic wildfire cannot be achieved through a "one size fits all" solution. Different types of vegetation and landscapes— from redwoods to chaparral to desert— require different approaches. State investments and programs must recognize and enable regionally and locally-driven solutions in partnership with groups and leaders from these regions.

Third, we recognize that building California's resilience to catastrophic wildfires means restoring the health of our forests and diverse landscapes across the state and strengthening wildfire preparation within our communities. While the Task Force started with a focus on forest management, we recognize that an effective strategy to address growing wildfire risk must also emphasize actions we can take in our homes, neighborhoods and communities.

Fourth, we recognize the scientific consensus that frequent, low-intensity fire can be a positive force in improving forest health and biodiversity and forested communities' safety. We must draw upon the practices of Native Americans, ranchers, and rural communities to rapidly expand the use of prescribed fire and bring these best practices to state lands.

Fifth, we recognize and commit to strengthening the linkages between the ecological health of forests and the economic and social health of rural communities. Successful environmentally sustainable forest management and wood products sectors are vital to enabling prosperity in forested rural economies.

Sixth, since landscapes at risk of wildfire cross multiple ownerships, we recognize the need for strong partnerships among federal, state, local and tribal entities and private organizations. In August 2020, Governor Newsom and Vicki Christiansen, Chief of the United States Department of Agriculture's Forest Service (USFS), announced a historic Agreement for Shared Stewardship of California's Forest and Rangelands to improve the health of California's forests and reduce wildfire risk across the state. Complementary partnerships at the local level through tribal governments, cities and counties, fire safe councils, regional collaboratives, resource conservation districts, and others will continue to protect our forested landscapes and at-risk communities.

And finally, we recognize that state government must play a leadership role in bringing these interests together to align and integrate activities, coordinate investments, and help to shape a resilient future for communities and natural places. The Wildfire and Forest Resilience Action Plan provides a framework and strategy to improve wildfire resilience and forest health throughout the state.

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EXECUTIVE SUMMARY

The Wildfire and Forest Resilience Action Plan is designed to strategically accelerate efforts to:

- Restore the health and resilience of California forests, grasslands and natural places;
- Improve the fire safety of our communities; and
- Sustain the economic vitality of rural forested areas.

To meet these goals, the following will need to be achieved:

Scale-up forest management to meet the state and federal 1 million-acre annual restoration target by 2025.

- The Department of Forestry and Fire Protection (CAL FIRE) and other state entities will expand its fuels management crews, grant programs, and partnerships to scale up fuel treatments to 500,000 acres annually by 2025;
- California state agencies will lead by example by expanding forest management on state-owned lands to improve resilience against wildfires and other impacts of climate change; and
- The USFS will double its current forest treatment levels from 250,000 acres to 500,000 acres annually by 2025.

Significantly expand the use of prescribed fire across the state:

- CAL FIRE will expand its fuels reduction and prescribed fire programs to treat up to 100,000 acres by 2025, and the California Department of Parks and Recreation (State Parks) and other state agencies will also increase the use of prescribed fire on high-risk state lands;
- The USFS, in partnership with CAL FIRE, tribal governments, and other agencies will seek to establish a Prescribed Fire Training Center to provide training opportunities for prescribed burn practitioners and focus training efforts on western ecosystems;
- CAL FIRE will also establish a new tribal grants program, increase support for workforce development and training programs, and evaluate options to address liability issues for private landowners seeking to conduct prescribed burns;
- The USFS will significantly expand its prescribed fire program to attain its 500,000-acre target for forest treatments by 2025.

Reforest areas burned by catastrophic fire:

- The USFS will develop a restoration strategy for wildfire impacted federal lands and CAL FIRE will partner with the California Office of Emergency Services (Cal OES) and other federal, state, and local agencies to develop a coordinated strategy to prioritize

and rehabilitate burned areas and affected communities. These ecologically-based strategies will focus on silvicultural practices that increase carbon storage, protect biodiversity, and build climate resilience.

Support communities, neighborhoods, and residents in increasing their resilience to wildfire:

» CAL FIRE will significantly expand its defensible space and home hardening programs and launch a new program building upon the Governor's 35 Emergency Fuel Break Projects by developing a list of 500 high priority fuel breaks across the state. This list will be continuously updated.

Utilize a statewide network of regional plans to ensure coordinated, comprehensive action across the state:

» The California Natural Resources Agency (CNRA) will expand its Regional Forest and Fire Capacity (RFFC) Program to all high-risk areas throughout the state and increase local and regional governments' capacity to build and maintain a pipeline of forest health and fire prevention projects.

Develop a comprehensive program to assist private forest landowners, who own more than 40 percent of the state's forested lands:

» CAL FIRE will coordinate the implementation of several grants and technical assistance programs for private landowners through a unified Wildfire Resilience and Forestry Assistance Program.

Create economic opportunities for the use of forest materials that store carbon, reduce emissions, and contribute to sustainable local economies.

» The Governor's Office of Planning and Research (OPR) is leading the development of a comprehensive framework to expand the wood products market in California and will partner with CAL FIRE, the Governor's Office of Business and Economic Development (GoBiz), the USFS, and the California Infrastructure and Economic Development Bank (iBank) to draft a market development roadmap and catalyze private investment into this sector.

Improve and align forest management regulations:

» The Board of Forestry and Fire Protection (BOF) is leading the expansion of a new online permitting tool and permit synchronization initiative to provide a one-stop shop for permits from several agencies and will use the California Vegetation Treatment Program (CalVTP) to streamline project planning and environmental review.

Spur innovation and better measure progress:

» CAL FIRE and the USFS, in coordination with the USDA California Climate Hub, the California Air Resources Board (CARB), and other agencies, will seek to establish a Forest Data Hub to coordinate and integrate federal, state, and local reporting on forest management and carbon accounting programs, and serve as a clearinghouse for new and emerging technologies and data platforms.

This strategy will also be integrated into the state's efforts to combat climate change through the following actions:

1. Scale-up forest thinning and prescribed fire efforts to reduce long-term greenhouse gas emissions and harmful air pollution from large and catastrophic wildfires;

2. Integrate science-based climate adaptation and resiliency strategies into the emerging statewide network of regional forest and community fire resilience plans;

3. Drive forest management, conservation, reforestation and wood utilization strategies that stabilize and increase the carbon stored in forests while preserving biodiversity and revitalizing rural communities;

4. Improve electricity grid resilience; and

5. Promote sustainable land use.

INTRODUCTION

The California Forest Management Task Force (Task Force) was established in 2018 to introduce a more holistic, integrated approach toward effective forest management. The Task Force's purpose has been to develop a framework for establishing healthy and resilient forests that can withstand and adapt to wildfire, drought and a changing climate.

The Task Force grew out of the state's Tree Mortality Task Force, which was established during California's recent drought in response to the massive die-off of trees across the state. It was specifically charged with implementing the California Forest Carbon Plan of 2018 and Executive Order B-52-18. The Task Force also drew upon the mandates and recommendations of a broad range of state, federal, local, and tribal governments and private organizations.

Over the past two years, the Task Force has convened more than two dozen interagency and stakeholder-led workgroups to develop the recommendations presented in this Wildfire and Forest Resilience Action Plan (Action Plan). This Action Plan will also serve as a roadmap for implementing the Agreement for Shared Stewardship of California's Forest and Rangelands (Shared Stewardship Agreement) with the United States Forest Service (USFS) under the United States Department of Agriculture (USDA), and for aligning the state's efforts with other federal, local, tribal, regional and private organizations.

This strategy integrates recommendations from existing state and federal plans that tackle various aspects of the state's forest health and wildfire crisis. California's natural and working lands have also been analyzed by several commissions, task forces, legislative hearings and reports, scientific conferences, workshops, and papers.[1] A common theme of these reports and recommendations is that the state needs "an unprecedented action plan" to effectively respond to the forest health and wildfire crisis.[2]

This Action Plan responds to that challenge by integrating key findings and recommendations from these various plans, studies, and assessments into a single coordinated and comprehensive strategy.

The entities responsible for implementing this strategy and its actions are committed to doing so in a manner that advances California's goals to achieve carbon neutrality, build climate resilience, improve equity, and foster economic prosperity. Many of these actions will inform other upcoming state agency plans, including the Natural and Working Lands Climate Smart Strategy (October 2021); State Adaptation Strategy (2021); 30 by 30 Pathways Document (February 2022); and Climate Change Scoping Plan (2022).

1 Strategic Fire Plan (2018), Forest Carbon Plan (2018), Governor's Office of Planning and Research's (OPR) updated Fire Hazard Planning Technical Advisory (2020), AB 32 Scoping Plan (2017), Forest and Range Assessment (2017), Safeguarding California Plan (2018), California Biodiversity Initiative (2018), Fourth California Climate Change Assessment (2018), California Water Resilience Portfolio (2020), State Wildlife Action Plan (2015), Sierra Nevada Watershed Improvement Program, Lake Tahoe Forest Action Plan (2019), The National Cohesive Wildland Fire Management Strategy, The USFS Region 5 Leadership Intent for Ecological Restoration.

2 Little Hoover Commission (2018), Legislative Analyst's Office (2018 and 2019), Public Policy Institute of California (2018), California Economic Summit (2019), The National Cohesive Summit (2019), Governor's Strike Force (2019), The Joint Institute for Wood Products Innovation (2020), California Council on Science and Technology (2020)

The focus of this Action Plan is increasing the pace and scale of forest management and wildfire resilience efforts by 2025 and beyond. The Action Plan sets state and federal attainment goals and describes a number of activities to work towards achieving these goals. These actions will be implemented to the extent resources are available.

Building Upon Recent Progress

This Action Plan builds on the state's significant progress and accomplishments in tackling California's forest health and wildfire crisis. First and foremost, the Administration and the Legislature have prioritized budgetary resources to provide CAL FIRE and other agencies with the resources needed to more effectively fight uncontrolled fires and protect vulnerable communities:

- **Hired Additional Seasonal Firefighters:** Additional seasonal firefighters were added during the 2019 and 2020 fire seasons to enhance CAL FIRE's firefighting surge capacity, given increased fire risk, including 393 seasonal firefighters in 2019 and 858 new seasonal firefighters in 2020.
- **Relief Staffing and Additional Surge Capacity:** The 2020 Budget included $85.6 million ongoing funding for additional firefighting resources to provide CAL FIRE with operational flexibility throughout the peak fire season and beyond as fire conditions dictate.
- **Purchased Additional Fire Engines:** The 2019 Budget Act included $67.5 million for enhanced fire suppression resources, including funding to purchase and staff new year-round fire engines and for heavy equipment fire support (e.g., fire bulldozing operations).
- **Modernization of Firefighting Aircraft:** Recent budgets have included resources to enhance CAL FIRE'S aviation fleet with new aircraft equipped to meet the challenges associated with more severe wildfire activity, including seven C-130 air tankers and 12 Black Hawk helicopters for nighttime firefighting operations.
- **Innovation Procurement Sprint:** The 2020 Budget added ongoing funding to enable CAL FIRE to implement the new, pioneering wildfire prediction and modeling technology that was procured through the Innovation Procurement Sprint process, which was initiated through Executive Order N-04-19.
- **Investments in Detection Technology:** The 2019 Budget Act added ongoing funding to install, operate, and maintain an additional 100 infrared fire monitoring cameras to help dispatchers and firefighters identify and confirm wildfire locations.

» **Pre-positioning Resources for Critical Fire Weather:** To boost California's wildland firefighting ranks during critical fire weather, the 2018-19 Budget added $25 million annually to fund city and county firefighting engines and crews to be able to pre-deploy in strategic locations and respond to breaking fires.

» **Building Wildfire Community Preparedness:** In 2019, Governor Newsom launched a $50 million emergency preparedness campaign to connect vulnerable populations with culturally and linguistically competent support and build resiliency in vulnerable communities at high risk for wildfires and other disasters.

In addition to these investments, Governor Newsom has issued several executive orders and initiatives to protect communities, restore forest health, and build wildfire and climate resilience.

» **Executive Orders:** On his first full day in office, Governor Newsom issued an Executive Order directing CAL FIRE to identify areas at high risk from wildfire and develop recommendations to better protect these vulnerable communities, which resulted in the CAL FIRE Community Wildfire Prevention and Mitigation Report.

» **Recently-Chaptered Legislation:** The California Legislature has passed several state laws, as described throughout this Action Plan and summarized in Appendix C, to establish new programs to restore forest health and protect communities.

» **Strike Force Report:** In April 2019, the Governor's Strike Force Report set forth a series of steps the state could take to reduce the incidence and severity of wildfires and maintain the state's commitment to clean energy.

» **35 Priority Fuel Reduction Projects:** CAL FIRE designed and implemented 35 fuel reduction projects in 2019 to protect more than 200 of California's most wildfire-vulnerable communities, facilitated by a State of Emergency Declaration issued by the Governor. These projects were highly effective in preventing fires and modifying fire behavior during the 2020 fire season.

» **Utility-Related Wildfire Risk:** The California Public Utilities Commission (CPUC) established a new Wildfire Safety Division and developed a strategy and roadmap for reducing utility-related wildfire risk.

» **Regulatory Streamlining:** State agencies have improved the planning and regulatory process for forest management, including accelerating the environmental review timeline for fire-prevention activities from several years to several months through the California Vegetation Treatment Program (CalVTP) and moving the timber harvest permitting system online through a new transparent platform called the California Timber Regulation and Environmental Evaluation System, or CalTREES.

» **Shared Stewardship Agreement:** In August 2020, Governor Newsom signed a Shared Stewardship Agreement with the USFS that establishes unprecedented coordination between state and federal agencies to each meet a goal of treating 500,000 acres annually by 2025 (total of 1 million acres).

» **Climate and Biodiversity:** Governor Newsom issued Executive Order N-82-20 in October 2020, directing state agencies to accelerate actions to combat climate change, protect biodiversity, and build resilience nature-based solutions, including improved forest management.

» **Investments in Forest Management:** The state has invested $1.4 billion in California Climate Investments (CCI) projects that provide climate mitigation or adaptation benefits and contribute to forest health and fire protection.

GOAL 1: INCREASE THE PACE AND SCALE OF FOREST HEALTH PROJECTS

The state must significantly increase the pace and scale of forest health projects to meet the goals of the Forest Carbon Plan and Shared Stewardship Agreement, which call for federal and state agencies to each meet a goal of treating 500,000 acres annually by 2025. The Shared Stewardship Agreement also commits the state and the United States Department of Agriculture's Forest Service (USFS) to develop a coordinated 20-year plan updated at five-year intervals for forest and vegetation management. This Action Plan, developed in coordination with the USFS and a broad and diverse coalition of agencies and key stakeholders, serves as the first five-year plan to advance the Shared Stewardship Agreement's goals.

The overarching goal of this state-federal agreement is to improve the health and resilience of the state's forested landscapes. While forest health can have multiple definitions, for the purposes of this Action Plan, healthy forests include woodlands, grasslands, chaparral, shrublands, and related vegetation types that yield both ecological and community benefits. Healthy vegetation improves climate resilience, reduce the risk of catastrophic wildfire, safeguard water and air quality, protect fish and wildlife habitat, enhance biodiversity, sequester carbon, improve recreational opportunities, and generate job and economic opportunities. However, as shown below, each of these vegetation types provides unique benefits, face different risks, and therefore require different management strategies.

FOREST

»100+ years of fire suppression = fire scarcity

» Accumulation of fuels/dense undergrowth

» Ladder fuels contribute to severe canopy fires

» Prescribed fire, ecological thinning, and sustainable timber harvest are needed

» Rare plants and species diversity must be protected when "clearing" forest floors

GRASSLAND & WOODLANDS

» Home of super blooms, vernal pools, often intermixed with woodlands

» Often targeted for development because they look weedy and bare for much of the year

» Prone to fast-moving fires

» Fires increased in severity due to the presence of invasive species and humans (witness Santa Rosa)

» Especially vulnerable to type conversion (other plants taking over) that increase fire risk and fire return intervals

» Community and home hardening and building restrictions are key

CHAPARRAL & SHRUBLANDS

» Found statewide but primarily in Southern California and along the coast

» Also found in lower elevations of the Sierra Nevada, adding complexity to forest regimes

» Chaparral habitats require fire for health, but the fire is happening too frequently

» At risk of type conversion, which increases fire risk

» Hardening and building restrictions are key

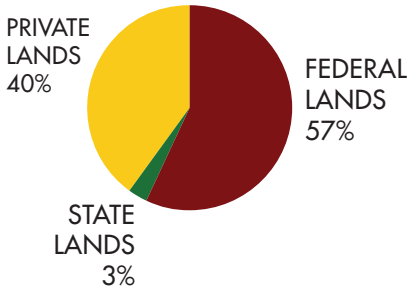
Accelerate Restoration Across All Lands

With California's landscape divided among multiple ownerships, coordinated stewardship is essential. Strengthening wildfire resilience is a shared responsibility of federal, state, and private landowners.

INCREASE TREATMENTS ON FEDERAL LANDS

Federal agencies own and manage about 57 percent of the state forested lands. The USFS Pacific Southwest Region manages 20.8 million acres across 18 National Forests in California. The Bureau of Land Management (BLM) owns 1.2 million acres of forest and woodlands, and the National Park Service (NPS) manages approximately 1.6 million acres.

Forest Lands Ownership in California



These federal agencies have significantly increased the scale of their forest fuels reduction projects in recent years. For example, the USFS has increased its targets for acres treated from 167,000 acres in 2016 to 235,000 acres in 2019 and 2020.

As described below, the USFS is also working to increase its use of prescribed and managed wildland fire significantly. As its National Forest land and resource management plans are revised, the USFS will encourage broader prescribed fire use on the landscape when conditions permit and complement mechanical and other vegetation treatments.

Key Actions:

1.1 Treat 500,000 Acres of USFS Land Annually by 2025: Consistent with the Shared Stewardship Agreement, the USFS intends to treat a total of 500,000 acres annually by increasing the pace-and-scale of restoration treatments over the next five years.

1.2 Increase Sustainable Timber Harvest: The USFS will seek to increase its annual timber harvest from 400 million board feet (MBF) to 500 MBF annually, accounting for a third of the current industry capacity of 1.5 billion board feet annually.

1.3 **Identify Strategic Fire Management Zones:** In 2021, the USFS will identify Strategic Fire Management Zones to expand its use of managed wildland fire while protecting public and community health and safety.

1.4 **Expand Agreements:** The USFS will seek to expand its use of Good Neighbor Authority and Shared Stewardship Agreements and other mechanisms to partner with state, local and tribal governments to accomplish fuels reduction projects on federal land more efficiently.

1.5 **Manage 175,000 Acres of NPS Lands by 2025:** NPS will utilize a combination of mechanical and prescribed fire to treat 75,000 acres and managed wildfires to treat another 100,000 acres to meet ecological objectives and reduce the risk and impact of high severity wildfires.

1.6 **Treat 10,000 to 15,000 acres of BLM Land Annually by 2025:** BLM will increase its pace and scale to meet its goal of treating approximately 9,000 acres a year to 10,000 to 15,000 acres a year.

RESTORE STATE AND PRIVATE LANDS

The State of California is responsible for fire and resource protection on nearly 13.3 million acres of private and state-owned forested lands. The state owns about 1.1 million acres of these lands, and 12.2 million acres of lands are under private ownership. In the past several years, forest management has significantly expanded on these lands. CAL FIRE has increased its forest thinning and prescribed fire activities from about 30,000 acres in 2016 to more than 50,000 acres in 2020. Partners receiving state-funded grants treated more than 30,000 acres in 2020. Private landowners currently actively manage 250,000-300,000 acres through fuels reduction, mechanical thinning, and timber harvest projects.

California plans to scale up its efforts to meet its 500,000-acre target by 2025 through:

- Expanding assistance to private landowners;
- Implementing forest health and resiliency projects on state-owned land; and
- Continuing sustainable timber harvest projects.

ENHANCE SUSTAINABLE TIMBER HARVEST

Private companies that harvest timber own nearly 14 percent of California's forestlands. These companies have harvested about 1.5 billion board feet per year for the past seven years at a $370 million market value. Ecologically and financially sustainable timber harvest in California helps rural economies, reduces transportation emissions from imported lumber, limits forestland conversion to development, improves air and water quality, enables carbon sequestration, conserves biodiversity and reduces wildfire risk.

As noted above, private landowners currently contribute 250,000-300,000 acres to the state's 500,000-acre fuels reduction goal. Private timber operators have also partnered with the USFS, the Department of Forestry and Fire Protection (CAL FIRE), California Department of Parks and Recreation (State Parks), California Department of Fish and Wildlife (CDFW), the Sierra Nevada Conservancy, the National Fish and Wildlife Foundation and other partners to develop a Fuels Reduction Memorandum of Understanding (MOU) to conserve the California spotted owl and other wildlife while coordinating wildfire risk reduction measures on California's federal, state and private lands.

Key Actions:

1.7 Increase Incentives for Timber Harvests that Improve Forest Resilience: In coordination with the state agencies biodiversity initiative, the state will develop a set of incentives to increase ecologically and financially sustainable timber harvest and associated infrastructure, which may include improved permitting, landscape-scale projects across multiple ownerships, and incentives for multi-age stands, increased carbon storage, and biodiversity

1.8 Implement Fuels Reduction MOU: CAL FIRE and the USFS will seek to implement and expand participation in the Fuels Reduction MOU among key agencies and partners.

INCREASE ASSISTANCE TO SMALL PRIVATE LANDOWNERS

Significantly increasing the pace and scale of forest management across the state can only be achieved through significant contributions from small private landowners. Family-owned forest lands make up about 20 percent of California's forests, approximately 7 million acres. Nearly 90 percent of this acreage is comprised of parcels that are 50 acres or less in size. Almost 60 percent of the state's 200,000 non-industrial private forest landowners (NIPFs) are 65 years and older, and only nine percent derive income from their forest land.

The state offers various assistance programs to NIPFs, including the California Forest Improvement Program (CFIP), Forest Stewardship Program, and Wildfire Resilience Program. However, limited state funding generates competition among small landowners, and the lack of a common framework or shared goals poses further challenges to expanding forest management across private lands. Accordingly, CAL FIRE is partnering with the USFS, the USDA Natural Resources Conservation Service (NRCS), the American Forest Foundation, The Nature Conservancy (TNC), and UC Cooperative Extension (UCCE) to create a comprehensive program to assist small landowners with forest assessments, thinning, prescribed fire and rapid recovery after wildfires.

Key Actions:

1.9 Develop Implementation Strategy: By December 31, 2021, CAL FIRE will develop an implementation strategy for a Wildfire Resilience and Forest Assistance Program targeted to small private landowners. The implementation strategy will also include information related to meeting the California State Water Resources Control Board (Water Board) permitting and CDFW regulatory requirements as needed.

1.10 Maintain Forest Stewardship Education Program: CAL FIRE will maintain its Forest Stewardship Workshop program to help forest landowners develop management plans and implement stewardship projects. Workshop locations will be based on CAL FIRE's fire-risk and priority landscape map and the 2019 Community Wildfire Prevention and Mitigation Report.

1.11 Increase Technical Assistance: The state, through contracts with cooperators, will assist landowners with Forest Management Plans, Burn Plans, archeological and biological surveys, project field design, and other support from forestry and other natural resource professionals.

1.12 Improve Outreach: State agencies will partner with the Forest Landowners of California and other organizations to more efficiently target outreach efforts, guide assistance planning, and track project implementation.

1.13 Support Forest Health and Maintenance Treatments: CAL FIRE will provide funding for initial fuels treatments and follow-up maintenance with landowners contributing at least 10 percent of costs. CAL FIRE will prioritize funding of NIPF projects within locally coordinated forest management and post-fire restoration projects that benefit broader landscapes across multiple ownership types.

1.14 Establish Emergency Forest Restoration Teams: CAL FIRE and other state agencies will explore the potential for developing emergency forest restoration teams to assist small landowners impacted by wildfires with funding and expertise to restore their properties and help prevent further damage to life, property and natural resources. This program would complement the NRCS Environmental Quality Incentives Program (EQIP) and the Emergency Forest Restoration Program (EFRP).

1.15 Provide Seedlings for Restoration: CAL FIRE will expand its nursery and seed bank to deliver seeds and seedlings to small landowners whose properties are affected by wildfire or diseases. Experts will focus on using native seed selections that are best suited to current and future landscapes. The Placerville USFS nursery will expand its capacity to grow approximately 15 million seedlings per year.

1.16 Expand Lumber Certifiers: Expand Lumber Certifiers: BOF will assist in establishing additional small-scale forest product infrastructure, such as portable sawmills, and will explore the potential for Registered Professional Foresters to become third-party certified as Lumber Graders.

EXPAND FOREST MANAGEMENT ON STATE LANDS

The state of California owns and manages 3 percent (approximately 3 million acres) of land in the state. These parcels contain many of the state's most valuable natural areas, such as State Parks, CAL FIRE's network of demonstration forests, and CDFW-managed wildlife areas. Up to a third of these lands, covering a million acres, are at high risk from uncontrolled wildfire. By restoring and protecting these lands, the state can deliver on its goals related to forest health, fire prevention, climate resilience, carbon neutrality, biodiversity and outdoor access for all.

As described below, CNRA will partner with State Parks, CDFW, the Tahoe Conservancy, and other state land-owning agencies to execute a comprehensive strategy for restoring and maintaining forested state lands. The strategy will include: (1) scaling-up prescribed fire and fuel reduction programs; (2) expanding collaboration with neighboring landowners and agencies to promote resilient and healthy forests at a landscape scale; (3) increasing outreach and education to share best practices that support ecosystem services; and (4) implementing an effective monitoring program to gather information on the ecological benefits of these practices.

Key Actions:

1.17 Execute Strategy for Forested State Lands: CNRA will partner with State Parks, CDFW, the Tahoe Conservancy, and other agencies that own state land to execute a comprehensive strategy to expand forest management and improve the health and resilience of forested state lands.

Increase the Use of Prescribed Fire

Fire has a long history as a vegetation management tool in California used by Native Americans, ranchers, and rural communities. Prescribed fire, or the use of fire under safe conditions, is now well-recognized as one of the most versatile and cost-effective tools available to reduce fuels buildup in forests and the risk of catastrophic wildfires while increasing climate resilience. Controlled burns also support native plants, boost soil health and increase ecosystem function. Fire is among the most critical ecological treatment methods for maintaining a myriad of functions that collectively contribute to maintaining healthy and resilient forests.

While prescribed fire has been used in many California locations, several factors have limited its widespread use, especially in more populated areas, including resource availability, liability issues and public acceptance of fire and smoke. Federal, state and local agencies, tribal governments, non-governmental organizations and landowners understand the urgency in overcoming these barriers to increase the use of prescribed fire. These entities are actively collaborating to get more "good" fire on the ground. Where possible, CAL FIRE and the USFS are also seeking to support and expand California Tribes' ability to burn culturally.

Key Actions:

1.18 Develop Prescribed Fire Strategic Action Plan: By the spring of 2021, CAL FIRE, CARB, USFS and other federal, state, local and tribal governments will develop and issue a Prescribed Fire Strategic Action Plan to coordinate and guide prescribed fire activities, and to address the key barriers to its widespread use in California.

1.19 Utilize All Fuels Reduction Methods to Treat up to 100,000 Acres by 2025: CAL FIRE will use all fuels reduction methods, including prescribed fire, to expand its fuels reduction program to treat 100,000 acres of its 500,000-acre target.

1.20 Establish a Grant Program to Support Cultural Burning: CAL FIRE will establish a new program to provide direct funding for tribal governments to support cultural burning and other traditional forest health practices.

1.21 Establish a National Prescribed Fire Training Center: The USFS, in partnership with CAL FIRE and local and tribal governments, will seek to establish a National Prescribed Fire Training Center to provide training opportunities for prescribed burn practitioners and focus its efforts on western U.S. ecosystems.

1.22 Explore Strategies to Address Liability Issues: Insurance is no longer available for most private landowners and organizations seeking to conduct prescribed fire projects. In 2021, the state will explore the development of alternative strategies to increase insurance availability for these projects.

1.23 Modify Suppression Tactics on State Lands: CAL FIRE will continue to expand its use of modified suppression tactics on state lands to allow a wildfire to burn under predetermined and carefully prescribed conditions to reduce forest fuels and provide ecological benefits. These tactics will follow predetermined plans that consider property and life safety issues.

1.24 Develop an Automated Prescribed Burn Permit: By 2021, CAL FIRE will develop and deploy an automated system for prescribed burn permits.

1.25 Provide Training and Technical Assistance: State agencies will partner with local governments and nonprofit organizations to establish sustained, multi-year funding for regional vocational training, community college curricula, and technical assistance programs for professional fire service, conservation, tribal and other fire practitioners.

1.26 Improve Workforce Development: CAL FIRE will quantify current and projected unmet needs for forestry-related workers by job type (vocational and professional) and location to inform its investments in training and vocational programs. This assessment is coordinated with the statewide assessment in Action 3.11.

1.27 Develop an Annual Reporting System: CAL FIRE, in coordination with state and federal partners, will develop an annual reporting system to consolidate and report relevant data for prescribed fires in California.

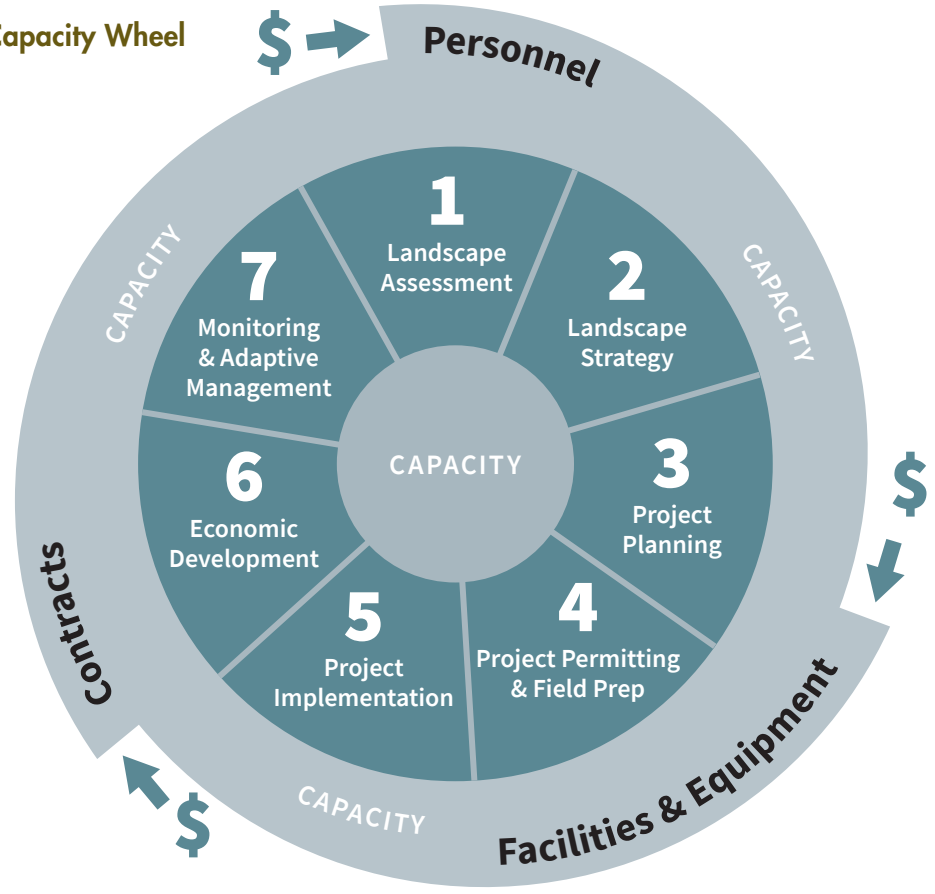
Mobilize Regional Action Plans

A central recommendation of the state's Forest Carbon Plan and the National Forest Planning Rule is to build and maintain regional approaches to improve the health and resilience of forested landscapes. The Forest Carbon Plan highlighted the growing network of regional forest collaboratives in California, where diverse local, regional, and tribal governments and stakeholders jointly develop forest health and wildfire resilience plans and projects.

The key benefits of a regional approach include:

- Building a workforce and the capacity to develop an ongoing pipeline of projects;
- Fostering alignment of state and federal goals and mandates ranging from forest health and resilience, climate adaptation, watershed protection, biodiversity and outdoor recreation;
- Facilitating multi-benefit and multi-jurisdictional projects;
- Providing a vehicle for new, more flexible contracting authorities, such as Good Neighbor and Master Stewardship Agreements;
- Building capacity to develop regional wood utilization strategies;
- Empowering local governments and collaboratives to set priorities and integrate forest resilience and sustainable development programs; and
- Focusing state and federal investments on the unique risks and wildfire resilience priorities of each region.

Figure 1: Forest and Fire Capacity Wheel



(Source: Watershed Center, Tahoe Fire and Fuels Team)

Figure 2: Current Regions

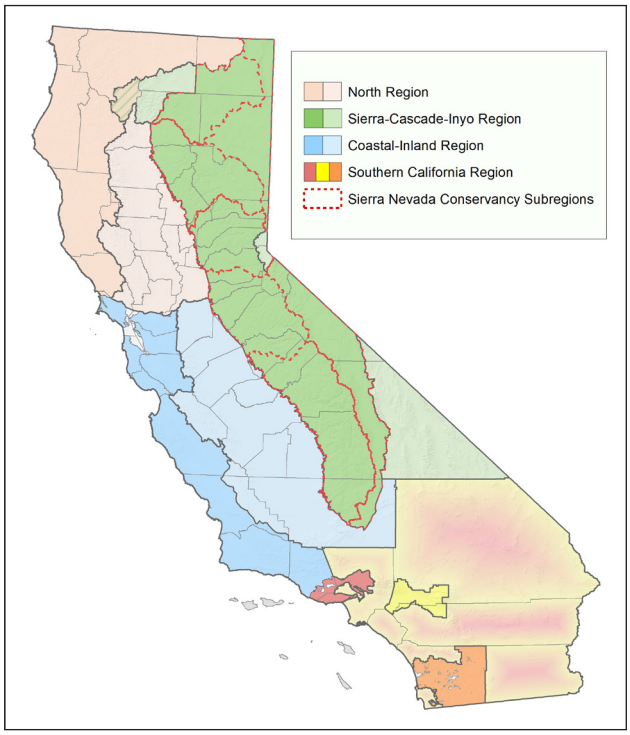
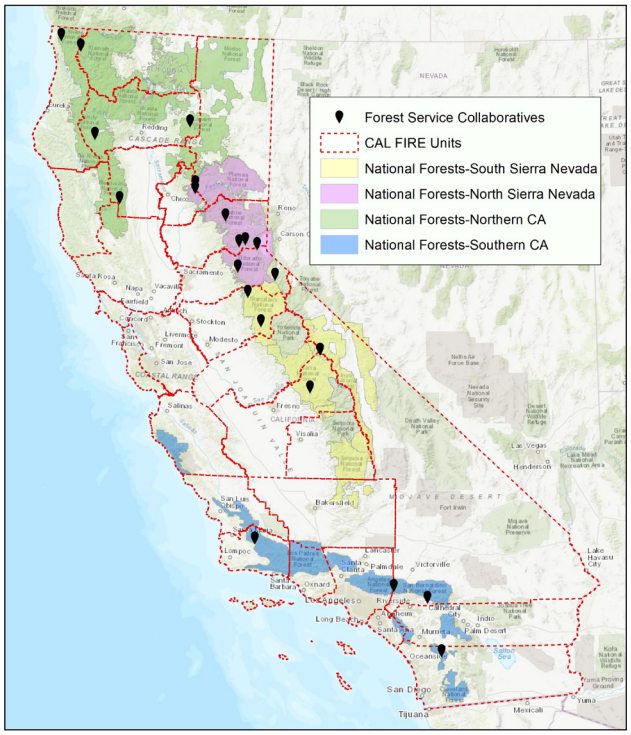


Figure 3: Future Regions and Subregions



At the federal level, the USFS is moving toward a regional framework of coordinated management and shared resources, in which national forest units are grouped into "zones" of four to six national forests, where individual work plans and resources are increasingly integrated. Furthermore, with a renewed national prioritization of Shared Stewardship Agreements, the USFS continues to support collaborative forest management with California and stakeholders across all lands at increasingly large landscape scales.

In partnership with the National Fish and Wildlife Foundation (NFWF), the USFS supports Shared Stewardship coordinators in its four regions through CAL FIRE funding. NFWF will work closely with USFS and CAL FIRE Units, local collaboratives, and the Department of Conservation's (DOC) watershed coordinators to better align and implement federal, state, and local priorities and projects.

Despite this progress, many of the newly established collaboratives lack guidance on assessing risk and developing landscape-scale strategies. They also lack dedicated funding to sustain their efforts and build a pipeline of projects. To fill this gap, in 2019, DOC launched a Regional Fire and Forestry Capacity (RFFC) program to build the capacity of regional collaboratives through a common framework of regional forest and community resilience plans.

However, the RFFC program does not cover all high-risk areas of the state, and not all forested areas are covered within existing regional initiatives. Figure 2 identifies current USFS, CAL FIRE, FMTF boundaries, and related forest collaboratives.

Figure 3 displays the regional boundaries of the RFFC program. The darker shades represent current RFFC block grantee jurisdictions, lighter shades represent areas that do not currently have block grantees, and diagonal lines represent a shared area. The Sierra Nevada

Conservancy's watershed-based subregions are also displayed as examples of how regions are self-organizing into sub-regions.

Key Actions

1.28 Expand RFFC Program: In 2021, DOC will develop draft guidelines to expand the RFFC Program to all high-risk areas statewide. DOC will collaborate with CAL FIRE, the USFS, and other state and regional agencies and stakeholders to develop the draft guidelines.

1.29 Develop Network of Regional Forest and Community Fire Resilience Plans: As part of its updated guidelines, the RFFC Program will seek to provide a common but highly flexible framework for the development of Regional Forest and Community Fire Resilience Plans that can be tailored to a variety of regional governance structures and risks and priorities.

1.30 Develop Pipeline of Local and Regional Shovel-Ready Projects: DOC will develop a regional pipeline of shovel-ready projects and investment strategies that provide dedicated ongoing funding for implementation. Regional plans will guide project pipeline development and investment strategies and be developed in partnership with the USFS, CAL FIRE, and other key regional stakeholders. The Sierra Nevada, Tahoe, Coastal, and Santa Monica Mountains Conservancies will also play a lead role in allocating these funds.

Conserve Working Forests

The California and federal Forest Legacy Conservation Programs and funding from the Wildlife Conservation Board (WCB) are powerful tools for conserving private working forestlands. By funding working conservation easements and acquisitions across forests with wildfire risks, these programs reduce wildfire risks and help protect natural landscapes threatened with conversion to other uses, promote sustainable and resilient forest practices, and encourage long-term land stewardship.

While CAL FIRE, the USFS, the WCB, and other agencies already partner to fund projects through their respective competitive grant programs, a targeted and integrated approach will more efficiently and effectively achieve these programs' goals.

Key Actions:

1.31 Develop Consolidated Forest Conservation Program: In 2021, CAL FIRE and the WCB, in coordination with partner state agencies, will develop a consolidated program and grant application process for forest conservation and will align federal conservation programs to the extent feasible.

1.32 Align Forest Conservation Programs with Climate, Biodiversity, and Outdoor Access Programs: CAL FIRE and the WCB will adopt guidelines for this consolidated program aligned with the development and implementation of the Climate Smart Strategy and Biodiversity initiatives outlined in EO N-82-20.

Reforest Burned Areas

Recent catastrophic wildfires have damaged critical wildlife habitat, imperiled fisheries, watersheds, municipal water sources, threatened public safety due to mudslides and impacted rural, tourism-based economies. These events also threaten the long-term productivity of forest soils through erosion and changes in soil properties.

An average of about 35,000 acres has been reforested each year over the past decade, mainly following timber harvests. The USFS recently estimated that approximately 274,000 acres need to be reforested, and the recent 2020 wildfires have significantly increased this deficit.

The vast majority of recent wildland fires have occurred on federal lands. The USFS, in a partnership with American Forests, has made significant progress in restoring areas burned with high-intensity fire. Still, the remaining need is large and growing. In addition to carbon sequestration and water supply benefits, reforestation activities boost job creation. For every $1 million invested in rural reforestation and vegetation management, approximately 17.3 jobs (13.5 direct and 3.8 indirect) are generated.

Key Actions:

1.33 Develop Restoration Strategy for Federal Lands: Given the recent fires, including 2020's unprecedented fire year, 650,000 to one million acres of federal land need some degree of reforestation. In spring 2021, the USFS, in partnership with American Forests and key stakeholders, will develop a strategy to restore its highest priority areas. This ecologically-based strategy will focus on silvicultural practices to increase carbon storage, protect biodiversity, and build climate resilience.

1.34 Develop Coordinated State Restoration Strategy: CNRA will partner with Cal OES, OPR, and other federal, state, and local agencies to develop a coordinated strategy to prioritize and restore non-federal burned areas and communities as part of the state's overall long-term recovery and resilience strategies.

Improve Regulatory Efficiency

California landowners are faced with a complex set of regulations related to timber harvesting, reforestation, vegetative fuels treatment, and ongoing management and conservation of their lands. Among other actions, Senate Bill 901(2018) amended the Forest Practices Act to require state agencies to pursue opportunities to streamline the Forest Practice Act and associated rules and regulations to expedite forest health and fire prevention projects while preserving the resource protection functions.

In recent years, state agencies have completed several initiatives to coordinate better and streamline forest planning and the regulatory process. Two notable examples are the CalVTP, which conducted an environmental review on more than 20 million acres of fire-prone landscapes to streamline permitting of projects in the State Responsibility Area (SRA), and a new online timber harvest permitting system known as CalTREES.

These efforts are aligned with the administration's Cutting Green Tape Initiative, a collaborative effort led by CNRA to improve regulatory processes to increase the pace and scale of ecological restoration and stewardship.

Key Actions:

1.35 Complete Permit Synchronization Workplan: By December 2021, BOF, working with the AB 1492 Leadership Team, will complete its permit synchronization work plan. Permit synchronization intends to align permitting under the Forest Practice Act and Forest Practice Rules with the BOF and CDFW permitting and regulatory requirements, including waste discharge requirements and lake and streambed alteration permit issuance timelines.

1.36 Complete Timber Harvesting Plan Guidance Documents: By 2022, CAL FIRE, in coordination with the Water Board, California Geographical Survey (CGS), and CDFW, will complete a series of permitting guidance documents to help small landowners and others navigate the timber harvesting process. Guidance will include how to efficiently file a Timber Harvest Plan (THP) for review and approval, and how to meet Water Board permitting and CDFW regulatory requirements, including waste discharge requirements and lake and streambed alteration permits.

1.37 Improve and Expand CalTREES: CalTREES will be finalized and operational by 2022. Once fully operational, CalTREES will be improved to include the integration of a Geographical Information System (GIS) mapping platform, improved search functionality, and a one-stop platform for timber-related permits and notifications. Where appropriate, CalTREES shall also be built to interface with or include CDFW's Environmental Permit Information Management System, and a Water Board permit tracking and submission system for necessary timber harvest permits.

1.38 Enhance CalVTP Implementation: BOF will provide statewide web-based training on utilizing the CalVTP and other permitting processes. Working collaboratively with the California Coastal Commission and the Water Board, the BOF will also identify additional permitting processes that may need to be incorporated into the CalVTP process. To ensure consistent execution of CalVTP, BOF will oversee the first round of Project Specific Analysis in various landscapes and geographies to ensure future projects have a consistent and high-quality template to follow.

1.39 Update Prescribed Fire Information Reporting System: By December 2021, CNRA will collaborate with CARB to update its Prescribed Fire Information Reporting System (PFIRS), which is designed to capture statewide details on prescribed fires and enable estimations of smoke pollution. Under the goals of SB 1260, CARB will enhance PFIRS to improve data collection and ease-of-use by local air districts and burn managers to expand the safe application of prescribed fire. CARB will also lead an interagency analysis of prescribed fire smoke data to document public health impacts compared with wildfire smoke exposure.

1.40 Help Landowners Conserve Northern Spotted Owls: CAL FIRE and CDFW, in collaboration with the U.S. Fish and Wildlife Service (USFWS), will develop tools to assist timber landowners with conserving northern spotted owls and their habitat.

- CAL FIRE and CDFW will enroll eligible timberland owners in the Eastside Spotted Owl Resource Plan (ESORP). The ESORP is a regional and programmatic agreement between CAL FIRE and landowners that avoids taking of the northern spotted owl while conducting timber harvest operations.
- CAL FIRE will work with the USFWS and CDFW to develop a northern spotted owl federal Safe Harbor Agreement (SHA) to facilitate land management and fuel reduction activities for non-industrial landowners. CDFW has the authority to issue a consistency determination based on a federal SHA.
- CDFW, BOF, and CAL FIRE shall develop a strategy to incorporate the management of barred owl intrusion into spotted owl habitat.

GOAL 2: STRENGTHEN PROTECTION OF COMMUNITIES

More frequent, larger, high-severity wildfires threaten communities throughout California. A broad range of communities are threatened, from small isolated towns in rural areas to major metropolitan areas along the coast. Threats to these communities are compounded by population growth, local land-use decisions, and a longer annual fire season due to climate change. This confluence of factors has worsened loss to human life, property damage and destruction.

It is important to note that California's wildfire vulnerable communities are located across a range of landscapes with diverse vegetation types. While better forest management will reduce wildfire risk in California's forested regions, different strategies are required to protect much of the state's population that lives in cities and towns outside of forests. Building resilience in many of these communities relies on hardening homes, buildings and infrastructure, increasing defensible space and fuel breaks, and strengthening community planning and preparedness.

Historically, California's efforts to protect communities from wildfire focused primarily on suppressing fires, but the state's approach has been evolving in recent decades. The 2018 Strategic Fire Plan, which addressed wildfire threats across California communities, lays out eight goals, including advancing fire-resilient natural environments, fire-resistant buildings and infrastructure, and greater awareness of wildfire threats. It also called for local, state, federal, tribal, and private partnerships to achieve these goals. The Key Actions in this Action Plan are consistent with those eight goals.

The state will partner with federal and local agencies to significantly increase fire prevention, preparedness, and mitigation efforts, reduce community wildfire risk and create fire-adapted and resilient communities throughout the state.

Support Community Risk Reduction and Adaptation Planning

CAL FIRE and other state agencies will increase their assistance programs and partnerships with local communities to reduce risk, improve preparedness, and foster resilience. While each community has a unique set of needs, values, risks, and capacities, CAL FIRE, the USFS, and key stakeholders will develop a common framework to facilitate comprehensive local plans, as shown in the figure below. Building on this common framework, state agencies will partner with the California Fire Safe Council (CFSC), the California State Association of Counties (CSAC), the Rural Counties Representatives of California (RCRC), the Watershed Center, and other local and regional organization to expand and integrate these efforts into creating fire-adapted communities.

Key Actions:

2.1 **Assess Statewide Risk to Vulnerable Communities:** CAL FIRE will work with other state and federal agencies to improve and refine quantitative wildfire risk assessments across all lands and ownerships, focusing on identifying the most vulnerable communities and populations. The assessment results will be coordinated with related efforts by OPR's Integrated Climate Adaptation

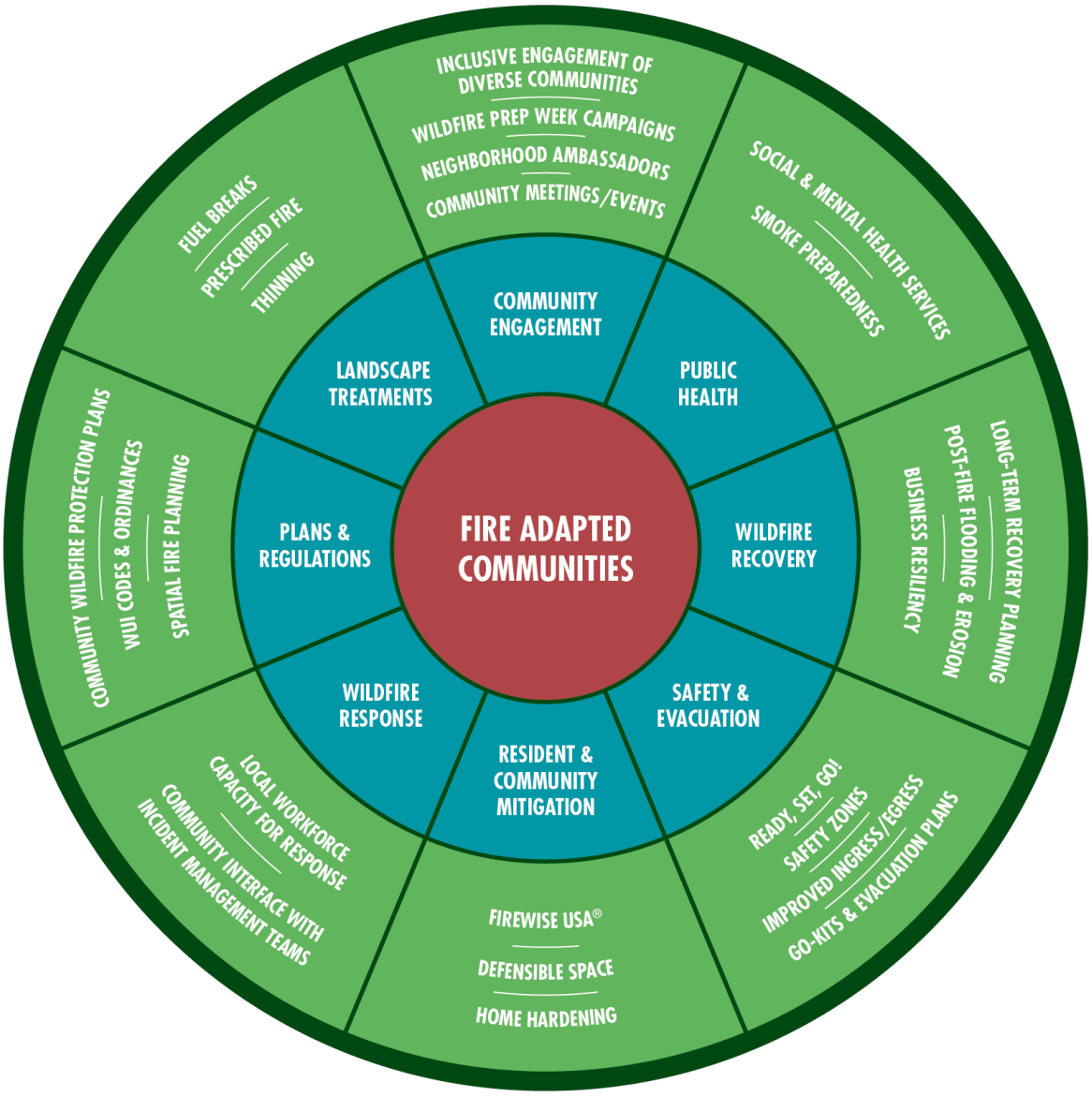
and Resiliency program and integrated into statewide and regional risk-based planning efforts and grant programs.

2.2 **Develop Performance Measures:** CAL FIRE will work with the Watershed Research and Training Center (WRTC) and other partners to identify performance measures for community wildfire risk reduction and adaptation.

2.3 **Develop and Implement New Fire Hazard Severity Zones:** CAL FIRE will update the scientific factors that determine the hazard ratings, including new local climate data and improved fire spread modeling. CAL FIRE will work with local jurisdictions and submit Local Responsibility Area maps to respective jurisdictions.

2.4 **Update the Fire Hazard Planning Technical Advisory:** Consistent with SB 901 (2018) and AB 2911 (2018), OPR will finalize its update to the Fire Hazard Planning guidance document in early 2021 to assist local governments in

Figure: Elements of Fire Adapted Communities (courtesy Watershed Research and Training Center)



developing effective fire hazard policies and programs in the general plan and other implementing plans, codes, standards, and programs.

2.5 Develop WUI Best Practices Inventory: OPR, in collaboration with CAL FIRE and the Water Board, will prepare an inventory of best practices for planning, zoning, development review, and code enforcement to address and reduce wildfire hazards and risks related to planning and development activities in the Wildland Urban Interface (WUI). The inventory will serve as a complement to OPR's Fire Hazard Planning Technical Advisory (recently updated pursuant to SB 901 and AB 2911) and will inform local governments on how best to develop and implement plans, codes, standards, and enforcement activities within the WUI. OPR will publish the results of the inventory and best practices on the Adaptation Clearinghouse.

2.6 Develop CWPP Best Practices Guide: In coordination with the CFSC, WRTC and other organizations, CAL FIRE will develop and make available a best practice guide for new and updated Community Wildfire Protection Plans (CWPP's), including data standards to facilitate integration with other plans at the county, regional and statewide level.

2.7 Increase Information Sharing: DOC will coordinate an organized peer networking effort that will meet virtually through an interactive forum to share information monthly or quarterly to facilitate learning and preserve institutional knowledge of wildfire-mitigation planning across disciplines.

2.8 Develop Defensible Space and Home Hardening Curriculum: CAL FIRE will develop a formal defensible space and home hardening inspections curriculum to ensure statewide consistency and implementation

Increase Fuel Breaks

Fuel breaks in and around communities and across the landscape represent a critical link between efforts to create healthy, resilient forests and reduce communities' risks to catastrophic wildfires.

Building on the success of past fuel reduction work, including the 35 priority projects implemented in 2019, CAL FIRE is pivoting to a model of continuously developing and maintaining a list of more than 500 fuel break projects across the state. CAL FIRE is now working on multiple projects simultaneously and starting new projects as soon as existing projects are complete. These projects are vital to slow the spread of fires in the WUI and provide anchor points for fire personnel.

Key Actions

2.9 Develop and Maintain 500 Fuels Management Projects: Using a science-based approach to identify priority areas for treatment, CAL FIRE will create a dynamic matrix of newly developed fuel break projects. These projects are described in CAL FIRE's Unit Fire Plans, including assessments of threats to vulnerable communities identified in the Community Wildfire Prevention and Mitigation Report.

2.10 Link with Landscape Scale Projects: When developing the 500 projects, CAL FIRE will identify fuel breaks and landscape restoration projects created by federal land managers, timber companies, non-

governmental organizations (NGOs), and other land managers, and seek opportunities to fill gaps and leverage project efforts. These efforts will link continuous fuel breaks and forest resilience projects across landscapes at the lowest possible cost.

2.11 Maintain Fire Prevention Grants: CAL FIRE will coordinate with other state agencies and organizations to allocate fire prevention grants to the highest priority areas and projects.

Protect Wildfire-Prone Homes and Neighborhoods

To address the long-term trend of more people living in the WUI, it is critical to increase vulnerable communities' resilience to uncontrolled wildfires. As described in OPR's Fire Hazard Planning Technical Advisory, developments in the WUI increase the number of ignitions, the likelihood that wildfires become urban conflagrations, putting many homes and structures at risk of being damaged or destroyed by a wildfire, and constrain fuel-management activities.

Key Actions:

2.12 Extend Defensible Space Programs: In 2021, CAL FIRE, through a public process, will assist BOF in updating defensible space regulations to meet AB 3074 (2020), which requires a five-foot ember-resistant zone around homes. CAL FIRE and BOF will also develop and implement a widespread public information campaign and update the Ready for Wildfire program to explain the revised requirements.

2.13 Expand Assistance Programs: CAL FIRE will look at ways to expand program assistance for the elderly, low-income, and/or people with disabilities to comply with defensible space requirements.

2.14 Increase Defensible Space Inspections: In 2021, CAL FIRE will expand its inspection program to meet AB 38 (2020) requirements, which requires CAL FIRE to conduct defensible space inspections year-round on the sale of real property in the SRA.

2.15 Improve Defensible Space Compliance: CAL FIRE will work with stakeholders to increase defensible space compliance by developing a cooperative defensible space strategy. This effort will provide education and assistance to homeowners to improve defensible space effectiveness. CAL FIRE will expand its support for creating new National Fire Protection Association Firewise USA recognized communities.

2.16 Create a Model Defensible Space Program: CAL FIRE is developing a model defensible space program that will be available to cities and counties to enforce defensible space provisions, as required by SB 190 (2019).

2.17 Expand Home Hardening Programs: Cal OES, in coordination with other state agencies, will expand home hardening programs through the development of a statewide program as described in AB 38 (2019) for cost-effective structure hardening and retrofitting to create fire-resistant homes, businesses, and public buildings.

2.18 Develop Home Hardening Guidance: CAL FIRE will continue to work with the Insurance Institute for Business and Home Safety, National Institute for Standards and Technology, and other partners to develop home hardening guidance.

2.19 Develop WUI Fire Safety Training Material: CAL FIRE will develop a WUI Fire Safety Building Standards Compliance training manual for local building officials, builders, and fire service personnel, and make it available on its department website to meet the requirements of SB 190 (2019).

2.20 Develop Insurance MOU: The California Department of Insurance will continue to work with CAL FIRE and Cal OES to develop an MOU and implement the provision of SB 824 (2017) regarding residential property insurance in wildfire-affected areas under a declaration of a state of emergency.

Improve Utility-Related Wildfire Risk

Utility-related wildfires have led to some of the most catastrophic wildfires in state history. From 2017-2018, utility sparked wildfires that killed 109 people and destroyed 20,000 structures, with additional investigations underway for damaging and deadly wildfires in 2020. In response, the state initiated several actions, including establishing a new Wildfire Safety Division (WSD) in January 2020 within the California Public Utilities Commission (CPUC).

As described in Reducing Utility-related Wildfire Risk: Utility Wildfire Mitigation Strategy and Roadmap for the Wildfire Safety Division, the WSD is charged with driving oversight and enforcement of electrical corporations' compliance with wildfire safety regulations. By July 1, 2021, the WSD will transition into the Office of Energy Infrastructure Safety (OEIS) under CNRA.

Key Actions:

2.21 Review Wildfire Mitigation Plans: The new OEIS will work collaboratively with CAL FIRE and other agencies to review and comment on the investor-owned utility Wildfire Mitigation Plans.

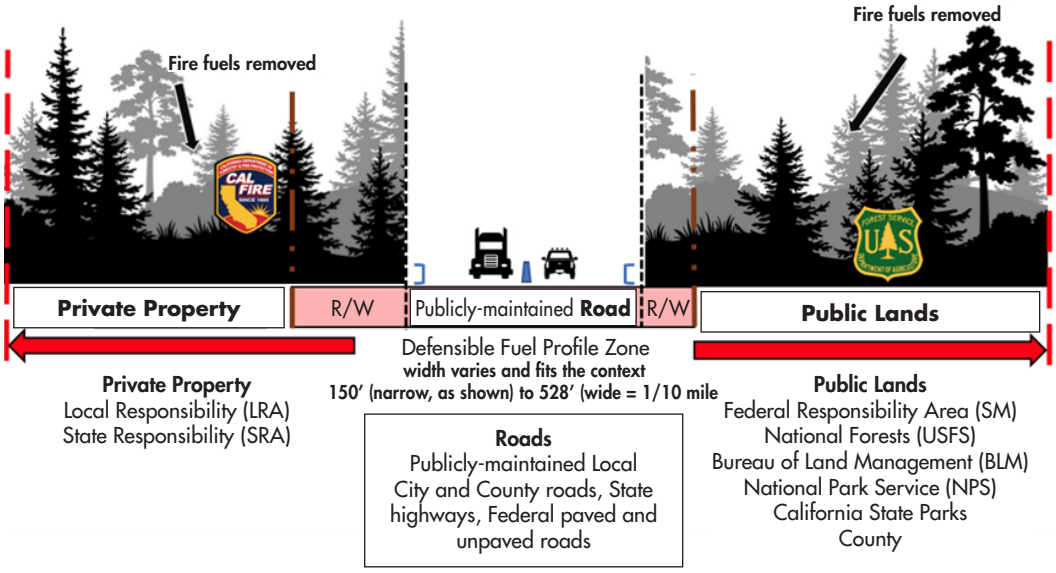
2.22 Coordinate Utility-Related Wildfire Mitigation Initiatives: Through the OEIS and the Utility Wildfire Mitigation Steering Committee, the state will continue to reduce wildfire risk, including assuring compliance with commitments from electrical corporations to reduce utility-related ignitions that can cause catastrophic wildfires while protecting natural resources and biodiversity.

2.23 Expand USFS Master Special Use Permits: In 2019, the USFS signed a 30-year Master Special Use Permits with Pacific Gas and Electric (PG&E) and Southern California Edison (SCE) to streamline permitting of hazard tree removals and other routine maintenance activities along powerline corridors, and will seek to expand the use of these permits to other utilities throughout the state.

Create Fire-Safe Roadways

A fire-safe state highway system is vital to reducing wildfire ignitions and ensuring emergency evacuation routes. According to the California Department of Transportation (Caltrans), 2,600 centerline miles of California's highway system needs defensible space within and alongside the Caltrans-owned right of way.

Figure 4: Public roads with "defensible fuel profile zone."



As shown in the figure, defensible space must be wide enough to function as a fuel break or fire control line. In many cases, the thinning of vegetation along road corridors will cross federal, state, or local boundaries. Accordingly, Caltrans works with a broad range of adjacent landowners to develop and implement forest thinning and maintenance projects.

Key Actions:

2.24 Identify Subdivision Secondary Emergency Access: BOF, in consultation with CAL FIRE, shall survey subdivisions in the SRA and very high fire hazard severity zones without a secondary egress route that are at significant fire risk, consistent with the requirements of AB 2911 (2018). In consultation with CAL FIRE and the impacted local government, BOF shall develop recommendations to improve the subdivision's fire safety.

2.25 Develop Framework for Safe Road Corridors: Through workshops with key agencies and stakeholders, Caltrans is establishing a framework for collaborative fuels reduction projects to protect roadway travelers, communities along highways and to reduce roadside ignitions along primary and secondary emergency evacuation routes. Caltrans will identify highway corridors most in need of defensible space and develop a strategy in the spring of 2021 while seeking to align funding and crew resources.

2.26 Assist with General Plans: Caltrans will assist cities and counties in updating their general plan safety elements under AB 747 (2019), which requires that safety elements be updated to address

evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. OPR will also work with Caltrans to update the General Plan Guidelines to include guidance for meeting AB 747 requirements for safety elements.

2.27 Expand Highway Treatments: CAL FIRE and Caltrans will seek to partner with adjacent landowners to treat priority areas along its 2,600 miles of high-risk roadways.

2.28 Develop Good Neighbor Agreement: Recognizing that there are more than 3,000 miles of road crossing federal lands, Caltrans will work with the USFS to develop a statewide Good Neighbor Agreement to allow Caltrans to treat adjacent federal lands.

2.29 Expand Messaging Campaign: Caltrans will partner with CAL FIRE to expand its public outreach efforts to include graphics and messages that align with emergency evacuation messaging, such as Ready, Set, Go!, FEMA's Ready.gov, and the 5 Minute Plan.

Reduce Health Impacts of Smoke

By some measures, increased wildfire smoke has reversed gains in air quality created by improved emission in transportation and other sectors in parts of California. Evidence also suggests that smoke's public health effects are even more significant than the tragic burns and deaths caused directly by wildfire in California. The state has responded to this increase in wildfire smoke by creating programs to better monitor smoke, increase public awareness, create clean air shelters, and research smoke health effects. In addition, state and federal efforts to significantly increase thinning and prescribed fire will decrease the spread, severity, and smoke impacts of large uncontrolled fires.

Key Actions

2.30 Launch Smoke Ready California Campaign: Through the interagency Smoke Communications Working Group, which includes more than 15 federal, state, and local agencies and stakeholders, CARB is developing a Smoke Ready California campaign ahead of the 2021 wildfire season that will provide coordinated messaging and content to help Californians plan for and protect themselves from smoke impacts.

2.31 Release California Smoke Spotter App: CARB, with support from partners, is developing a California Smoke Spotter app to provide the public with information on nearby prescribed fires, hourly data gathered from permanent and portable air monitors, as well as personalized alerts. It will also offer a 24-hour smoke forecast, information on wildfires, and educational content to help people prepare for possible smoke impacts. The app's public release is expected to be in early 2021, with more enhancements planned in the coming years.

2.32 Enhance Prescribed Fire Reporting: CARB will pursue significant enhancements in data collection and reporting for PFIRS, a platform for aggregating data from air districts, fire management agencies, and burners. The enhancements will enable more efficient reporting and analysis of the effects of prescribed fire and smoke.

GOAL 3: MANAGE FORESTS TO ACHIEVE THE STATE'S ECONOMIC AND ENVIRONMENTAL GOALS

Healthy forests provide a range of benefits, boosting climate resilience, increasing carbon sequestration, protecting water supply, improving air quality, cooling communities, providing habitat for wildlife, and supporting local economies. Accordingly, California's forested landscapes are a key component of the state's strategy to combat climate change, promote biodiversity, and support rural economic development.

Integrate Forest Management into State Climate and Biodiversity Strategies

In October 2020, Governor Newsom signed Executive Order N-82-20, directing state agencies to accelerate actions to combat climate change, protect biodiversity, and build resilience through nature-based solutions.

The executive order elevates the role of natural and working lands as a key pillar of California's climate change strategy, committing the state to immediate actions to increase carbon removal and enhance resilience in the state's forests, wetlands, agricultural soils, urban greenspaces, and land conservation efforts. The executive order directs state agencies to create a Natural and Working Lands Climate Smart Strategy to help meet the state's carbon neutrality goal and build climate resilience, and to consider this strategy in the development of an updated target for the natural and working lands sector in the 2022 Climate Change Scoping Plan Update (Scoping Plan Update).

Pursuant to the order, CNRA has launched the California Biodiversity Collaborative to develop an equitable statewide approach to protecting the state's natural richness.

The order also establishes a state goal of conserving at least 30 percent of California's land and coastal waters by 2030 to address the biodiversity and climate crisis. CNRA and other state

agencies, in consultation with the Collaborative, are directed to develop and report strategies to the Governor no later than February 1, 2022, to achieve the 30 by 30 goal.

In addition, the legislature has enacted several bills related to climate and natural and working lands, including SB 1386 (2016), which states that the protection and management of natural and working lands, including forests, is an essential strategy in meeting the state's greenhouse gas reduction goals, and requires all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands.

For the state's forested landscapes, state agencies will promote landscape-scale forest management that supports migration corridors and biodiversity, safely reintroduces fire back on the landscape, supports native species that depend upon fire to thrive, and acquire and protect working forests, mountain meadows, and other significant areas. Mountain meadows, for example, cover less than two percent of the Sierra/Cascade landscape, but their unique functions add resiliency to the hydrologic and ecological processes that sustain California's headwaters, particularly during drought years, which experts predict will be more common as the climate warms.

Increased ecologically appropriate forest thinning and prescribed fire will also be important elements of the Climate Smart Strategy and Scoping Plan Update. Although these treatments will decrease forest carbon pools in the near term, in the long run, they will reduce forest density, promote the growth of larger, more fire-resistant trees, and create a mosaic of forests that are less vulnerable to uncontrolled wildfire and climate change. Significant reforestation investments will also be essential to meet the state's long-term carbon storage targets for the forest sector.

Finally, the state will also continue to invest in forest management through the CCI program. The state has invested $1.4 billion in CCI projects that provide climate mitigation or adaptation benefits and contribute to the Forest Carbon Plan goals, including forest thinning and prescribed fire, urban tree planting, land conservation, and mountain meadow restoration.

Key Actions:

3.1 **Develop Natural and Working Lands Climate Smart Strategy:** Consistent with Executive Order N-82-20, CNRA will coordinate the development and release of a Natural and Working Lands Climate Smart Strategy by October 2021.

3.2 **Develop 2022 Climate Change Scoping Plan Update:** CARB, in partnership with CNRA and other agencies, will build upon the Natural and Working Lands Climate Smart Strategy and other science-based data in updating the strategies and targets for natural and working lands in the 2022 Climate Change Scoping Plan.

3.3 **Establish Biodiversity Collaborative:** CNRA, in coordination with the California Department of Food and Agriculture (CDFA), California Environmental Protection Agency (CalEPA), and other state agencies, has launched the California Biodiversity Collaborative and will bring together experts, leaders, and communities from across California to advance a unified, comprehensive approach to protecting the state's biodiversity.

3.4 **Develop Biodiversity Strategy:** CNRA and other relevant state agencies, in consultation with the Collaborative, will develop and report strategies to meet the goal of conserving at least 30 percent of California's land and coastal waters by February 2022.

Create a Sustainable Wood Products Market in California

Government agencies alone cannot hope to adequately reduce fire risk and preserve healthy and sustainable forest lands. State and federal policies must attract private sector investments into a vibrant wood products market that advances the state's sustainable forest management strategy. Facilitating expanded economic activity in this sector will increase the value of woody biomass and help meet our state's sustainable forest management goals.

Several studies have concluded that expanding confidence in feedstock availability is the single most crucial factor in developing a thriving wood utilization sector. Other barriers include limited access to private capital and limited capacity in forested communities to engage in forest product market development. In the absence of a clear market for non-merchantable woody feedstock, more than half of all woody materials derived from forest management projects are piled and opened burned, emitting considerable amounts of carbon and hazardous air pollutants.

For the past few years, the Rural Economic Development Steering Committee/ Wood Utilization Work Group of the Task Force has been leading a collaborative effort to create a sustainable wood products market in California. More recently, OPR has led an interagency team to build on this work in developing a comprehensive framework to align the state's wood utilization policies and priorities to fulfill the state's climate change and economic development goals. Lastly, BOF's Joint Institute for Wood Products Innovation (Institute) brought together finance, wood utilization, nonprofit, bioenergy, forestry, and feedstock experts to work in conjunction with the Institute Advisory Council to develop its Joint Institute Recommendations to Expand Wood and Biomass Utilization in California (Institute Recommendations).

Key Actions:

3.5 Complete State Framework: In 2021, OPR, in collaboration with other state agencies, will complete the development of its comprehensive framework to align the state's wood utilization policies and priorities.

3.6 Develop Market Roadmap: Building upon OPR's framework and Joint Institute recommendations, GoBiz will partner with OPR, CAL FIRE, BOF, and other key agencies and stakeholders in developing a focused market strategy by December 2021.

3.7 Establish Metrics: The OPR framework will also include a comprehensive set of metrics to evaluate biomass availability, usage, investments, and workforce levels.

3.8 Launch Catalyst Fund Forest Investments: In 2021, the state's iBank will partner with CAL FIRE and other agencies to advance forest-related applications to the Catalyst Fund, building on work to date, which will accelerate with the passage of the state budget. The fund will (1) provide loans, loan guarantees and other credit support to encourage the development of businesses that utilize wood and forest biomass; (2) encourage private-sector innovations in technology, business models, infrastructure, and supply chains in the woody biomass markets; and (3) promote optimization of state grant funds in the sector by leveraging the maximum amount of private capital possible for each public dollar provided.

3.9 Develop X-Prize for Wood Product Innovation: By December 2021, OPR will coordinate the development and execution of an X-Prize for wood product innovation. The competition will be designed to showcase California's commitment to becoming the hub of wood product innovation and leverage state investments to bring philanthropic and private capital into the competition.

3.10 Address Feedstock Barriers through Pilot Projects: OPR will develop five pilot projects to test new mechanisms for developing long-term feedstock contracts. Information and templates from the pilot projects will be shared broadly to provide a menu of broader adoption options.

3.11 Develop Statewide Forest and Wood Products Workforce Assessment: OPR, in coordination with the Labor and Workforce Development Agency and other key agencies and stakeholders, including CAL FIRE, the Community College System, and the Sierra Business Council, will lead the development of a statewide Forest and Wood Products Workforce Assessment by December 2021.

3.12 Maintain and Develop Removal Incentives: As required by SB 901 (2018), CAL FIRE will provide transportation incentives to offset a portion of the cost to move forest byproducts to end-user facilities. In addition, as described in the Joint Institute recommendations, CAL FIRE will evaluate the potential for the development of incentive programs to reduce the costs to forest landowners to remove woody biomass.

Sustain and Expand Outdoor Recreation on Forestland

Outdoor recreation is a significant economic sector in California, responsible for 691,000 jobs, $92 billion in economic benefits, and an essential economic driver in rural forested communities. From wilderness excursions, hunting and fishing, rock climbing, and snow sports to motorized and nonmotorized activities, the recreational economy for the Sierra Nevada range, for example, is valued at $3 to $5 billion annually.

By enacting the federal Great American Outdoors Act (GAOA), significant new federal funding sources will provide new opportunities for partnerships with state, local, and tribal governments. GAOA will provide up to $285 million a year to the states for five years. Much of this work will be implemented through partnerships with state, local, and tribal governments, NGOs, and others as part of the Shared Stewardship framework.

Key Actions:

3.13 Update Statewide Comprehensive Outdoor Recreation Plan (SCORP): In 2021, CNRA, in coordination with State Parks, will update the Statewide Comprehensive Outdoor Recreation Plan (SCORP). The SCORP will provide a comprehensive framework and investment strategy, emphasizing equitable access to underserved communities and rural recreation-dependent communities.

3.14 Develop Joint Strategy to Improve Access to Sustainable Recreation: In accordance with the Shared Stewardship Agreement, the USFS will coordinate the development of a joint strategy to improve access to sustainable recreation.

Protect and Expand Urban Canopy and Forests

Establishing and maintaining urban forests improves Californians' quality of life and the quality of urban natural resources. Trees provide energy conservation, reduce stormwater runoff, extend the life of surface streets, improve local air, soil and water quality, reduce atmospheric carbon dioxide, improve public health, provide wildlife habitat, and increase property values.

CAL FIRE's Urban and Community Forestry Program provides grants, technical assistance, education, and policy advice to local governments, nonprofits, private sector organizations, and the public to advance urban forestry efforts under the Forestry Act of 1978. The program also works with CAL FIRE's Fire Prevention Program in advocating fire-safe landscaping for homeowners and communities. Local communities have planted more than 80,000 trees through this program since 2015, primarily in disadvantaged communities.

Key Actions:

3.15 Increase Urban Canopy: By 2030, CAL FIRE will seek to significantly increase California's urban tree canopy, targeting disadvantaged and low-income communities and low-canopy areas.

3.16 Establish Regional Targets: CAL FIRE will also seek to work with local and regional agencies to establish local tree canopy cover goals.

3.17 Identify High Priorities: CAL FIRE will help local governments identify optimal green infrastructure locations and increased tree canopy cover in high-priority areas described in CAL FIRE's 2017 Forest and Rangeland Assessment.

GOAL 4: DRIVE INNOVATION AND MEASURE PROGRESS

California is renowned as the land of innovation and has a history of building new industries, inventing cutting-edge technologies, and experimenting with novel policies. Our forests and the communities that depend upon them face exceptional risk from climate change and wildfires, and the state's best hope for reducing these threats is to use this proven capacity to innovate.

Utilize Best Available Science and Accelerate Applied Research

Science improves understanding of cause and effect relationships in ecosystems. Understanding the dynamics of forest management and forest health outcomes is more important than ever as California aims to increase investment in land management to deliver on broader state goals.

In the last two fiscal years, CAL FIRE distributed approximately $2.5 million annually in forest health research grants to evaluate the efficacy of forest management actions, improve model predictions, and improve research capacity in the state.

Key applied research topics include evaluating:

- Total cost of uncontrolled wildfire, including the health costs of increased air pollution, loss of economic output, lost school days, environmental damages, and other impacts;
- Effectiveness and trade-offs between alternative management strategies to reduce wildfire risk, increase carbon storage, improve biodiversity, improve water and air quality, and provide regional economic benefits;
- Human health impacts of smoke from prescribed and uncontrolled fires;
- Public perceptions of risk, wildfire, prescribed and managed fire, and smoke;
- Influence of extreme weather conditions on fire behavior;
- Environmental factors that influence post-fire regeneration;
- Drought impacts on forests and expected wildfire behavior; and
- Factors that affect fire spread and behavior within the WUI.

Key Actions:

4.1 **Complete Applied Research Plans:** In coordination with the Science Advisory Panel of the Task Force and other leading scientists, BOF and CAL FIRE's Forest and Resource Assessment Program (FRAP) will develop and issue an applied research plan by June 2021.

4.2 **Forest Research Grants:** Based on the applied research plan results, CAL FIRE will expand its forest research grant program to address key management questions and priorities.

Expand and Improve Monitoring, Reporting, and Decision-Support Tools

The state continues to invest in inventory and monitoring programs to understand the status of and trends within forests and other natural lands. Data gathered from these efforts are key inputs into modeling efforts that provide an understanding of the past, present, and future of forests, fire, and climate in California.

In addition, emerging technologies transform our ability to assess wildfire risk, forest health, and watershed resilience and rapidly put that knowledge to use in guiding management, planning, and finance decisions. These tools help prioritize and assess trade-offs among forest management objectives while providing transparent and defensible information to the public. For example, CNRA and CalEPA will develop a landscape-scale prioritization tool that may serve as a model for a more consistent statewide approach.

Figure: the Pillars of Resilience

Source: Tahoe Conservancy

The USFS, Sierra Nevada and Tahoe Conservancies, and other partners will also develop prioritization and scenario planning tools on the Stanislaus National Forest and in the Tahoe-Central Sierra region, as well as a comprehensive set of indicators to measure forest health and resilience. The 10 Pillars of Resilience (see figure) provide a framework for assessing progress under the environmental, social, and economic goals of landscape-scale forest management projects and programs. These efforts will complement related programs established under AB 1492 (2019) and CAL FIRE's Forest and Range Assessment and inform broader state and federal climate resilience strategies.

Despite this progress, state, federal, and local agencies and land managers have developed their own data sets to track, report, and evaluate progress on forest management activities and priorities. Aligning these efforts is essential to develop a comprehensive assessment and strategy for improving the health and resilience of the state's forested lands. The development of new databases, assessment tools, and related efforts in this Action Plan will be coordinated with other federal, state, and local agencies to improve coordination and ensure consistency with the agencies' statutory requirements.

Key Actions:

4.3 Establish Forest Data Hub: CAL FIRE and the USFS, in collaboration with the USDA California Climate Hub and other agencies, will seek to establish a Forest Data Hub (Hub) to serve as a multi-institutional information clearinghouse. The Hub's goal will be to support, integrate, evaluate, and synthesize ongoing reporting and monitoring efforts conducted by state and federal agencies, universities, and non-governmental organizations. For example, the Hub could develop standard protocols for field-based monitoring, expand data sharing, and require annual reporting into a common data repository. These coordinated information products would be rapidly and reliably made available to land managers and decision-makers. The Hub would be initially staffed by an interagency team of CAL FIRE, CARB, the University of California, and the USFS.

4.4 Establish Ecological Planning Tool: By January 2023, CalEPA and CNRA will develop a landscape-scale planning tool for state, local, and federal partners and tribes to establish forest management and restoration priorities.

4.5 Develop Statewide Forest Ecosystem Monitoring System: CNRA will continue to lead a long-term statewide forest ecosystem monitoring and assessment initiative to analyze how forest management and timber harvest practices impact forest health. By integrating interagency data and remote sensing from state and federal resource programs, CNRA will establish a spatially explicit, consistent approach to track forest ecosystem conditions over time at a watershed scale. The work has now been linked directly to AB 2551 (2017) to develop a spatial assessment and priority plan in northeastern California that will extend statewide.

4.6 Integrate and Expand Forest Carbon Inventories: CARB and CAL FIRE staff will continue to coordinate improvements to the Natural and Working Lands and AB 1504 (2009) forest carbon inventories to ensure that the state has a detailed and comprehensive understanding of forest carbon dynamics.

4.7 Develop State-of-the-Science Models: CARB and CAL FIRE are developing state-of-the-science models to map fuels and simulate the future of California's Natural and Working Lands, including interactions between climate, fire, carbon and water in forests. This effort will utilize CAL FIRE's recent investment in better field-based inventory data. This modeling will inform CARB's modeling effort to determine management strategies to deliver on the state's climate change goals while providing other valuable ecosystem services.

4.8 Develop Consistent Reporting Tools: Through the proposed Forest Data Hub, CNRA, CAL FIRE, CARB, and the USFS will develop reporting tools that allow for consistent reporting on acres treated, prescribed fire, reforestation, carbon accounting, fire intensity, land cover change, and other key information.

4.9 Establish Clearinghouse: The Science Advisory Panel of the Task Force is collecting, reviewing, and organizing information on new and emerging technologies and data platforms designed to inform forest management practices at multiple scales. This effort will be coordinated with the state's Adaptation Planning Clearinghouse and the development of the Forest Data Hub.

4.10 Improve Coordination of Climate and Fire Research: Despite substantial investments by several agencies, the state lacks a focused, coordinated approach to improve our understanding of the complex impacts of climate change on wildfire regimes. The Science Advisory Panel will convene a planning effort to better coordinate the ongoing and future actions of state and federal agencies, academic institutions, and the private sector to develop the knowledge and tools necessary to advance predictions of wildfire on multiple timescales, and to inform management decisions that prevent further catastrophic damage to the state's ecosystems and economy.

MOVING FORWARD: MAINTAIN PROGRESS AND PARTNERSHIPS

California's forest management and wildfire prevention programs are led by a broad and diverse set of state, federal, local, tribal, and private organizations, often facing competing and overlapping mandates. Therefore, the Task Force's key goal has been to coordinate and integrate these disparate efforts into a comprehensive state framework.

Despite this progress, however, several of the more than two dozen Task Force workgroups are addressing similar goals and mandates and overlap with existing interagency programs and workgroups. To maintain momentum and track the progress of this Action Plan, the Task Force itself will be streamlined into a more focused governance structure.

Key Actions:

Streamline Task Force: The Task Force will be streamlined to focus on oversight and coordinate implementation of this Action Plan. The key roles of the Task Force will be:

- Providing regular reports on progress towards the goals and milestones of this Action Plan;
- Coordinating and aligning state, federal, local, tribal, academic, and private forest management programs and projects;
- Establishing and maintaining strong working relationships among the agencies and key stakeholders;
- Developing coordinated investment programs that leverage state, federal, and local funding programs; and
- Establishing a strategic vision for protecting and maintaining the health and resilience of the state's forested landscapes and communities.

The following groups will also aid the Task Force:

- Working Groups: The Task Force will continue to oversee a much smaller number of interagency and stakeholder-led workgroups to align agency activities and identify and resolve issues.
- Science Advisory Panel: The Task Force Science Advisory Panel will continue to support science-based decision making, translate scientific findings related to agency programs, and identify research gaps to inform future forest health projects.
- Forest Data Hub: The Forest Data Hub will support innovation, align annual state and federal reporting of forest management activities and serve as a clearinghouse for new and emerging scientific findings, data platforms, and technology.

APPENDIX A

Summary of Actions

GOAL 1: INCREASE THE PACE AND SCALE OF FOREST HEALTH PROJECTS

Accelerate Restoration Across All Lands

1.1 **Treat 500,000 Acres of USFS Land Annually by 2025:** Consistent with the Shared Stewardship Agreement, the USFS intends to treat a total of 500,000 acres annually by increasing the pace-and-scale of restoration treatments over the next five years.

1.2 **Increase Sustainable Timber Harvest:** The USFS will seek to increase its annual timber harvest from 400 million board feet (MBF) to 500 MBF annually, accounting for a third of the current industry capacity of 1.5 billion board feet annually.

1.3 **Identify Strategic Fire Management Zones:** In 2021, the USFS will identify Strategic Fire Management Zones to expand its use of managed wildland fire while protecting public and community health and safety.

1.4 **Expand Agreements:** The USFS will seek to expand its use of Good Neighbor Authority and Shared Stewardship Agreements and other mechanisms to partner with state, local and tribal governments to accomplish fuels reduction projects on federal land more efficiently.

1.5 **Manage 175,000 Acres of NPS Lands by 2025:** NPS will utilize a combination of mechanical and prescribed fire to treat 75,000 acres and managed wildfires to treat another 100,000 acres to meet ecological objectives and reduce the risk and impact of high severity wildfires.

1.6 **Treat 10,000 to 15,000 acres of BLM Land Annually by 2025:** BLM will increase its pace and scale to meet its goal of treating approximately 9,000 acres a year to 10,000 to 15,000 acres a year.

1.7 **Increase Incentives for Timber Harvests that Improve Forest Resilience:** In coordination with the state agencies biodiversity initiative, the state will develop a set of incentives to increase ecologically and financially sustainable timber harvest and associated infrastructure, which may include improved permitting, landscape-scale projects across multiple ownerships, and incentives for multi-age stands, increased carbon storage, and biodiversity

1.8 **Implement Fuels Reduction MOU:** CAL FIRE and the USFS will seek to implement and expand participation in the Fuels Reduction MOU among key agencies and partners.

1.9 **Develop Implementation Strategy:** By December 31, 2021, CAL FIRE will develop an implementation strategy for a Wildfire Resilience and Forest Assistance Program targeted to small private landowners. The implementation strategy will also include information related to meeting the California State Water Resources Control Board (Water Board) permitting and CDFW regulatory requirements as needed.

1.10 Maintain Forest Stewardship Education Program: CAL FIRE will maintain its Forest Stewardship Workshop program to help forest landowners develop management plans and implement stewardship projects. Workshop locations will be based on CAL FIRE's fire-risk and priority landscape map and the 2019 Community Wildfire Prevention and Mitigation Report.

1.11 Increase Technical Assistance: The state, through contracts with cooperators, will assist landowners with Forest Management Plans, Burn Plans, archeological and biological surveys, project field design, and other support from forestry and other natural resource professionals.

1.12 Improve Outreach: State agencies will partner with the Forest Landowners of California and other organizations to more efficiently target outreach efforts, guide assistance planning, and track project implementation.

1.13 Support Forest Health and Maintenance Treatments: CAL FIRE will provide funding for initial fuels treatments and follow-up maintenance with landowners contributing at least 10 percent of costs. CAL FIRE will prioritize funding of NIPF projects within locally coordinated forest management and post-fire restoration projects that benefit broader landscapes across multiple ownership types.

1.14 Establish Emergency Forest Restoration Teams: CAL FIRE and other state agencies will explore the potential for developing emergency forest restoration teams to assist small landowners impacted by wildfires with funding and expertise to restore their properties and help prevent further damage to life, property and natural resources. This program would complement the NRCS Environmental Quality Incentives Program (EQIP) and the Emergency Forest Restoration Program (EFRP).

1.15 Provide Seedlings for Restoration: CAL FIRE will expand its nursery and seed bank to deliver seeds and seedlings to small landowners whose properties are affected by wildfire or diseases. Experts will focus on using native seed selections that are best suited to current and future landscapes. The Placerville USFS nursery will expand its capacity to grow approximately 15 million seedlings per year.

1.16 Expand Lumber Certifiers: Expand Lumber Certifiers: BOF will assist in establishing additional small-scale forest product infrastructure, such as portable sawmills, and will explore the potential for Registered Professional Foresters to become third-party certified as Lumber Graders.

1.17 Execute Strategy for Forested State Lands: CNRA will partner with State Parks, CDFW, the Tahoe Conservancy, and other agencies that own state land to execute a comprehensive strategy to expand forest management and improve the health and resilience of forested state lands.

Increase Prescribed Fire

1.18 Develop Prescribed Fire Strategic Action Plan: By the spring of 2021, CAL FIRE, CARB, USFS and other federal, state, local and tribal governments will develop and issue a Prescribed Fire Strategic Action Plan to coordinate and guide prescribed fire activities, and to address the key barriers to its widespread use in California.

1.19 Utilize All Fuels Reduction Methods to Treat up to 100,000 Acres by 2025: CAL FIRE will use all fuels reduction methods, including prescribed fire, to expand its fuels reduction program to treat 100,000 acres of its 500,000-acre target.

1.20 Establish a Grant Program to Support Cultural Burning: CAL FIRE will establish a new program to provide direct funding for tribal governments to support cultural burning and other traditional forest health practices.

1.21 Establish a National Prescribed Fire Training Center: The USFS, in partnership with CAL FIRE and local and tribal governments, will seek to establish a National Prescribed Fire Training Center to provide training opportunities for prescribed burn practitioners and focus its efforts on western U.S. ecosystems.

1.22 Explore Strategies to Address Liability Issues: Insurance is no longer available for most private landowners and organizations seeking to conduct prescribed fire projects. In 2021, the state will explore the development of alternative strategies to increase insurance availability for these projects.

1.23 Modify Suppression Tactics on State Lands: CAL FIRE will continue to expand its use of modified suppression tactics on state lands to allow a wildfire to burn under predetermined and carefully prescribed conditions to reduce forest fuels and provide ecological benefits. These tactics will follow predetermined plans that consider property and life safety issues.

1.24 Develop an Automated Prescribed Burn Permit: By 2021, CAL FIRE will develop and deploy an automated system for prescribed burn permits.

1.25 Provide Training and Technical Assistance: State agencies will partner with local governments and nonprofit organizations to establish sustained, multi-year funding for regional vocational training, community college curricula, and technical assistance programs for professional fire service, conservation, tribal and other fire practitioners.

1.26 Improve Workforce Development: CAL FIRE will quantify current and projected unmet needs for forestry-related workers by job type (vocational and professional) and location to inform its investments in training and vocational programs. This assessment is coordinated with the statewide assessment in Action 3.11.

1.27 Develop an Annual Reporting System: CAL FIRE, in coordination with state and federal partners, will develop an annual reporting system to consolidate and report relevant data for prescribed fires in California.

Mobilize Regional Action Plans

1.28 Expand RFFC Program: In 2021, DOC will develop draft guidelines to expand the RFFC Program to all high-risk areas statewide. DOC will collaborate with CAL FIRE, the USFS, and other state and regional agencies and stakeholders to develop the draft guidelines.

1.29 Develop Network of Regional Forest and Community Fire Resilience Plans: As part of its updated guidelines, the RFFC Program will seek to provide a common but highly flexible framework for the development of Regional Forest and Community Fire Resilience Plans that can be tailored to a variety of regional governance structures and risks and priorities.

1.30 Develop Pipeline of Local and Regional Shovel-Ready Projects: DOC will develop a regional pipeline of shovel-ready projects and investment strategies that provide dedicated ongoing funding for implementation. Regional plans will guide project pipeline development and investment strategies and be developed in partnership with the USFS, CAL FIRE, and other key regional stakeholders. The Sierra Nevada, Tahoe, Coastal, and Santa Monica Mountains Conservancies will also play a lead role in allocating these funds.

Conserve Working Forests

1.31 Develop Consolidated Forest Conservation Program: In 2021, CAL FIRE and the WCB, in coordination with partner state agencies, will develop a consolidated program and grant application process for forest conservation and will align federal conservation programs to the extent feasible.

1.32 Align Forest Conservation Programs with Climate, Biodiversity, and Outdoor Access Programs: CAL FIRE and the WCB will adopt guidelines for this consolidated program aligned with the development and implementation of the Climate Smart Strategy and Biodiversity initiatives outlined in EO N-82-20.

Reforest Burned Areas

1.33 Develop Restoration Strategy for Federal Lands: Given the recent fires, including 2020's unprecedented fire year, 650,000 to one million acres of federal land need some degree of reforestation. In spring 2021, the USFS, in partnership with American Forests and key stakeholders, will develop a strategy to restore its highest priority areas. This ecologically-based strategy will focus on silvicultural practices to increase carbon storage, protect biodiversity, and build climate resilience.

1.34 Develop Coordinated State Restoration Strategy: CNRA will partner with Cal OES, OPR, and other federal, state, and local agencies to develop a coordinated strategy to prioritize and restore non-federal burned areas and communities as part of the state's overall long-term recovery

Improve Regulatory Efficiency

1.35 Complete Permit Synchronization Workplan: By December 2021, BOF, working with the AB 1492 Leadership Team, will complete its permit synchronization work plan. Permit synchronization intends to align permitting under the Forest Practice Act and Forest Practice Rules with the BOF and CDFW permitting and regulatory requirements, including waste discharge requirements and lake and streambed alteration permit issuance timelines.

1.36 Complete Timber Harvesting Plan Guidance Documents: By 2022, CAL FIRE, in coordination with the Water Board, California Geographical Survey (CGS), and CDFW, will complete a series of permitting guidance documents to help small landowners and others navigate the timber harvesting process. Guidance will include how to efficiently file a Timber Harvest Plan (THP) for review and approval, and how to meet Water Board permitting and CDFW regulatory requirements, including waste discharge requirements and lake and streambed alteration permits.

1.37 Improve and Expand CalTREES: CalTREES will be finalized and operational by 2022. Once fully operational, CalTREES will be improved to include the integration of a Geographical Information System (GIS) mapping platform, improved search functionality, and a one-stop platform for timber-related permits and notifications. Where appropriate, CalTREES shall also be built to interface with or include CDFW's Environmental Permit Information Management System, and a Water Board permit tracking and submission system for necessary timber harvest permits.

1.38 Enhance CalVTP Implementation: BOF will provide statewide web-based training on utilizing the CalVTP and other permitting processes. Working collaboratively with the California Coastal Commission and the Water Board, the BOF will also identify additional permitting processes that may need to be incorporated into the CalVTP process. To ensure consistent execution of CalVTP, BOF will oversee the first round of Project Specific Analysis in various landscapes and geographies to ensure future projects have a consistent and high-quality template to follow.

1.39 Update Prescribed Fire Information Reporting System: By December 2021, CNRA will collaborate with CARB to update its Prescribed Fire Information Reporting System (PFIRS), which is designed to capture statewide details on prescribed fires and enable estimations of smoke pollution. Under the goals of SB 1260, CARB will enhance PFIRS to improve data collection and ease-of-use by local air districts and burn managers to expand the safe application of prescribed fire. CARB will also lead an interagency analysis of prescribed fire smoke data to document public health impacts compared with wildfire smoke exposure.

1.40 Help Landowners Conserve Northern Spotted Owls: CAL FIRE and CDFW, in collaboration with the U.S. Fish and Wildlife Service (USFWS), will develop tools to assist timber landowners with conserving northern spotted owls and their habitat.

GOAL 2: STRENGTHEN PROTECTION OF COMMUNITIES

Support Community Risk Reduction and Adaptation Planning

2.1 Assess Statewide Risk to Vulnerable Communities: CAL FIRE will work with other state and federal agencies to improve and refine quantitative wildfire risk assessments across all lands and ownerships, focusing on identifying the most vulnerable communities and populations. The assessment results will be coordinated with related efforts by OPR's Integrated Climate Adaptation and Resiliency program and integrated into statewide and regional risk-based planning efforts and grant programs.

2.2 Develop Performance Measures: CAL FIRE will work with the Watershed Research and Training Center (WRTC) and other partners to identify performance measures for community wildfire risk reduction and adaptation.

2.3 Develop and Implement New Fire Hazard Severity Zones: CAL FIRE will update the scientific factors that determine the hazard ratings, including new local climate data and improved fire spread modeling. CAL FIRE will work with local jurisdictions and submit Local Responsibility Area maps to respective jurisdictions.

2.4 Update the Fire Hazard Planning Technical Advisory: Consistent with SB 901 (2018) and AB 2911 (2018), OPR will finalize its update to the Fire Hazard Planning guidance document in early 2021 to assist local governments in developing effective fire hazard policies and programs in the general plan and other implementing plans, codes, standards, and programs.

2.5 **Develop WUI Best Practices Inventory:** OPR, in collaboration with CAL FIRE and the Water Board, will prepare an inventory of best practices for planning, zoning, development review, and code enforcement to address and reduce wildfire hazards and risks related to planning and development activities in the Wildland Urban Interface (WUI). The inventory will serve as a complement to OPR's Fire Hazard Planning Technical Advisory (recently updated pursuant to SB 901 and AB 2911) and will inform local governments on how best to develop and implement plans, codes, standards, and enforcement activities within the WUI. OPR will publish the results of the inventory and best practices on the Adaptation Clearinghouse.

2.6 **Develop CWPP Best Practices Guide:** In coordination with the CFSC, WRTC and other organizations, CAL FIRE will develop and make available a best practice guide for new and updated Community Wildfire Protection Plans (CWPP's), including data standards to facilitate integration with other plans at the county, regional and statewide level.

2.7 **Increase Information Sharing:** DOC will coordinate an organized peer networking effort that will meet virtually through an interactive forum to share information monthly or quarterly to facilitate learning and preserve institutional knowledge of wildfire-mitigation planning across disciplines.

2.8 **Develop Defensible Space and Home Hardening Curriculum:** CAL FIRE will develop a formal defensible space and home hardening inspections curriculum to ensure statewide consistency and implementation.

Increase Fuel Breaks

2.9 **Develop and Maintain 500 Fuels Management Projects:** Using a science-based approach to identify priority areas for treatment, CAL FIRE will create a dynamic matrix of newly developed fuel break projects. These projects are described in CAL FIRE's Unit Fire Plans, including assessments of threats to vulnerable communities identified in the Community Wildfire Prevention and Mitigation Report.

2.10 **Link with Landscape Scale Projects:** When developing the 500 projects, CAL FIRE will identify fuel breaks and landscape restoration projects created by federal land managers, timber companies, non-governmental organizations (NGOs), and other land managers, and seek opportunities to fill gaps and leverage project efforts. These efforts will link continuous fuel breaks and forest resilience projects across landscapes at the lowest possible cost.

2.11 **Maintain Fire Prevention Grants:** CAL FIRE will coordinate with other state agencies and organizations to allocate fire prevention grants to the highest priority areas and projects.

Protect Wildfire-Prone Homes and Neighborhoods

2.12 **Extend Defensible Space Programs:** In 2021, CAL FIRE, through a public process, will assist BOF in updating defensible space regulations to meet AB 3074 (2020), which requires a five-foot ember-resistant zone around homes. CAL FIRE and BOF will also develop and implement a widespread public information campaign and update the Ready for Wildfire program to explain the revised requirements.

2.13 **Expand Assistance Programs:** CAL FIRE will look at ways to expand program assistance for the elderly, low-income, and/or people with disabilities to comply with defensible space requirements.

2.14 Increase Defensible Space Inspections: In 2021, CAL FIRE will expand its inspection program to meet AB 38 (2020) requirements, which requires CAL FIRE to conduct defensible space inspections year-round on the sale of real property in the SRA.

2.15 Improve Defensible Space Compliance: CAL FIRE will work with stakeholders to increase defensible space compliance by developing a cooperative defensible space strategy. This effort will provide education and assistance to homeowners to improve defensible space effectiveness. CAL FIRE will expand its support for creating new National Fire Protection Association Firewise USA recognized communities.

2.16 Create a Model Defensible Space Program: CAL FIRE is developing a model defensible space program that will be available to cities and counties to enforce defensible space provisions, as required by SB 190 (2019).

2.17 Expand Home Hardening Programs: Cal OES, in coordination with other state agencies, will expand home hardening programs through the development of a statewide program as described in AB 38 (2019) for cost-effective structure hardening and retrofitting to create fire-resistant homes, businesses, and public buildings.

2.18 Develop Home Hardening Guidance: CAL FIRE will continue to work with the Insurance Institute for Business and Home Safety, National Institute for Standards and Technology, and other partners to develop home hardening guidance.

2.19 Develop WUI Fire Safety Training Material: CAL FIRE will develop a WUI Fire Safety Building Standards Compliance training manual for local building officials, builders, and fire service personnel, and make it available on its department website to meet the requirements of SB 190 (2019).

2.20 Develop Insurance MOU: The California Department of Insurance will continue to work with CAL FIRE and Cal OES to develop an MOU and implement the provision of SB 824 (2017) regarding residential property insurance in wildfire-affected areas under a declaration of a state of emergency.

Improve Utility-Related Wildfire Risk

2.21 Review Wildfire Mitigation Plans: The new OEIS will work collaboratively with CAL FIRE and other agencies to review and comment on the investor-owned utility Wildfire Mitigation Plans.

2.22 Coordinate Utility-Related Wildfire Mitigation Initiatives: Through the OEIS and the Utility Wildfire Mitigation Steering Committee, the state will continue to reduce wildfire risk, including assuring compliance with commitments from electrical corporations to reduce utility-related ignitions that can cause catastrophic wildfires while protecting natural resources and biodiversity.

2.23 Expand USFS Master Special Use Permits: In 2019, the USFS signed a 30-year Master Special Use Permits with Pacific Gas and Electric (PG&E) and Southern California Edison (SCE) to streamline permitting of hazard tree removals and other routine maintenance activities along powerline corridors, and will seek to expand the use of these permits to other utilities throughout the state.

Create Fire-Safe Roadways

2.24 Identify Subdivision Secondary Emergency Access: BOF, in consultation with CAL FIRE, shall survey subdivisions in the SRA and very high fire hazard severity zones without a secondary egress route that are at significant fire risk, consistent with the requirements of AB 2911 (2018). In consultation with CAL FIRE and the impacted local government, BOF shall develop recommendations to improve the subdivision's fire safety.

2.25 Develop Framework for Safe Road Corridors: Through workshops with key agencies and stakeholders, Caltrans is establishing a framework for collaborative fuels reduction projects to protect roadway travelers, communities along highways and to reduce roadside ignitions along primary and secondary emergency evacuation routes. Caltrans will identify highway corridors most in need of defensible space and develop a strategy in the spring of 2021 while seeking to align funding and crew resources.

2.26 Assist with General Plans: Caltrans will assist cities and counties in updating their general plan safety elements under AB 747 (2019), which requires that safety elements be updated to address evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. OPR will also work with Caltrans to update the General Plan Guidelines to include guidance for meeting AB 747 requirements for safety elements.

2.27 Expand Highway Treatments: CAL FIRE and Caltrans will seek to partner with adjacent landowners to treat priority areas along its 2,600 miles of high-risk roadways.

2.28 Develop Good Neighbor Agreement: Recognizing that there are more than 3,000 miles of road crossing federal lands, Caltrans will work with the USFS to develop a statewide Good Neighbor Agreement to allow Caltrans to treat adjacent federal lands.

2.29 Expand Messaging Campaign: Caltrans will partner with CAL FIRE to expand its public outreach efforts to include graphics and messages that align with emergency evacuation messaging, such as Ready, Set, Go!, FEMA's Ready.gov, and the 5 Minute Plan.

Reduce Health Impacts of Smoke

2.30 Launch Smoke Ready California Campaign: Through the interagency Smoke Communications Working Group, which includes more than 15 federal, state, and local agencies and stakeholders, CARB is developing a Smoke Ready California campaign ahead of the 2021 wildfire season that will provide coordinated messaging and content to help Californians plan for and protect themselves from smoke impacts.

2.31 Release California Smoke Spotter App: CARB, with support from partners, is developing a California Smoke Spotter app to provide the public with information on nearby prescribed fires, hourly data gathered from permanent and portable air monitors, as well as personalized alerts. It will also offer a 24-hour smoke forecast, information on wildfires, and educational content to help people prepare for possible smoke impacts. The app's public release is expected to be in early 2021, with more enhancements planned in the coming years.

2.32 Enhance Prescribed Fire Reporting: CARB will pursue significant enhancements in data collection and reporting for PFIRS, a platform for aggregating data from air districts, fire management agencies, and burners. The enhancements will enable more efficient reporting and analysis of the effects of prescribed fire and smoke.

GOAL 3: MANAGE FORESTS TO ACHIEVE THE STATE'S ECONOMIC AND ENVIRONMENTAL GOALS

Integrate Forest Management into State Climate and Biodiversity Strategies

3.1 **Develop Natural and Working Lands Climate Smart Strategy:** Consistent with Executive Order N-82-20, CNRA will coordinate the development and release of a Natural and Working Lands Climate Smart Strategy by October 2021.

3.2 **Develop 2022 Climate Change Scoping Plan Update:** CARB, in partnership with CNRA and other agencies, will build upon the Natural and Working Lands Climate Smart Strategy and other science-based data in updating the strategies and targets for natural and working lands in the 2022 Climate Change Scoping Plan.

3.3 **Establish Biodiversity Collaborative:** CNRA, in coordination with the California Department of Food and Agriculture (CDFA), California Environmental Protection Agency (CalEPA), and other state agencies, has launched the California Biodiversity Collaborative and will bring together experts, leaders, and communities from across California to advance a unified, comprehensive approach to protecting the state's biodiversity.

3.4 **Develop Biodiversity Strategy:** CNRA and other relevant state agencies, in consultation with the Collaborative, will develop and report strategies to meet the goal of conserving at least 30 percent of California's land and coastal waters by February 2022.

Create a Sustainable Wood Products Market in California

3.5 **Complete State Framework:** In 2021, OPR, in collaboration with other state agencies, will complete the development of its comprehensive framework to align the state's wood utilization policies and priorities.

3.6 **Develop Market Roadmap:** Building upon OPR's framework and Joint Institute recommendations, GoBiz will partner with OPR, CAL FIRE, BOF, and other key agencies and stakeholders in developing a focused market strategy by December 2021.

3.7 **Establish Metrics:** The OPR framework will also include a comprehensive set of metrics to evaluate biomass availability, usage, investments, and workforce levels.

3.8 **Launch Catalyst Fund Forest Investments:** In 2021, the state's iBank will partner with CAL FIRE and other agencies to advance forest-related applications to the Catalyst Fund, building on work to date, which will accelerate with the passage of the state budget. The fund will (1) provide loans, loan guarantees and other credit support to encourage the development of businesses that utilize wood and forest biomass; (2) encourage private-sector innovations in technology, business models, infrastructure, and supply chains in the woody biomass markets; and (3) promote optimization of state grant funds in the sector by leveraging the maximum amount of private capital possible for each public dollar provided.

3.9 **Develop X-Prize for Wood Product Innovation:** By December 2021, OPR will coordinate the development and execution of an X-Prize for wood product innovation. The competition will be designed to showcase California's commitment to becoming the hub of wood product innovation and leverage state investments to bring philanthropic and private capital into the competition.

3.10 Address Feedstock Barriers through Pilot Projects: OPR will develop five pilot projects to test new mechanisms for developing long-term feedstock contracts. Information and templates from the pilot projects will be shared broadly to provide a menu of broader adoption options.

3.11 Develop Statewide Forest and Wood Products Workforce Assessment: OPR, in coordination with the Labor and Workforce Development Agency and other key agencies and stakeholders, including CAL FIRE, the Community College System, and the Sierra Business Council, will lead the development of a statewide Forest and Wood Products Workforce Assessment by December 2021.

3.12 Maintain and Develop Removal Incentives: As required by SB 901 (2018), CAL FIRE will provide transportation incentives to offset a portion of the cost to move forest byproducts to end-user facilities. In addition, as described in the Joint Institute recommendations, CAL FIRE will evaluate the potential for the development of incentive programs to reduce the costs to forest landowners to remove woody biomass.

Sustain and Expand Outdoor Recreation on Forestland

3.13 Update Statewide Comprehensive Outdoor Recreation Plan (SCORP): In 2021, CNRA, in coordination with State Parks, will update the Statewide Comprehensive Outdoor Recreation Plan (SCORP). The SCORP will provide a comprehensive framework and investment strategy, emphasizing equitable access to underserved communities and rural recreation-dependent communities.

3.14 Develop Joint Strategy to Improve Access to Sustainable Recreation: In accordance with the Shared Stewardship Agreement, the USFS will coordinate the development of a joint strategy to improve access to sustainable recreation.

Protect and Expand Urban Canopy and Forests

3.15 Increase Urban Canopy: By 2030, CAL FIRE will seek to significantly increase California's urban tree canopy, targeting disadvantaged and low-income communities and low-canopy areas.

3.16 Establish Regional Targets: CAL FIRE will also seek to work with local and regional agencies to establish local tree canopy cover goals.

3.17 Identify High Priorities: CAL FIRE will help local governments identify optimal green infrastructure locations and increased tree canopy cover in high-priority areas described in CAL FIRE's 2017 Forest and Rangeland Assessment.

GOAL 4: DRIVE INNOVATION AND MEASURE PROGRESS

Utilize Best Available Science and Accelerate Applied Research

4.1 Complete Applied Research Plans: In coordination with the Science Advisory Panel of the Task Force and other leading scientists, BOF and CAL FIRE's Forest and Resource Assessment Program (FRAP) will develop and issue an applied research plan by June 2021.

4.2 Forest Research Grants: Based on the applied research plan results, CAL FIRE will expand its forest research grant program to address key management questions and priorities.

Expand and Improve Monitoring, Reporting, and Decision-Support Tools

4.3 **Establish Forest Data Hub:** CAL FIRE and the USFS, in collaboration with the USDA California Climate Hub and other agencies, will seek to establish a Forest Data Hub (Hub) to serve as a multi-institutional information clearinghouse. The Hub's goal will be to support, integrate, evaluate, and synthesize ongoing reporting and monitoring efforts conducted by state and federal agencies, universities, and non-governmental organizations. For example, the Hub could develop standard protocols for field-based monitoring, expand data sharing, and require annual reporting into a common data repository. These coordinated information products would be rapidly and reliably made available to land managers and decision-makers. The Hub would be initially staffed by an interagency team of CAL FIRE, CARB, the University of California, and the USFS.

4.4 **Establish Ecological Planning Tool:** By January 2023, CalEPA and CNRA will develop a landscape-scale planning tool for state, local, and federal partners and tribes to establish forest management and restoration priorities.

4.5 **Develop Statewide Forest Ecosystem Monitoring System:** CNRA will continue to lead a long-term statewide forest ecosystem monitoring and assessment initiative to analyze how forest management and timber harvest practices impact forest health. By integrating interagency data and remote sensing from state and federal resource programs, CNRA will establish a spatially explicit, consistent approach to track forest ecosystem conditions over time at a watershed scale. The work has now been linked directly to AB 2551 (2017) to develop a spatial assessment and priority plan in northeastern California that will extend statewide.

4.6 **Integrate and Expand Forest Carbon Inventories:** CARB and CAL FIRE staff will continue to coordinate improvements to the Natural and Working Lands and AB 1504 (2009) forest carbon inventories to ensure that the state has a detailed and comprehensive understanding of forest carbon dynamics.

4.7 **Develop State-of-the-Science Models:** CARB and CAL FIRE are developing state-of-the-science models to map fuels and simulate the future of California's Natural and Working Lands, including interactions between climate, fire, carbon and water in forests. This effort will utilize CAL FIRE's recent investment in better field-based inventory data. This modeling will inform CARB's modeling effort to determine management strategies to deliver on the state's climate change goals while providing other valuable ecosystem services.

4.8 **Develop Consistent Reporting Tools:** Through the proposed Forest Data Hub, CNRA, CAL FIRE, CARB, and the USFS will develop reporting tools that allow for consistent reporting on acres treated, prescribed fire, reforestation, carbon accounting, fire intensity, land cover change, and other key information.

4.9 **Establish Clearinghouse:** The Science Advisory Panel of the Task Force is collecting, reviewing, and organizing information on new and emerging technologies and data platforms designed to inform forest management practices at multiple scales. This effort will be coordinated with the state's Adaptation Planning Clearinghouse and the development of the Forest Data Hub.

4.10 Improve Coordination of Climate and Fire Research: Despite substantial investments by several agencies, the state lacks a focused, coordinated approach to improve our understanding of the complex impacts of climate change on wildfire regimes. The Science Advisory Panel will convene a planning effort to better coordinate the ongoing and future actions of state and federal agencies, academic institutions, and the private sector to develop the knowledge and tools necessary to advance predictions of wildfire on multiple timescales, and to inform management decisions that prevent further catastrophic damage to the state's ecosystems and economy.

APPENDIX B

Executive Orders

Executive Department

State of California

EXECUTIVE ORDER B-52-18

WHEREAS California's 33 million acres of forestland and 1,256 square miles of urban forest canopy capture and clean our water supply, provide rich biodiversity, support local economies, provide recreational and educational opportunities, and serve as spiritual and cultural centers for indigenous and local communities across the state; and

WHEREAS forested lands are the largest land-based carbon sink in California with trees and shrubs drawing carbon from the atmosphere and storing it in their cellulosic structure and in forest soils; and

WHEREAS consistent with California's greenhouse gas emissions goals the state's forests should be maintained as a net sink rather than a source of greenhouse gas and black carbon emissions; and

WHEREAS long-term human intervention, including the practice of excluding fire in fire-dependent ecosystems, has resulted in a deterioration of forest health statewide and, in some cases, loss of forest cover; and

WHEREAS these conditions, coupled with drought and the stressors associated with a warming climate, have dramatically increased the size and intensity of wildfires, exposed millions of urban and rural residents to unhealthy air, and led to more than 129 million dead and dying trees since 2010, primarily in the Sierra Nevada; and

WHEREAS recent wildfires have been the largest, deadliest, most destructive and costliest in state history; and

WHEREAS water supply for the State Water Project and other municipal and agricultural systems has been impacted by increased sediment and accelerated snow melt caused by wildfire and tree mortality; and

WHEREAS the current pace and scale of prescribed fire, fuel reduction, and thinning of overly dense forests average approximately 250,000 acres per year and are far below levels needed to restore and maintain forest health; and

WHEREAS the diversity of California's forests and tree species and unique climates require regionalized strategies to identify the areas that pose the greatest threat to forest health and offer the best solutions; and

WHEREAS there is a need to incentivize innovation in the California forest product and building industries in order to improve the ecological and economic sustainability of California forests; and

WHEREAS the Forest Carbon Plan has been developed by state agencies to provide consensus forest practices that will achieve resilient forests that can withstand and adapt to wildfire, drought and a changing climate, safeguard the state's water supply, and ensure the state's forests operate as a carbon sink.

NOW, THEREFORE, I, EDMUND G. BROWN JR., Governor of the State of California, in accordance with the authority vested in me by the Constitution and statutes of the State of California, do hereby issue the following orders to become effective immediately:

Improving Forest Management and Restoration

1. The Department of Forestry and Fire Protection shall work with all relevant federal, state and local agencies, California Native American tribes, and other affected parties to implement the forest practices called for in the Forest Carbon Plan.

2. The Natural Resources Agency shall take all necessary steps to double the total statewide rate of forest treatments within 5 years to at least 500,000 acres per year. To accomplish this goal the Agency will work with the Department of Forestry and Fire Protection, the Department of Parks and Recreation, the Department of Fish and Wildlife, the State Water Resources Control Board, State Conservancies, and all other relevant agencies.

3. The Department of Forestry and Fire Protection shall increase new landowner agreements and memoranda of understanding, such as Good Neighbor .Authority agreements, to accelerate forest restoration thinning and prescribed fire projects across jurisdictions, and shall integrate fire prevention activities into landscape forest restoration efforts in and near Wildland Urban Interface areas.

4. The Department of Fish and Wildlife shall integrate the goals of this Executive Order in its restoration programs, mitigation-related land conservation, and conservation planning.

Providing Regulatory Relief

5. The Natural Resources Agency, the Department of Forestry and Fire Protection, the State and Regional Water Boards, the Department of Fish and Wildlife, and the California State Air Resources Board shall reduce barriers to entry for forest health and fuels reduction projects, including working with the California Coastal Commission to facilitate permitting in the coastal zone, reducing liability exposure for landowners, and providing financial and permitting assistance for landowners of under 5,000 acres.

6. The Natural Resources Agency, the Board of Forestry and Fire Protection, the Department of Forestry and Fire Protection, the Department of Fish and Wildlife, State and Regional Water Boards, and the Department of Conservation shall have in operation by October 1, 2018 a new online timber harvest permitting system, and shall synchronize and expedite the regulatory review of permits under the Forest Practice Act and related timber harvest permitting processes.

7. All relevant state agencies shall make cultural and biological resources data readily accessible online to accelerate the implementation and environmental review of fuels reduction projects.

Reducing Barriers for Prescribed Fire

8. The California Air Resources Board with assistance from local air districts and the Department of Forestry and Fire Protection shall increase the opportunities for prescribed fire projects through coordinating staff and equipment availability, accelerate prescribed fire projects that are permit-ready, identify weather conditions suitable for prescribed fire, and institute a real-time air quality and smoke monitoring program for prescribed and wildland fires.

9. The Department of Forestry and Fire Protection and the California Air Resources Board shall develop a publicly available online clearinghouse for permitting of prescribed fire projects on all non-federal lands, which shall include an automated system for prescribed fire project permit submission and approval. Boosting Education and Outreach to Landowners

10. The Department of Forestry and Fire Protection shall provide educational programs and outreach to private landowners and other interested parties on forest restoration, fuels reduction project development, and permitting.

11. The Department of Forestry and Fire Protection shall develop a training program to educate and certify government, tribal, academic, and nongovernment organization staff to increase the number of qualified individuals available to implement prescribed fire projects.

12. The Labor and Workforce Development Agency shall work with relevant state agencies and local workforce development boards to develop pilot training programs in forest thinning and biomass processing in areas where there is inadequate labor capacity to support such activities.

Supporting Wood Products Innovation

13. The Office of the State Fire Marshal, the Department of Housing and Community Development, the Division of the State Architect, the California Building Standards Commission, and the Office of Statewide Health Planning and Development shall review the approved Tall Wood Building Proposal of the International Code Council's Ad Hoc Committee. on Tall Wood Buildings and shall consider proposing its adoption into the California Building Standards Code in the subsequent intervening code cycle.

14. The Department of General Services, in collaboration with other state agencies, shall identify at least three building projects in which to utilize manufactured wood products as both structural and aesthetic components.

15. The Board of Forestry and Fire Protection, working with the University of California and California State University, shall establish a Joint Institute for Wood Products Innovation to perform wood products research, development, and testing; and shall accelerate research, development and adoption of advanced forest management and wood products manufacturing.

16. The California Public Utilities Commission is requested to review and update its procurement programs for small bioenergy renewable generators to ensure long-term programmatic certainty for investor-owned utilities and project developers, as well as benefits to ratepayers.

IT IS FURTHER ORDERED that agencies under my direct executive authority cooperate in the implementation of this Order, and it is requested that entities of State government not under my direct executive authority assist in its implementation as necessary.

This Executive Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 10th day of May 2018.

EDMUND G. BROWN, JR.
Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

Executive Department

State of California

EXECUTIVE ORDER N-05-19

WHEREAS, California experienced the most destructive wildfire season in State history in 2018, enduring over 7,600 wildfires that burned 1,846,445 acres in total;

WHEREAS, the 2018 Camp Fire was both the deadliest fire in State history, claiming the lives of 86 people, as well as the most destructive, destroying 18,804 structures - a tragedy from which impacted communities will take years to recover;

WHEREAS, six of the top ten most destructive fires in State history have occurred in just the past two years, including the Camp, Tubbs, Woolsey, Carr, Nuns, and Thomas Fires;

WHEREAS, the reality of climate change - persistent drought, warmer temperatures, and more severe winds - has created conditions that will lead to more frequent and destructive wildfires;

WHEREAS, historically, fires lit by Native Americans and lightning strikes cleared the forest of surface fuels on a regular cycle to manage vegetation;

WHEREAS, California arrived at our present emergency condition through the combined factors of fire exclusion, forest management policies that created overgrown and overcrowded forests, a rapidly changing climate, and a historic drought with accompanying bark beetle epidemics;

WHEREAS, fuels reduction, which encompasses a range of forest management activities, including thinning, treating surface fuels with prescribed fire, mechanical methods, manual methods, and grazing, can reduce potential fire intensity;

WHEREAS, the State has invested significant resources into proactive forestland health maintenance through a number of programs, including direct land management by the California Department of Forestry & Fire Protection (CAL FIRE) and California Conservation Corps crews, and through grants to landowners and other private entities that perform management projects on their own property or on sections of forestland in their communities;

WHEREAS, a significant infusion of funding from the Greenhouse Gas Reduction Fund will make available $1 billion over the next five years, beginning this year, for the purpose of active forestland management;

WHEREAS, in addition to the aforementioned $1 billion in forestland management funding, the Governor's proposed 2019-2020 budget will also include significant enhancements for more year-round fire crews, as well as investments in greater use of technology and equipment for the purpose of preventing and fighting wildfires;

WHEREAS, to maximize the efficacy of these historic investments, the State endeavors to implement management strategies more rapidly and in a manner that is environmentally sustainable, and to prevent or contain to the greatest extent possible future destructive fires such as those thot ravaged California in 2018;

WHEREAS, in order to prioritize the most at-risk communities, the State must consider two coequally important factors of vulnerability: scientific and social. California must access the best

available science about dangerous fuel conditions, wind patterns, fire behavior, and other scientific indicators. But of equal importance are social vulnerability factors including social isolation, poverty, language barriers, and other access and functional needs challenges. Communities with high preponderance of physical fire danger and high indicators of social vulnerability deserve the State's highest attention; and

WHEREAS, the people of the State of California expect that their government will take all possible actions to protect life, property, and forests from deadly megafires, and will do so with an urgency that matches the scope of the threat.

NOW, THEREFORE, I, GAVIN NEWSOM, Governor of the State of California, by virtue of the power and authority vested in me by the Constitution and statutes of the State of California, do hereby issue this Order and direct as follows:

1. Within 45 days of the issuance of this Executive Order, CAL FIRE,in consultation with other State agencies and departments, shall provide a written report to the Governor with recommendations of the most impactful administrative, regulatory, and policy changes or waivers the Governor can initiate that are necessary to prevent and mitigate wildfires to the greatest extent possible, with an emphasis on environmental sustainability and protection of public health.

2. CAL FIRE shall be the lead department in the convening of state agencies and in the production of this report. Other agencies and departments shall cooperate and support CAL FIRE in the researching and writing of this report, including but not limited to the Governor's Office of Emergency Services, the California National Guard, the California Government Operations Agency, the Office of Planning and Research, and the Department of Finance.

3. CAL FIRE shall lead stakeholder engagement to inform the report, including consultations with local fire chiefs, local elected officials, Fire Safe Councils, and other impacted stakeholders, as necessary.

4. In preparing the report, CAL FIRE shall include recommendations to the Governor for immediate, medium-term, and long-term recommended actions that will have the greatest impact in preventing the impact of destructive, deadly wildfires. These recommendations should include, but not be limited to:

    a. Methods to most quickly deploy personnel and resources onto the landscape for the purpose of performing fuels management.

    b. Policy changes, including but not limited to procurement or permitting waivers that will allow for more rapid and effective fuels management treatments, especially for projects accomplishable before the peak of fire season later this year.

    c. Methodology to assess which communities are at greatest risk from wildfire and the projects within/nearby areas that would reduce the threat of a catastrophic wildfire if completed. In this context, CAL FIRE shall consider not only the best available science when identifying high-hazard communities, but also socioeconomic factors and vulnerable populations that exacerbate the human toll of wildfires. This scoping shall be done in consultation with local impacted stakeholders, experts, and academics.

5. As CAL FIRE identifies communities at greatest risk from wildfire, per directive 4c herein, CAL FIRE shall share this assessment to guide the Governor's Office of Emergency Services as they scope and execute the "California for All" community resiliency public education and preparedness campaign proposed in the Governor's 2019-2020 budget. This effort will include local grants and will focus on community engagement and public education in high-risk areas with an emphasis on public health and safety.

IT IS FURTHER ORDERED that State Agencies shall cooperate in the implementation of this Order. Other entities of State government not under my direct executive authority, including the University of California and California State University, are requested to assist in its implementation.

This Order is not intended to, and does not, create any rights or benefits, substantive or a procedural, enforceable at law or in equity, against the State of California, its departments, agencies, or other entities, its officers or employees, or any other person.

IT IS FURTHER ORDERED that soon as hereafter possible, this Order shall be filed with the Office of the Secretary of State and that widespread publicity and notice shall be given to this Order.

WITNESS WHEREOF I have hereunto set my hand and caused the Great seal of the State of California to be affixed this 8th day of January 2019.

GAVIN NEWSOM
Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

Executive Department

State of California

EXECUTIVE ORDER N-82-20

WHEREAS the well-being of our communities and California's economic sustainability are interconnected with our natural and cultural resources; and

WHEREAS the State's long-term vitality is threatened by the loss of biodiversity - the variety and variability of plant and animal life in our State - and the impacts of climate change; and

WHEREAS California's natural and working lands – our forests, rangelands, farms, wetlands, coast, deserts, and urban greenspaces – sustain our economy, support our unique biodiversity, contribute to the global food supply, support outdoor heritage and provide clean water and air; and

WHEREAS since time immemorial, California Native Americans have stewarded, managed and lived interdependently with the lands that now make up the State of California; and

WHEREAS California is home to more species of plants and animals than any other state, and this biodiversity accounts for about one third of all species found in the nation; and

WHEREAS soils are home to more than a quarter of the world's biodiversity and California boasts more than 2,500 different soil types; and

WHEREAS California's rich biodiversity is increasingly threatened by loss of habitat, spread of invasive species, decreasing water supplies, and increasingly frequent and severe climate impacts; and

WHEREAS the climate change crisis is happening now, impacting California in unprecedented ways including intensifying wildfires, mud slides, floods and drought, sea level rise and extreme heat, that threaten our economy, communities, public safety, and cultural and natural resources; and

WHEREAS as we work to mitigate greenhouse gas emissions, we must also accelerate actions to enable the State to adapt and become more resilient to the impacts of climate change, including expanding nature-based solutions – the use of sustainable land management practices to tackle environmental, social and economic challenges; and

WHEREAS national, subnational and indigenous leaders across the globe are coming together to accelerate implementation of nature-based solutions to our climate and extinction crises, improve the way land is managed to absorb carbon pollution from the atmosphere, build resilience by protecting communities and natural places from climate-driven disasters, and restore healthy ecosystems; and

WHEREAS addressing the biodiversity crisis and accelerating nature-based solutions requires inclusive partnerships and collaboration among federal, state and local governments, California Native American tribes, local communities, businesses, investors, labor, conservationists, outdoor enthusiasts, academia, land managers, and other stakeholders.

NOW, THEREFORE, I, GAVIN NEWSOM, Governor of the State of California, in accordance with the authority vested in me by the Constitution and statutes of the State of California do hereby issue the following Order to become effective immediately to combat the climate and biodiversity crises:

IT IS HEREBY ORDERED THAT:

1. To combat the biodiversity and climate crises, the California Natural Resources Agency, in consultation with the California Department of Food and Agriculture, the California Environmental Protection Agency and other state agencies, is directed to establish the California Biodiversity Collaborative (Collaborative) to bring together other governmental partners, California Native American tribes, experts, business and community leaders and other stakeholders from across California to protect and restore the State's biodiversity. State agencies will consult the Collaborative on efforts to:

   a. Establish a baseline assessment of California's biodiversity that builds upon existing data and information, utilizes best available science and traditional ecological knowledge, and can be updated over time.

   b. Analyze and project the impact of climate change and other stressors on California's biodiversity.

   c. Inventory current biodiversity efforts across all sectors and land managers and highlight opportunities for additional action to preserve and enhance biodiversity.

   d. Expand the communication and use of information, indicators and tools to monitor, track and protect California's biodiversity and natural resources.

   e. Advance multi-benefit, voluntary and cooperative approaches that protect and restore biodiversity while stewarding natural and working lands, building climate resilience, and supporting economic sustainability.

   f. Engage stakeholders across California's diverse communities, including academic and research institutions; local and federal governments; California Native American tribes; outdoor recreation and access groups; fishing and hunting organizations; farmers, ranchers and other private landowners and land managers; environmental advocates and investors; housing and land use developers; educators; philanthropy, and others.

2. To support the global effort to combat the biodiversity and climate crises, it is the goal of the State to conserve at least 30 percent of California's land and coastal waters by 2030. The California Natural Resources Agency and other relevant state agencies, in consultation with the Collaborative, are directed to develop and report strategies to the Governor no later than February 1, 2022 to achieve this goal in a manner that:

   a. Safeguards our State's economic sustainability and food security.

   b. Protects and restores biodiversity.

   c. Enables enduring conservation measures on a broad range of landscapes, including natural areas and working lands, in partnership with land managers and natural resource user groups.

   d. Builds climate resilience, reduces risk from extreme climate events and contributes to the State's effort to combat climate change.

e. Expands equitable outdoor access and recreation for all Californians.

3. To advance efforts to conserve biodiversity, the California Natural Resources Agency is directed to take the following actions within existing authority and resources:

   a. Strategically prioritize investments in cooperative, high-priority actions that promote biodiversity protection, habitat restoration, wildfire-resilient, sustainably managed landscapes and other conservation outcomes.

   b. Implement actions to increase the pace and scale of environmental restoration and land management efforts by streamlining the State's process to approve and facilitate these projects.

   c. Collaborate with federal and state research institutions to utilize innovative scientific observation technology and with tribal partners to incorporate tribal expertise and traditional ecological knowledge to better understand our biodiversity and threats it faces.

   d. Participate in regional, national and international efforts to advance biodiversity protection and help to stem extinctions across the planet.

4. To advance efforts to conserve biodiversity, the California Department of Food and Agriculture is directed to take the following actions with existing authority and resources:

   a. Coordinate with other relevant state agencies and private partners to reinvigorate populations of pollinator insects across the State, which restore biodiversity and improve agricultural production.

   b. Implement strategic efforts to protect California's native plants and animals from invasive species and pests that threaten biodiversity and economic activities.

   c. Enhance soil health and biodiversity through the Healthy Soils Initiative.

5. The California Natural Resources Agency, the California Department of Food and Agriculture, the California Environmental Protection Agency, the Governor's Office of Planning and Research, and other state agencies, shall use existing authorities and resources to identify and 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.

6. Within one year of this Order, the California Natural Resources Agency, in consultation with the California Environmental Protection Agency, the California Department of Food and Agriculture, the California Air Resources Board, Governor's Office of Planning and Research, the California Strategic Growth Council and other state agencies, shall develop a Natural and Working Lands Climate Smart Strategy that serves as a framework to advances the State's carbon neutrality goal and builds climate resilience.

   In developing this Strategy, agencies shall be guided by the following principles:

a. Promote healthy lands that provide multiple benefits including improved air quality, reliable water supply, thriving communities, and economic sustainability.

b. Advance equity and opportunity for all regions of California.

c. Support pathways for sectors such as agriculture and forestry to participate in the transition to a carbon neutrality economy.

d. Inform policies through public feedback gathered through extensive outreach to and equitable engagement with stakeholders including, but not limited to, land managers, federal, tribal and local governments, communities, environmental justice leaders, businesses, investors, non-governmental organizations, scientists and universities.

e. Align policies, programs, and funding mechanisms across state government, while identifying opportunities to catalyze and accelerate private investment and actions that contribute to the State's carbon neutrality goal.

7. As part of the next Scoping Plan process, the California Air Resources Board, in coordination with relevant state agencies, shall take into consideration the Natural and Working Lands Climate Smart Strategy and science-based data to update the target for the natural and working lands sector in achieving the State's carbon neutrality goal.

8. The California Department of Food and Agriculture shall work with agricultural stakeholders to identify farmer- and rancher-led solutions to inform the next Scoping Plan process.

IT IS FURTHER ORDERED that as soon as hereafter possible, this Order be filed in the Office of the Secretary of State and that widespread publicity and notice be given to this Order.

This Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable of law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be offered this 7th day of October 2020.

GAVIN NEWSOM
Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

APPENDIX C

Forest and Wildfire Action Plan Guiding Legislation

AB 1504 (Skinner, Ch. 534, Stats 2010) *Forest resources: carbon sequestration*. Requires CAL FIRE, in consultation with the ARB, by March 1, 2011, to assess the capacity of its forest and rangeland regulations to meet or exceed the state's greenhouse gas reduction goals, pursuant to the California Global Warming Solutions Act of 2006.

SB 1241 (Kehoe, Ch. 311, Stats 2012) *Land use: general plan: safety element: fire hazard impacts.* Requires cities and counties to address fire risk in SRA and VHFHSZ in the safety element of their general plans upon the next revision of the housing element, and requires cities and counties to make certain findings regarding available fire protection and suppression services before approving a tentative map or parcel map.

AB 1492 (Budget Cmte, Ch. 289, Stats 2012) *Forest resource management.* Limits the amount an agency may recover for damages caused by an escaping fire from private to public lands. Extends the period of a timber harvesting plan from three years to not more than five years, with one two-year extension. Creates an assessment on the sale of lumber products sold at retail in the state.

SB 1386 (Wolk, Ch. 545, Stats 2016) *Resource conservation: working and natural lands.* Creates a state policy declaring that the protection and management of natural and working lands is an important strategy to meet the State's greenhouse gas emission reduction goals. Also requires state agencies to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria related to the protection and management of natural and working lands.

AB 1954 (Patterson, Ch. 207, Stats 2018) *Timber harvest plans: exemption: reducing flammable materials*. Extends the sunset date for an exemption from timber harvest plan requirements for defensible space surrounding a habitable structure from January 1, 2019, to January 1, 2022.

AB 1956 (Limon, Ch. 632, Stats 2018) *Fire prevention activities: local assistance grant program.* Requires CAL FIRE to establish a local assistance grant program for fire prevention activities in and nearby fire threatened communities.

AB 2518 (Aguiar-Curry, Ch. 637, Stats 2018) *Innovative forest products and mass timber.* Requires the Forest Management Task Force, established pursuant to Executive Order B-52-18 (Brown), or its successor entity, to develop recommendations for the siting of additional wood product manufacturing facilities, including at least one mass timber facility, in the state.

AB 2551 (Wood, Ch. 638, Stats 2018) allows the Director of CAL FIRE to enter into agreements with landowners to conduct joint prescribed burning operations, and requires CAL FIRE to provide advances to landowners of the Department's cost share for work agreed to through the California Forest Improvement Program.

AB 2911 (Friedman, Ch. 641, Stats 2018) *Fire safety.* Makes various changes to fire safety planning efforts, defensible space requirements, and electrical transmission or distribution lines' vegetation clearance requirements with the intent to improve the fire safety of California communities.

SB 824 (Lara, Ch. 616, Stats 2018) *Insurers: declared disaster: homeowners' insurance policies.* Prohibits an insurer from canceling or refusing to renew a homeowners' insurance policy for one year from the date of a declaration of a state of emergency and requires admitted insurers with at least $10 million in written premiums in California to biennially report to the California Department of Insurance (CDI) specified fire risk information on residential property policies.

SB 901 (Dodd, Ch. 626, Stats 2018) *Wildfires.* Addresses forestry and landscape level fuels management, utility fire prevention and planning, and utility cost recovery related to wildfires. Directs that $165 million be made available to CAL FIRE from the GGRF through Fiscal Year 2023-24 for healthy forest and fire prevention programs, along with $35 million from the GGRF through Fiscal Year 2023-24 for prescribed fire and other fuel reduction projects.

SB 1079 (Monning, Ch. 622, Stats 2018) *Forest resources; fire prevention grants: advance payments.* Authorizes CAL FIRE, until January 1, 2024, to make advance payments to grantees from specified grants it administers and limits these payments to 25% of the total grant award.

SB 1260 (Jackson, Ch. 624, Stats 2018) *Fire prevention and protection: prescribed burns.* Authorizes federal, state, and local agencies to engage in collaborative forestry management, creates new opportunities for public and private land managers to mitigate wildfire risks, and enhances CAL FIRE's role in identifying wildfire hazards as local governments plan for new housing and neighborhoods.

AB 747 (Levine, Ch. 681, Stats 2019) *Planning and zoning: general plan: safety element.* Requires cities and counties in the safety element of the general plan to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios.

AB 836 (Wicks, Ch. 393, Stats 2019) *Wildfire Smoke Clean Air Centers for Vulnerable Populations Incentive Pilot Program.* Establishes a grant program, to be administered by CARB, to provide funding to retrofit ventilation systems to create a network of clean air centers to mitigate adverse health impacts due to wildfires and other smoke events. Requires CARB to prioritize applications where the project is located in an area with a high cumulative smoke exposure burden.

SB 190 (Dodd, Ch. 404, Stats 2019) *Fire safety: building standards: defensible space program.* Requires the OSFM to develop a model defensible space program, as specified; requires the OSFM to develop and make available a WUI Fire Safety Building Standards Compliance training; and, requires the OSFM to develop a WUI Products listing of products and construction assemblies that comply with the WUI Fire Safety building standards.

AB 38 (Wood, Ch. 391, Stats 2020) *Fire safety: low-cost retrofits: regional capacity review: wildfire mitigation.* Requires, on or before July 1, 2021, CNRA, in consultation with the Office of the State Fire Marshal (OSFM) and the Forest Management Task Force to review the regional capacity of each county that contains a very high fire hazard severity zone to improve forest health, fire resilience, and safety. Requires Cal OES to enter into a joint powers agreement with CAL FIRE to administer a comprehensive wildfire mitigation and assistance program to encourage cost-effective structure hardening and facilitate vegetation management, contingent upon appropriation by the Legislature.

AB 3074 (Friedman, Ch. 259, Stats 2020) *Fire prevention: wildfire risk: defensible space: ember-resistant zones.* Establishes, upon appropriation, an ember-resistant zone within five feet of a structure as part of the defensible space requirements for structures located in specified high fire hazard areas. Requires removal of material from the ember-resistant zone based on the probability that vegetation and fuel will lead to ignition of the structure by ember.

Regional Profiles

2020

Prepared by the Regional Forest and Fire Capacity Program for the Forest Management Task Force

Coastal Inland

REGIONAL PROFILE

13.4M

Californians live in this region

21

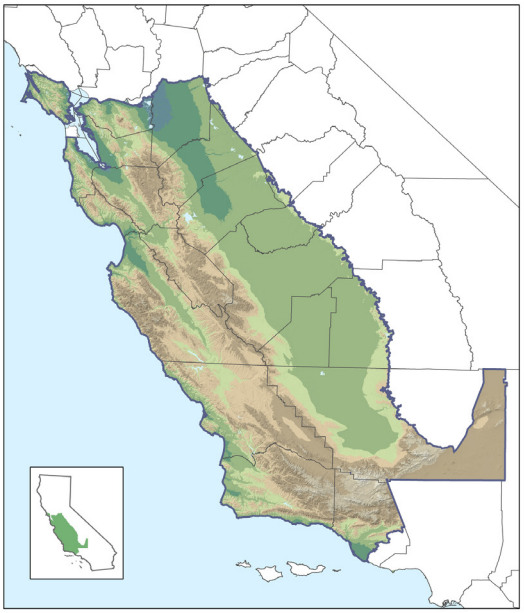
Counties are represented in this region

11.8%

of the state's forest carbon sinks are located in this region (6)**

BIOREGIONS AND ECOSYSTEMS

- This diverse region includes the Central Coastal and Central Valley bioregions.
- The coastal portion is predominately grasslands, chaparral and coastal scrub, with redwood and other conifer forests near the ocean.(1)
- The inland region is relatively flat and agricultural, and includes the Delta Region.(1)
- This region includes a mix of federal, state and locally managed public lands and a combination of dense population centers,dispersed communities in wildland urban interfaces, and heavy recreation use.



Counties: Alameda, Contra Costa, Fresno, Kern*, Kings, Madera*, Marin*, Mariposa*, Merced, Monterey, San Benito, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Stanislaus, Tulare*, Ventura*. Counties marked with an (*) contain areas in another region as well.*

Photo by Marin County Parks

KEY RESOURCES AND ACTIONS

- Biodiversity, agriculture, recreation, tourism.
- Community and watershed fire resilience through vegetation management,community organizing, invasive species control, prescribed fire, and grazing.

FIRE HISTORY AND VARIABLES

- Fire history and behavior are highly variable across this region, and there is high likelihood that fire in one area will have negative impacts on other areas as people evacuate,water supplies are threatened, and air quality is impacted.
- Human and lightning-caused fires were common prior to the 20th Century. Fire suppression, selective overstory thinning,grazing, invasive species, pests, drought,extreme wind events, and changing temperatures have combined with human population growth and steep topography to shape fire regimes today. (7, 8)
- Evacuation routes, regional fire coordination,and shelters have become community essentials.
- Until 2020, much of the coastal redwood forests had not burned in decades.

Photo by Marin County Parks

CLIMATE CHANGE AND OTHER RISKS

- Climatic impacts on this region's fire regime are complex. Although temperatures are expected to increase, a decrease in precipitation may lead to lower fuel loads (2). Late summer winds drive severe fire spread. Future changes to wind patterns are unknown (3).
- Fire frequency and severity are expected to increase as population continues to increase in the region (3).
- Bark beetle infestations are expanding as winters warm, creating large stands of dead and dry vegetation (4).
- 2020 was a record smoke year, especially in the Central Valley. Researchers are concerned about the permanent combined effects of wildfire smoke (5).

REGIONAL AND LOCAL LEADERS

- In this region, forest and fire practitioners work for a variety of entities, ranging from state and regional park districts, tribes, nonprofits, fire safe councils, resource conservation districts, and more.
- Several entities are advancing landscape-scale fire resilience, including those currently participating in the State Coastal Conservancy's Regional Forest and Fire Capacity Program, such as the Tamalpais Lands Collaborative ("OneTam"), the Santa Cruz Mountain Stewardship Network, coastal county resource conservation districts, and the Amah Mutsun Land Trust. The Sierra Nevada Conservancy plays important regional organizing roles for forest management inland.
- Projects and approaches in this region range from sub-regional prioritization planning,county-wide vegetation mapping, prescribed fire planning and implementation, fuel break development, vegetation management projects along evacuation routes, chipper programs, and landowner forest management plans.

Sierra-Cascade-Inyo

REGIONAL PROFILE

4.1M
Californians live in this region

30M
Californians rely on this region's headwaters

44.6%
of the state's forest carbon sinks are located in this region (6)**

BIOREGIONS AND ECOSYSTEMS

Many scientists and agencies divide this region into two bioregions. To the south, there is the Sierra Nevada,which is comprised of a number of vegetation types,often associated with the large range of elevations present in the region. This includes valley grasslands,woodlands, chaparral-covered slopes, montane coniferous forests, and alpine meadows. Further north lies the Southern Cascade Range/Modoc Plateau bioregion, which is primarily dominated by high desert flora, and forests. This bioregion includes flats, basins,valleys, lava flows, and mountains (1).

KEY RESOURCES AND ACTIONS

- Water supply, forestry, biodiversity, recreation. The headwaters for two-third's of the state's water supply.
- Increasing all vegetation management practices–prescribed fire, forest thinning, tree mortality mitigation, grazing, and all things encompassing community and wildland fire resilience.

FIRE HISTORY AND VARIABLES

The fire regime in this area has been tied to a combination of lightning strikes and human ignitions since time immemorial. Like much of the state, this region experienced significant application of cultural burning by First Nations until about 1860 (3).

As Indigenous people were forcibly removed from their homelands and cultural burning practices were criminalized, the region saw a decrease in low-to-moderate fire intensity, which over time has been attributed to an increase in fire intensity due to vegetation build-up (3). Additional vegetation has accumulated with the decline of the timber industry.

Counties: *Alpine, Amador, Butte*, Calaveras, El Dorado, Fresno*, Inyo, Kern*, Lassen, Madera*, Mariposa*, Modoc*, Mono, Nevada, Placer*, Plumas, Shasta*, Sierra, Siskiyou*, Tehama*, Trinity*, Tulare*, Tuolumne, Yuba*. Counties marked with an (*) contain areas in another region as well.*

Photo by Sierra Nevada Conservancy

CLIMATE CHANGE AND OTHER RISKS

- The size of wildfires in this region is expected to sizably increase (by as much as 240%) with climate change. This is expected to lead to type conversion and more shrub-dominated landscapes in some areas, which will have important ecological, economic, and cultural impacts (3).|
- Climate scientists anticipate that this region will receive an increase in both large storms and drought, both of which can lead to increased fire behavior.(Wetter years can lead to increased fuel loads in grass-dominated landscapes,while droughts are associated with beetle kill and therefore more fire-prone forests(3).
- Population growth in this region has led to an increase in unintentional fire ignitions, and an increased number of structures at risk (3).
- Fire exclusion in this region has coupled with other positive feedback loops to make the region increasingly at risk to drought, beetle kill, and disease (3).

Photo by Sierra Nevada Conservancy

REGIONAL AND LOCAL LEADERS

- This region is home to more than fifty tribes,who have cared for these lands since time immemorial. It also has a very active group of forest health practitioners, including 21Resource Conservation Districts and dozens
- of Fire Safe Councils. Nonprofit organizations such as the Sierra Business Council, the Sierra Institute for the Community and the Environment, and the Sierra Nevada Alliance provide special programs and services to the Region.
- These regional organizations have joined with state and federal agencies to create successful partnerships and collaboratives. More than 35 different collaborative groups are working in the Sierra Nevada.
- Several are working to advance landscape-scale restoration, such as the Tahoe-Central Sierra Initiative, the Amador-Calaveras Consensus Group, the Burney-Hat Creek Collaborative,the Yosemite-Stanislaus Solutions, and the Dinkey Creek Collaborative. Several of these have received the Collaborative Forest Landscape Restoration (CFLR) funding and other prestigious federal resources.
- The Sierra Nevada Conservancy (SNC), a state agency, provides funding, capacity-building and technical assistance with collaboration development to the majority of the region except parts of the Cascades and Inyo County, primarily through its core initiative,the Sierra Nevada Watershed Improvement Program. It also provides leadership in forest-based workforce development and biomass utilization. The SNC has used its RFFCP block grant to promote local planning, capacity-building, and project development in seven subregions.

Northern

REGIONAL PROFILE

4.5M

Californians live in this region

21

Counties are represented in this region

41.8%

of the state's forest carbon sinks are located in this region (6)**

EXCEPTIONAL DIVERSITY

The northern region of California hosts an exceptional diversity of terrestrial systems ranging north to south, and from the coast to the interior of the state. Extensive mixed Douglas fir and coastal redwood forests, spotted with prairies, dominate the coast. The north coast is also considered a"hotspot" for biological diversity, and is home to some of the state's last viable salmonid runs. The inland portions contain a complex mosaic of oak-woodland savanna and chaparral, exceptionally diverse mixed evergreen and conifer forests. This region also includes portions of the semi-arid intermountain desert and agricultural, rural parts of the Sacramento Delta (1).

FIRE REGIMES

The region's fire regimes are as diverse as its ecological settings, ranging from areas dominated by coastal fog and over 55 inches of annual precipitation to under 20 inches. Regardless, every system has a summer-long dry period during which fire probability increases dramatically. Historic fire return intervals range from 1-5 years in prairies and woodlands, to 10-25 years across much of the interior coast ranges, to 50-250 years in certain subalpine forests and other zones of fire refugia.

While lightning is a predominant driver of ignitions of fire, as well as power lines and road-related incidents, nearly all the region's ecosystems co-evolved with extensive Indigenous cultural burning regimes, which have been substantially diminished since European colonization.

Prescribed fire on the coast. Photo by Lenya Quinn-Davidson, Fire Adapted Communities Learning Network

Counties: Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Marin*, Mendocino, Modoc*, Napa, Placer*, Sacramento, Shasta*, Siskiyou*, Solano, Sonoma, Sutter, Tehama*, Trinity*, Yolo, Yuba*. Counties marked with an (*) contain areas in another region as well.*

KEY RESOURCES AND ACTIONS

Carbon, water, biodiversity, forestry, recreation, tourism, agriculture, critical salmon and steelhead habitat.

Increasing all vegetation management practices — including prescribed fire, forest thinning, grazing,and all things encompassing community and wildland fire resilience. Water quality protection.

CLIMATE CHANGE AND OTHER RISKS

In the face of a warming climate with increased weather extremes, communities will be substantially affected by the increased flooding, water supply scarcity, sea level rise,hotter summers, increased drought, and wildfire (3).

Unintentional human-caused ignitions coupled with more frequent wind events pose the greatest risks to life and property,while already-frequent lightning caused fires are expected to increase as well.

The increasing probability of ignitions,coupled with drier vegetation, hotter temperatures, and longer fire seasons, will increase the potential for larger and more severe wildfires.

Prescribed fire in Whiskey Town Recreation in a mixed conifer forest. Photo by Lenya Quinn-Davidson, Fire Adapted Communities Learning Network

REGIONAL AND LOCAL LEADERS

The region's low population and limited economic base makes it difficult to secure local funding for fire adaptation and landscape resilience work. Nevertheless, novel community-based efforts, involving partnerships between state and federal agencies, local and regional governments, tribes, resource conservation districts and nonprofits are implementing a variety of innovative and locally-adapted landscape resilience strategies.

The North Coast Resource Partnership (NCRP) is along term, innovative and successful collaboration among Northern California Tribes,counties, and diverse stakeholders. The NCRP region covers over 19,000 square miles – 12% of the California landscape – and includes the Tribal lands and the counties of Del Norte, Humboldt,Trinity, Siskiyou, Modoc, Mendocino and Sonoma. Since 2004, the partnership has engaged in collaborative, integrated planning and project implementation, investing over $85 million in hundreds of projects that benefit the North Coast Region's communities and watersheds. Planning and implementation rely on the best available science as well as local expertise to enhance forests and watersheds, increase resiliency to fires, floods, drought and climate change, and ensure community health, safety and economic vitality. The NCRP is leading the development of a regional strategy and plan for landscape fire resilience through the RFFC program.

The region is a well-spring of community-led prescribed fire initiatives, from the state's first Prescribed Burn Association in Humboldt to the Good Fire Alliance in the North Bay, with nearly every county and landscape hosting a local burning partnership.

Southern

REGIONAL PROFILE

22.4M

Californians live in this region

1 in 4

Residents face high, very high, or extreme fire threat. (8)

1.8%

of the state's forest carbon sinks are located in this region (6)**

FOUR BIOREGIONS, FOUR FIRE BEHAVIORS

Many scientists characterize this region as containing four bioregions: the Mojave Desert, the Sonoran Desert, the Colorado desert, and the coastal plains. (1) Countless ecosystems exist within each of these bioregions, meaning that fire behavior and the variables that most influence varies throughout the region.

FIRE REGIME

Seasonal Santa Ana winds dominate fire behavior along the coast, and mountainous areas. Other wind patterns also impact fire spread inland. There is not consensus on how climate change will impact these winds and related fire spread and severity (3).

Inland, vegetation type and density have the greatest impact on fire patterns, many of these fuels are fine (such as grasses, chaparral, and shrubs), meaning that they ignite easily and burn hot, and quickly. As climate change brings drier, hotter seasons, this will impact vegetation and therefore fire behavior accordingly (3).

Other important fire behavior variables include elevation, slope, and distance from the coast(3).

Climate change is expected to increase both wildfire risk and wildfire intensity in much, if not all, of this region (3).

Counties: *Imperial, Los Angeles, Orange, Riverside,San Bernardino, San Diego, Ventura*. Counties marked with an (*) contain areas in another region as well.*

MRCA Fire Division clearing brush. Photo by: MRCA Fire Division

KEY RESOURCES AND ACTIONS

- Recreational landscapes close to concentrated populations, tourism, biodiversity, water supply
- Ignition prevention, community resilience, home hardening, invasive species control,focused vegetation management.

IGNITIONS AND RISKS

- Wildfire ignitions have increased in recent years, and nearly all are human-caused,especially along primary roadways and from equipment and power lines. This increase is attributed to development and population increases in the region (3).
- The more dense housing and development is,the greater the wildfire risk. Structure density and associated urban conflagration are of great concern in much of this region (10).
- Post-wildfire debris and mud flows are also a major threat to human safety, natural resources, and the economy (3).

IERCD staff performing GSOB surveys. Photo by IERCD

REGIONAL AND LOCAL LEADERS

- A diverse range of practitioners and organizations are advancing forest and fire issues in their local communities in this region. These leaders work for a variety of entities beyond state government,including Tribes, nonprofits, fire safe councils, and resource conservation districts.
- Several regional and local leaders are advancing fire-resilient landscapes in this region, including three Regional Forest andFire Capacity Program grantees: the Resource Conservation District of Greater San Diego County, the Inland Empire Resource Conservation District (IERCD),and the Santa Monica Mountains Conservancy. These groups are also working on outreach, home hardening and defensible space projects.
- These organizations are assuming leadership roles in priority planning in forested and chaparral ecosystems,organizing Goldspotted Oak Borer response, increasing regional fire safe council capacity, expanding LiDAR availability, advancing reforestation, and protecting San Diego's remaining mixed-conifer forests.
- Other local groups such as the Irvine Ranch Conservancy are facilitating a broad network of stakeholders under the County of Orange Area Safety Task Force, which plays an active role in ignition prevention,public outreach and strategies regarding home hardening and infrastructure upgrades.

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**Forest carbon stocks from counties present in multiple regions are equally divided into each region.

Cover photo by Marin County Parks

fmtf.fire.ca.gov
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