

COUNTY OF LAKE COMMUNITY DEVELOPMENT DEPARTMENT Planning Division Courthouse - 255 N. Forbes Street Lakeport, California 95453 Telephone 707/263-2221 FAX 707/263-2225

January 21, 2020

CALIFORNIA ENVIRONMENTAL QUALITY ACT ENVIRONMENTAL CHECKLIST INITIAL STUDY (IS 19-09)

1.	Project Title:	Red Hills BioEnergy Project
2.	Permit Numbers:	Major Use Permit UP 19-05 Initial Study IS 19-09
3.	Lead Agency Name and Address:	County of Lake Community Development Department Courthouse – 255 North Forbes Street Lakeport CA 95453
4.	Contact Person:	Mark Roberts, Principal Planner (707) 263-2221
5.	Project Location(s):	7130 Red Hills Rd, Kelseyville, CA The Project Site is located approximately 6 miles east of Kelseyville, on the southeast corner of the intersection of State Highway 29 and Red Hills Rd, approximately 900 feet south of the intersection; APN: 009-021-07.
6.	Project Sponsor's Name/Address:	Thomas Jordan, Tribal Administrator Scotts Valley Band of Pomo Indians 1005 Parallel Drive Lakeport, California 95453
7.	General Plan Designation:	Rural Residential and Community Commercial
8.	Zoning:	Split Zoned: Rural Residential (24.5± ac.); Highway Commercial (10.5± ac.), Scenic Combining District, Design Review Combining District

9. Environmental Setting/Existing Conditions: The Project Site is relatively flat to gently sloping, generally following the contours of the grades established by State Route 29 (SR 29) and Red Hills Road. The Site is accessed from Red Hills Road via a private, 18-foot wide gravel driveway, located 900± feet south of the intersection of Red Hills Road and SR 29. The majority of the 34.58±-acre property is occupied by a fallow walnut orchard, comprising approximately 86.18 percent of the land area. Approximately 1.55 acres (4.5 percent) is occupied by Interior Live Oak Woodland and 1.48± acres (4.28 percent) is occupied by Mixed Chaparral, comprised primarily of manzanita, madrone, scrub oak, and buck brush. The remaining 1.75 acres± (5.06 percent) is developed. Existing development on the property includes two single-family residences; one travel trailer; a 40-stall, 14,000-square foot (sf), ADA-compliant chip-sealed parking lot; 180-ft long, 18-ft wide gravel roadway through the property; three low-profile street lights adjacent to the internal roadway; a well and pumps; (2) 2,000-gallon water storage tanks; an accessible public restroom; two septic disposal systems; and two small solar collection grids serving the two residences. In the northeast portion of the property is a fire pit surrounded by a dance circle with dressing rooms and outdoor furniture used for tribal gatherings. The property is surrounded on all sides by three-foot high chain link fencing. The

residential units are rented to tribal members; the parking lot and public restrooms are used by tribal members visiting the property.

10. Description of Project:

Supervisor District:	District 5; Brown
Flood Zone:	Not within a designated flood zone
Slope:	Flat to gently sloping
Fire Hazard Severity Zone:	Moderate (Project Site) and Very High
Earthquake Fault Zone:	Not within a fault zone
Dam Failure Inundation Area:	Not within dam failure zone
Parcel Size:	Approximately 34.58 acres
Area Plan:	Riviera Area Plan

The applicant is requesting approval of a Major Use Permit to allow for the development of a smallscale bioenergy production facility using woody biomass to produce syngas and biochar. The syngas will power the generators that run the system. Biochar is a by-product of the bioenergy process that functions as an agricultural or forestry soil amendment. The total footprint of the Project is 43,350 sf, which includes:

- Removal of 25 walnut trees (including 5 dead trees or stumps), grass and brush; and minor grading of 45± cubic yards for site preparation; no import/export of soils;
- 2,000-sf (40 ft x 50 ft), six-inch deep concrete pad to house the bioenergy equipment (production plant pad), offset 140 ft from the edge of Red Hills Road (County road);
- Production Plant: two (2) fully-automated Omni BioEnergy Artis 100kW gasifiers and two (2) electrical generators fueled by the syngas generated by the plant that will operate 24 hours per day/7days per week except for maintenance;
- 16-ft high, 2,000-sf metal building enclosing the production plant, with gutters and downspouts draining to a French drain system around the pad that will discharge into a rock energy dissipator in the field;
- 20-ft wide gravel road around the perimeter of the pad;
- 8-ft high chain link fence around the gravel perimeter of the pad with lockable gates on the east and south sides;
- 28,000-sf permeable outdoor storage area on the east side of the production plant to receive, process and store woody feedstock into ¹/₄-inch wood chips, including a front-end loader, chipper, hammermill, and an enclosed-bed truck; surfaced with wood chips;
- (2) 20-ft wide lanes on two sides of the storage area with a hammerhead "T" to allow delivery trucks to turn around;
- Connection to 240v/three-phase/100-amp overhead electrical service from PG&E at utility pole located on Red Hills Road;
- Downcast, exterior LED lighting for the building; up to four (4) new light posts consistent with existing light posts on the property; and
- 2-5 deliveries of feedstock daily, Monday Friday; less frequent outgoing deliveries of biochar.

A detailed project description and Artis gasification specification sheets are provided as Attachment A.

VICINITY MAP



Lake County, CA

UP 19-05 Jordan Vicinity Map built with Web AppBuilder for ArcGIS

nint Date: 2/15/2019

SITE PLAN



Surrounding Land Uses and Setting:

North:	Property to the north is zoned Rural Residential (RR), Highway Commercial (CH) and Community Commercial (C2). Parcel sizes are approximately 134 acres and 19 acres. Land uses to the north are commercial, and are located on the north side of SR 29. The primary development is Kit's Corner grocery and gasoline station.
West:	Property to the west is zoned C2 and RR. Parcels are approximately eleven to 18 acres in size. Land uses to the west are predominantly agriculture (vineyards and orchards).
South:	Property to the south consists of parcels 173 and 466 acres in size, zoned Agriculture (A).
East:	Property to the east includes mini storage units on 7.66 acres zoned Planned Development Commercial (PDC), and a 5.43-acre parcel zoned RR.

The nearest off-site residence is situated approximately 800 feet southwest of the Project Site.

11. Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement)

Lake County Air Quality Management District Lake County Environmental Health Lake County Community Development Department – Building Division Lake County Agricultural Commissioner Kelseyville Fire Protection District California Department of Forestry and Fire Protection (CalFire) Central Valley Regional Water Quality Control Board State Water Resources Control Board California Department of Transportation (Caltrans) California Department of Fish and Wildlife California Air Resource Control Board

12. 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.? Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3 (c) contains provisions specific to confidentiality.

The property is owned by the Scotts Valley Band of Pomo Indians. The Tribe does not request consultation and will employ a cultural monitor during site preparation and construction activities. However, Notification of the project was sent to local tribes, Big Valley Rancheria, Elem Colony, Koi Nation, Middletown Rancheria, and Robinson Rancheria, Scotts Valley Band of Pomo, Upper Lake Habematolel, Cortina Rancheria, and Yocha Dehe.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

DETERMINATION: (To be completed by the lead Agency)

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: Julie Price, Planner/Environmental Specialist Crawford & Associates, Inc. Initial Study Reviewed By: Mark Roberts - Principal Planner

Mark file

Date: 1/24/2020_

SIGNATURE Michalyn DelValle, Director Community Development Department

SECTION 1

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 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.
- 3) 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.
- 4) "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.

KEY: 1 = Potentially Significant Impact

- 2 = Less Than Significant with Mitigation Incorporation 3 = Less Than Significant Impact
- 4 = No Impact

IMPACT CATEGORIES*	1	2	3	4	All determinations need explanation. Reference to documentation, sources, notes and correspondence.	Source Number**	
		<u>.</u>		•	I. AESTHETICS		
Significance Criteria: Aesthetic impacts would be significant if the Project resulted in the obstruction of any scenic vista open to the public, damage to significant scenic resources within a designated State scenic highway of County designated scenic area, substantial degradation to the existing visual character or quality of the site and its surroundings from public views, or generate new sources of light or glare that would adversely affect day or nighttime views in the area, including that which would directly illuminate or reflect upon adjacent property or could be directly seen by motorists or persons residing, working or otherwise situated within sight of the Project. Environmental Setting: The 34.58-acre subject parcel is located on the southeast corner of the intersection of SR 29 and Red Hills Road. The CH-zoned portion of the subject parcel is located within a "Scenic" (SC) Combining Overlay District (SC District). The SC District is located along the SR 29 corridor, including a 400±-ft deep section of the subject property adjacent to SR 29; along Soda Bay Road north of its intersection with SR 29; on lands abutting the subject parcel is increased (refer to Attachment P 1). The southeast parcel is a of the average of the average of the southeast parcel is a subject parcel in a subject parcel is a provide the south of the subject parcel is a provide the south of the subject parcel is not provide the south of the subject parcel is not provide the south of the subject parcel is not part of the subject parcel is a south of the subject parcel is a south of the subject parcel is not provide the south of the subject parcel (south of the south of the							
where the Project would be situate general region include Clear Lake, south of the Site.	ed is appro	<u>not</u> lo oxim	ocate	d wit 2.5 n	hin the SC District boundary. SR 29 is a designated state scenic highway. Scenic 1 niles north of the Site; Mt. Konocti, 3.25± miles northwest of the Site; and Mount Ha	resources in the inna, 2.7± miles	
	Exc	cept a	is pro	vide	l in Public Resources Code Section 21099, would the project:		
a) Have a substantial adverse effect on a scenic vista?			X		The Project Site is located in a rural area surrounded by orchards and vineyards. The Site has long-distance views to Mt Konocti (over five miles). Clear Lake is not visible from the Project Site due to distance and topography. The proposed development will include a 2,000-square foot building on the north side of the existing driveway offset 140 feet from the edge of Red Hills Road. The building will have a sloped roof of heights between 10½-16½ feet above finished grade. An outdoor processing and storage area will be located on the east side of the building, partially obscuring it from public view. The applicant provided a Visual Impact Assessment/Windshield Survey with photographs of the Project Site from various vantage points (refer to Attachment B-2). Due to distance and vegetation, the proposed Project would not be visible from SR 29, a designated state scenic highway. The proposed Project Site is visible from a limited segment of Red Hills Road; however, it is situated in a manner that would not significantly impact the view shed, and is consistent with County and Area Plan policies for preserving scenic resources. Less Than Significant Impact.	1, 2, 3, 4, 5, 6, 7, 8	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X	The Project Site does not contain any scenic resources. The area of the subject property that is located within a Scenic Combining District will not be impacted by the Project. No Impact.	1, 2, 3, 4, 5, 6, 7, 8	

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	X	The subject property is elevated above surrounding roadways. Red Hills Road in this location is a two-lane, rural road without paved shoulders that does not accommodate pedestrians; motorists are its primary users. Views into the property from Red Hills Road are partially obscured by woody vegetation, including walnut, oak and pine trees. Gaps in vegetation exist near the property entrance where the Project would be the most visible to motorists. The structure housing the production plant would be located approximately 140 feet from the west edge of the roadway. The chipping and grinding area would be located on the east side of the building, partially shielded from public view. Beginning at the south property line, a row of mostly pine trees grows along the edge of Beckstoffer Vineyards on the east side of Red Hills Road, providing total screening of the Project Site firm views south. Existing vegetation north and south of the Project Site limit public visibility of the Site to a few seconds while driving past the Site entrance. Although the portion of the property where the Project will be situated is not located within a Scenic Combining District, neighboring roads and properties are. Policy 3.5.2b of the Riviera Area Plan states, " <i>The siting of structures must not only reflect appropriate setbacks, but also consider the rural vista. Building should complement and not block views.</i> " Due to the 140-ft setback between the Project development and Red Hills Road, the small scale of the building and relatively low height of the roof, the lack of recreational use of the road, and the brief period that the plant would be visible to motorists, the Project is not expected to visually degrade the area. The following mitigation measures are recommended to ensure that the brief sighting of the Project to scale would would have a less than significant impact on the quality of public views of the Site, and will further ensure that the Project conforms to scenic resource policies in the General Plan and Riviera Area Plan.	1, 2, 3, 4, 5, 6, 7, 8
		<u>AES-2</u> : Existing healthy, non-hazardous vegetation that provides screening to the Project Site along the western boundary shall be maintained.	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	X	Exterior lighting for the Project would consist of downcast LED lighting under the roof eaves to illuminate the building perimeter and up to four (4) additional downcast light posts to illuminate the storage area. The light posts would be the same style as those currently illuminating the driveway through the property. To ensure that light or glare is not broadcast beyond the property boundaries, Mitigation Measures AES-3 is recommended. Less Than Significant with Mitigation Incorporated.Mitigation Measure:AES-3: All outdoor lighting shall be shielded and downcast or otherwise positioned in a manner that will not broadcast light or glare beyond the boundaries of the subject property. All lighting equipment shall comply with the recommendations of the International Dark-Sky Association (www.darksky.org) and provisions of Section 21.48 of the Zoning Ordinance. Security lighting shall be motion activated.	1, 2, 3, 4, 5, 7

II. AGRICULTURE AND FORESTRY RESOURCES

Significance Criteria: The proposed Project would have a potentially significant impact on agricultural resources if it would convert prime farmland to a non-agricultural use, conflict with a Williamson Act contract, or disrupt a viable and locally important agricultural use. The Project would have a potentially significant impact on forestry resources if it would result in the loss, rezoning or conversion of forestland to a non-forest use. *In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest protocols adopted by the California Air Resources Board.*

Environmental Setting: The Project Site is assigned two base zoning designations, Rural Residential and Highway Commercial. Approximately 86 percent of the Project Site contains a fallow, dry-farmed walnut orchard. The remainder contains Interior Live Oak Woodland and Mixed Chaparral, residential development and internal roadways serving residential and tribal community uses. According to the Farmland Mapping and Monitoring Program (FMMP) the project site is designated as "Unique Farmland," defined as "Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date." According to the USDA Soil Survey, the subject property is designated as "Not Prime Farmland."

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?			x		The Project Site is designated as "Unique Farmland" by the FMMP, having lower quality soils than Prime Farmland and Farmland of Statewide Importance, and as "Not Prime Farmland" by the USDA. SVBPI purchased the land 23 years ago, at which time it contained a commercial walnut orchard. SVBPI maintained the walnut grove in its early ownership years, but abandoned that effort due to the age and condition of the trees. The orchard is observed to be in poor condition, as evidenced by the condition of the trees, many of which have died, have broken limbs or are overgrown; and surface soils, which are pocked with gopher holes. Uses immediately surrounding the site to the west and south include vineyards. The proposed Project would convert just under one (1) acre to a non-agricultural use. Less Than Significant Impact.	1, 2, 3, 4, 5, 8, 9, 10	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X		The Project Site is zoned "RR" Rural Residential and "CH" Highway Commercial. The Site is not zoned for agriculture, is not actively farmed, and is not encumbered by a Williamson Act contract. Parcels to the south of the Project Site are zoned "AG" Agriculture; however the proposed small-scale bioenergy plant is not expected to conflict with the existing agricultural zoning or use. Less Than Significant Impact.	1, 2, 3, 4, 5, 8, 9, 10	
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))?				x	The proposed Project is not located within or adjacent to forest lands or lands zoned Timberland Production. The Project will therefore not conflict with existing timberland zoning or result in the rezoning of forest lands and/or Timberland Production. No Impact.	1, 2, 3, 5, 8	
d) Result in the loss of forest land or conversion of forest land to non-forest use?				Х	The proposed Project is not located within or adjacent to forest lands, and will therefore not result in the loss or conversion of forest land to a non-forest use. No Impact.	1, 2, 3, 5, 8	
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?			X		Except as discussed in (a) above, the Project as proposed does not involve changes to the existing environment that would result in the site's conversion to non-agricultural or non-forest use. Less Than Significant Impact.	1, 2, 3, 4, 5, 8, 9, 10	

III. AIR QUALITY

Significance Criteria: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. The proposed Project would have a significant impact to air quality if it would conflict with an air quality plan, result in a cumulatively considerable net increase of a criteria pollutants for which the Lake County Air Quality Management District (LCAQMD) has non-attainment, expose sensitive receptors to substantial concentrations of air pollutants, or result in emissions that create objectionable odors or otherwise adversely affect a substantial number of people.

Environmental Setting: The Project Site is situated at the foot of the northern slope of Mount Hanna, approximately 2.5 miles south of Clear Lake at an elevation of approximately 1,925 feet above MSL. The Project Site is located within the Lake County Air Basin, which is under the jurisdiction of the LCAQMD. The LCAQMD applies air pollution regulations to all major stationary pollution sources and monitors air quality. The Lake County Air Basin is in attainment with both state and federal air quality standards, and the air is relatively low in pollutants in comparison with much of the state. Automobile emissions are the main contributor to air pollution in Lake County. Other contributors include serpentine soils, residential development (wood burning stoves and the burning of cleared vegetation for subdivision development) and agricultural operations. The Lake County Air Basin lies entirely within the Coast Range Mountains and constitutes one of the major inter-mountain basins of the region. Inversions occur in isolated valleys when warm air prevents the cooler air from rising and dispersing any trapped pollutants. Serpentine soils have not been found within the Riviera Community Planning Area.

Would the project:								
a) Conflict with or obstruct implementation of the applicable air quality plan?		 The Project would result in temporary emissions during the 8-12 week construction period. Site preparation will include the clearing and chipping of 25 trees, and earth moving of 2,000± square feet to achieve final grades for the production pad. These activities have the potential to generate fugitive dust for a short period of time until the site is stabilized. If trees are burned, smoke can also contribute particulate emissions. The applicant plans on chipping the cleared trees and using them as the storage area base for dust and erosion control and/or as feedstock for the plant; the trees are not proposed to be open-burned. The applicant plans to use water dispersal as the primary method of dust control during construction, using either on-site water and/or application by water truck. Internal roadways are currently paved; the proposed new travel lanes will be surfaced with 1/2-inch gravel or with a new composite material consisting of dirt and cement. Stabilized road surfaces will minimize dust over the long term. Once operational, the Project would result in up to eight additional trips (16 round-trips) to the site per day including employee vehicles and delivery trucks, considered an insignificant increase in daily vehicle trips and resulting emissions. The bioenergy plant will use generators that will operate on syngas. The operation of internal combustion engines is subject to requirements administered by LCAQMD. Prior to the commencement of site preparation and plant operations, the applicant will be required to secure all necessary permits from LCAQMD. Implementation of the Project could have a significant impact on air quality. In their letter dated March 8, 2019, the LCAQMD provided recommendations to address fugitive dust and other potential air pollutants generated by the Project. These are incorporated as Mitigation Measures AIR-1 through AIR-4. Less Than Significant with Mitigation Incorporated. 	1, 2, 3, 4, 5, 8, 11, 12, 13					
		the Lake County Air Quality Management District a complete list of all equipment to be used at the site with the potential to emit air contaminants, including diesel powered generators, pumps, off-road equipment, etc. and secure all necessary permits for all eligible operations and equipment as required by the District. Diesel powered equipment must meet the						
		requirements of the State Air Toxic Control Measures for CI engines (stationary and portable). All mobile diesel equipment used must be in						

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				compliance with State registration requirements. Portable and stationary diesel powered equipment must meet the requirements of the for CI engines.	
				<u>AIR-2:</u> Prior to operation, the primary access roads and parking area shall be constructed, surfaced and maintained with an all-weather surface of asphaltic concrete or concrete unless another all-weather surface is approved by the review authority to minimize dust impacts to the public, visitors and road traffic. All areas subject to semi-truck/trailer traffic shall require asphaltic concrete paving or equivalent to prevent fugitive dust generation. Gravel surfacing may be adequate for low use/overflow driveways and parking areas if it receives regular palliative treatment. The use of white rock for surfacing is prohibited.	
				<u>AIR-3:</u> All vegetation removed during site development shall be chipped and spread for ground cover, erosion control and/or biomass feedstock. The burning of vegetation, construction debris, or waste material is prohibited.	
				<u>AIR-4</u> : Dust control measures shall be implemented to minimize fugitive dust emissions from the Project Site. Dust control measures may consist of approved chemical, structural, or mechanical methods and shall be reapplied at the necessary intervals to prevent wind erosion.	
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?			Х	The County of Lake is in attainment of state and federal ambient air quality standards. No Impact.	1, 3, 11
c) Expose sensitive receptors to substantial pollutant concentrations?	Х			See response to Section III (a). Construction activities have the potential to generate short-term fugitive dust if not properly controlled. There are two on-site residences and a travel trailer located approximately 200 to 300 feet from the Project Site. The nearest off-site residence is $800\pm$ feet to the southwest. There are no schools, hospitals, or other sensitive receptors in the vicinity of the proposed Project. Less Than Significant with Mitigation Measures AIR-1 through AIR-4 Incorporated.	1, 2, 3, 4, 5, 8, 11, 12, 13
d) Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people?		X		Refer to response to Section III (a) relating to dust. The Project Site is not located within a mapped area of Naturally Occurring Asbestos (NOA) and is therefore not expected to generate NOA emissions. The bioenergy plant has zero emissions and will therefore generate no odors. Conditions that could result in odors from processed feedstock include a combination of high heat, high moisture content, and storage for long periods, which can lead to anaerobic conditions. Due to the small size of the bioenergy system, wood waste would be processed in small batches using minimal water, which would avoid the creation of the conditions that could generate odor. Less Than Significant Impact.	1, 2, 3, 4, 5, 8, 11, 12, 13

IV. BIOLOGICAL RESOURCES

Significance Criteria: Project impacts upon biological resources would be significant if any of the following resulted: substantial direct or indirect effect on any species identified as a candidate, sensitive, or special status species in local/regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS) or any species protected under provisions of the Migratory Bird treaty Act (e.g. burrowing owls); substantial effect upon riparian habitat or other sensitive natural communities identified in local/regional plans, policies, or regulations or by the agencies listed above; substantial effect (e.g., fill, removal, hydrologic interruption) upon state or federally protected wetlands; substantially interfere with movement of native resident or migratory wildlife species or with established native resident or migratory wildlife corridors; conflict with any local policies/ordinances that protect biological resources or conflict with a habitat conservation plan.

Environmental Setting: The site is located along the Highway 29 corridor in narrow valley terrain between the northeastern toe of the Mayacamas Mountains and the southern slope of Mount Konocti. This corridor consists of a series of isolated flats and small basins either drained internally or connected to Thurston Creek, which drains to the isolated basin of Thurston Lake. This property is drained along its eastern edge by an excavated ditch which flows north to SR 29 and then east to an unnamed tributary to Thurston Creek. The property drops approximately 80 feet in elevation from north to south into Hess Flat at an elevation of 1,880 feet msl. Site soils are weathered from obsidian (volcanic) formations, and are deep and well-drained. The majority of the 34.58±-acre property is occupied by a fallow walnut orchard, comprising approximately 86.18 percent of the land area. Approximately 1.55 acres (4.5 percent) is occupied by Interior Live Oak Woodland located along an ephemeral drainage swale on the eastern edge of the property. The community along

the east property line is heavily dominated by interior live oak trees to a height of 50 feet and contains a dense shrub layer. Mixed Chaparral occupies $1.48\pm$ acres (4.28 percent) in the southeastern corner of the property, comprised primarily of common manzanita, ceanothus, interior live oak shrub, poison oak, coyote brush and knobcone pine. The remaining 1.75 acres \pm (5.06 percent) is developed. The footprint of the proposed Project is located within the walnut orchard.

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?		x	A Biological Resource Assessment with Botanical Survey and Delineation of Waters of the U.S. (BRA), dated July 1, 2019, was prepared by Northwest Biosurvey for the Project Site. The purpose of the Assessment was to determine whether the property contains sensitive plants or potentially contains sensitive wildlife requiring mitigation under CEQA. 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." Plants. Each of the sensitive plant taxa potentially occurring at the site was specifically searched for during the survey. The survey identified a total of 60 plant taxa on the property, including native and introduced plants. The relatively small number of species identified is a result of the small survey area, the lack of diversity within the ruderal areas and orchard, and the small palette size of the natural plant communities. No plants with sensitive status were discovered during the in-season floristic-level botanical surveys. Wildlife. A total of 17 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the Clearlake Highlands quadrangle and the WHR database. The species listed include insects, isopods, aquatic reptiles and amphibians, raptors, and small mammals. The site does not contain perennial streams or ponded water of any type, making it unsuitable for any of the listed aquatic species. The lack of roosting structures makes it poor habitat for nesting raptors and roosting bats. No Impact.	3, 6, 7, 15
1) TT 1 4 4 1 1		v		2 6 7 15
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?		х	According to the BRA, the Project Site does not contain perennial streams or ponded water of any type. Delineated aquatic resources consisted of 0.136 acres (5,924 sf) of intermittent stream channel located in the southeast corner and continuing north along the east boundary of the subject parcel. The proposed Project Site is located over 350 feet downslope of this drainage channel. No riparian or other sensitive natural community was identified in the project area. No Impact.	3, 6, 7, 15
c) Have a substantial adverse effect on state or federally protected wetlands (including, not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		Х	According to the BRA, a delineation was conducted in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual: Arid West Region (2008) to determine the extent of possible waters of the U.S. Delineation fieldwork was completed on April 10, 2019. Waters of the U.S. within the subject property were determined to consist of intermittent stream channels and ephemeral drainages. No potential wetland resources were found. No Impact.	3, 6, 7, 15
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?		Х	According to the BRA, there is no habitat on the Project Site that would support resident or migratory fish. New construction does not include impediments to wildlife corridors. There are no native wildlife nursery sites on the subject property. No Impact.	3, 6, 7, 15
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?		Х	The proposed Project would not conflict with local policies, such as those identified in Section 3.3 of the Riviera Area Plan [Vegetation and Wildlife] or Chapter 9.1 of the General Plan [Biological Resources]. No Impact .	1, 2, 3
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community		Х	There are no adopted habitat conservation plans in the Project area. No special conservation plans have been adopted for the subject parcel. No Impact.	1, 2, 3

Conservation Plan, or other approved local, regional, or state habitat conservation plan?						
					V. CULTURAL RESOURCES	
Significance Criteria: The propose substantially changed, or if human re	d Pro mair	oject 1s we	woul re dis	d sig turbe	nificantly impact cultural resources if the significance of a historical or archaeologica d.	ıl resource were
Environmental Setting: The Project property is comprised of a fallow was on the subject property. A blanket of	t Site lnut o Shat	lies a orcha tered	at the rd. Th obsic	foot ne pro lian is	of Mount Hanna, approximately 2.5 miles south of Clear Lake. Approximately 86 percesposed Project Site is located within the existing orchard. There are no perennial watercost prevalent on the property.	nt of the subject ourses or springs
Would the project:						
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?				X	Comments received from the Northwest Information Center (NWIC) indicate that archaeological resources surveys were conducted of the entire property in 2003 and 2006 and no archaeological resources were identified. Cultural resources surveys were conducted in 1996 and 2001, which identified one non-archaeological resource, a single-family home, of potential historical value due to its age of 45 years or older. According to the results of the studies, NWIC recommended no further study for potential unrecorded cultural resources; however recommended that the status of the recorded non-archaeological resource be reassessed. An Archaeological Reassessment of the subject property, dated September 9, 2004, was provided by NWIC. Included in the NWIC documents is a letter written by the State Office of Historic Preservation, which states, "A record search conducted by the Northwest Information Center at Sonoma State University identified no archeological properties located within the project APE [Area of Potential Effects]. A pedestrian survey of the project area conducted by qualified archeological properties." The letter further states, "Our review of the submitted HPSR [Historic Property Survey Report] leads us to concur with FHWA's [Federal Highway Administration] determination that the property at 7130 Red Hills Road is not eligible for inclusion on the NRHP [National Register of Historic Places] under any of the criteria established by 36 CFR 60.4." The residence was therefore not considered to be a significant historical resource and has since been demolished and removed from the site due to its state of disrepair. No Impact.	1, 2, 3, 4, 5, 15, 16

b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?		X		 According to the applicant, "SVBPI is not aware of any flatland or lowland sites in Lake County that could not be a possible archaeological site given the existence of Native Americans in the area since 12,000 B.CE. A blanket of shattered obsidian is prevalent on the property, which is a minor indication that obsidian may have been mined as some point in time. However, during its years of ownership, SVBPI's certified cultural monitors have surveyed the property for archaeological evidence. To date no such evidence has been found. Nevertheless, SVBPI will retain one or more of its cultural monitors, as needed, during the project's site preparation and construction phases." No impacts to known archaeological resources are anticipated as a result of the Project construction, CUL-1 and CUL-2 are recommended. Less Than Significant with Mitigation Incorporated. Mitigation Measures: CUL-1: Should any archaeological, paleontological, or cultural materials be discovered during site development, all activity shall be halted in the vicinity of the find(s), and a qualified archaeologist retained to evaluate the find(s) and recommend mitigation procedures, if necessary, subject to the approval of the Community Development Director. The applicant shall halt all work and immediately contact the Lake County Sheriff's Department and the Community Development Department if any human remains are encountered. 	1, 2, 3, 5, 6, 16, 17
c) Disturb any human remains, including those interred outside of formal cemeteries?		Х		Disturbance of human remains is not anticipated. However, to ensure that human remains are not disturbed during Project construction, CUL-1 and CUL-2 are recommended. Less Than Significant with Mitigation Measures CUL-1 and CUL-2 Incorporated.	1, 2, 3, 5, 6, 16, 17
				VI. ENERGY	
Significance Criteria: The propos unnecessary consumption of energy	ed Pr y reso	oject: ource	would s or if	significantly impact energy if construction of the Project would result in wasteful, inc. he Project would conflict with a state or local plan for renewable energy or energy effi	fficient or ciency.
Environmental Setting: The prop	osed	Proje bard	ect Site	is located on less than one-acre within a 35.58-acre parcel at the foot of Mount Hanna.	. The subject
Would the project:		naru		gie-tanny residential development surrounded predominantly by agricultural uses.	
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	The Project consists of a small-scale, modular waste-to-energy plant that utilizes high-carbon woody biomass and electric heaters to generate syngas and biochar. The syngas generated by the system is a fuel gas mixture consisting primarily of hydrogen, carbon monoxide, methane and carbon dioxide. Biochar is a by-product of the process used as a soil amendment. The plant will operate two 100kW bioenergy units. According to the applicant, using a hybrid of pyrolysis and gasification, the oxygen and moisture in the biomass feedstock help produce a higher energy syngas, allowing for efficient energy generation. The syngas is delivered via a closed system to a modified internal combustion engine and generator to create electricity, which is used to fuel the plant. The two 100-kW systems (200 kW total) will consume approximately 60 kW of electricity to operate, and will require a 240v, three-phase, 100-amp electrical connection. By design, the ARTIS Gasification System is intended to reduce wasteful, inefficient consumption of energy resources by transforming a waste product into renewable, clean energy that, in turn, would fuel the plant. As such, the Project is expected to have a positive impact on energy resources. Less Than Significant Impact.	1, 2, 3, 5, 6

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	The proposed Project would not conflict with or obstruct a state or local renewable energy plan, nor would it conflict with goals and policies of the General Plan [Section 9.5, Energy Resources]. No Impact.	1, 2, 3, 5, 6
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VII. GEOLOGY AND SOILS

Significance Criteria: The proposed Project would result in a significant impact to geological or soil resources if it exposed people or structures to seismic risk; ruptured a known fault; produced strong seismic ground shaking, ground failure, liquefaction, landslides or substantial soil erosion; is located on expansive soil or unstable ground, or would create unstable ground; or destroyed a unique paleontological resource or geologic feature. Environmental Setting: The subject parcel is located within the Clear Lake volcanic field, and characterized by gentle slopes. The majority of the soils underlying the area are comprised of young pyroclastic deposits from the Holocene (8,000 years ago to present) and Pleistocene (1.8 million to 8,000 years

ago) epochs. These are described as well-bedded ash and tuff, with abundant blocks and bombs that weather to a dark orange color. The subject property contains a single soil type, Glenview-Arrowhead complex, 5-15% slopes, weathered from obsidian formations. This unit is on volcanic hills. Native vegetation is mainly brush with scattered conifers. The unit contains about 60% Glenview very gravelly loam and 20% Arrowhead extremely gravelly sandy loam. The Glenview soil is very deep and well drained. It formed in material weathered from obsidian. Permeability is moderately slow and runoff is medium. The Arrowhead soil is moderately deep and well drained, and formed in material weathered from obsidian. Permeability is slow and runoff is medium. The hazard of erosion is moderate for both soils.

Would the project:				
 a) Directly or indirectly cause potential 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? 		X	 (a)(i) The Project Site is not located within an Earthquake Fault Zone as established by the California Geological Survey in accordance with the Alquist-Priolo Earthquake Fault Zoning Act. The nearest fault zones are approximately 0.8 miles east and one mile south of the Project Site. The proposed project would not expose people or structures to substantial adverse effects due to earthquakes. (a)(ii) and (a)(iii) Lake County contains numerous known active faults. Future seismic events in the Northern California region can be expected to produce seismic ground shaking at the site. All proposed construction is required to be built consistent with Current Seismic Safety construction standards. (a)(iv) According to the U.S. Landslide Inventory provided by the USGS Landslide Hazard Program, there are no mapped landslides on or in the vicinity of the Project Site. The Project is not expected to cause potential substantial adverse effects due to seismic activity or landslides. Less Than Significant Impact. 	4, 8, 16, 17, 18, 19
b) Result in substantial soil erosion or the loss of topsoil?	X		Project grading will involve approximately 45 cubic yards (cy) to create a 2,000-sf building pad and to level the 28,000-sf outdoor storage area. The applicant estimates that the volume of cut will be equivalent to the volume of fill, resulting in no need to import or export soil. The building will be equipped with gutters and downspouts that will connect to underground drainage pipe that will outlet into the adjacent field where water will percolate into site soils. A rock energy dissipator will be installed at the pipe outlet to protect against scour. According to the applicant, site soils experience a high infiltration rate and stormwater discharge from the facility is not anticipated. Due to the scope of the grading activity, the moderate erosion hazard rating of site soils, and the lack of sensitive environmental resources on the Project Site, grading associated with the Project is exempt from a grading permit. Grading is, however, subject to the grading design standards outlined in the County Grading Ordinance. Compliance with the following mitigation measures will reduce impacts associated with soil erosion to a less than significant level. Less Than Significant Impact with Mitigation Incorporated. <u>Mitigation Measures:</u> <u>GEO-1</u> : The permit holder shall protect the local watershed with the implementation of Best Management Practices (BMPs) in accordance with the Chapter 30 (Grading Ordinance) of the Lake County Code and the Project	1, 2, 3, 4, 5, 8, 18, 20

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					 Description dated October 24, 2019 to prevent or reduce discharge of all pollutants and hazardous materials offsite. No silt, sediment or other materials exceeding natural background levels shall be allowed to discharge from the project area. The natural background level is the level of erosion that currently occurs from the area in a natural, undisturbed state. Typical BMPs include the placement of straw, mulch, seeding, straw wattles, silt fencing and the planting of native vegetation on all disturbed areas. Following construction, all exposed soil shall be protected by covering with vegetation, mulch, gravel or other surface treatment as appropriate for permanent erosion control. Erosion and sediment control measures shall be in place by the end of the grading project and shall be maintained until such time that permanent control has been established. <u>GEO-2</u>: Excavation, filling, vegetation clearing or other disturbance of the soil shall not occur between October 15 and April 15 unless authorized by the Community Development Director. The actual dates of the allowable grading period may be adjusted according to weather and soil conditions at the discretion of the Community Development Director. <u>GEO-3</u>: The permit holder shall monitor the site during the rainy season (October 15 – April 15), including post-installation, implementation of BMPs, erosion control maintenance, and other improvements as needed. <u>GEO-4</u>: Native vegetation shall be retained and protected where its removal is not necessary to implement the grading project or to meet fire safety 	
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 collanse?			X		The Project Site is not identified as containing landslides or other unstable geologic conditions other than a moderate erosion hazard. There is a less than significant chance of landslide, subsidence, liquefaction or collapse as a result of the Project. Less Than Significant Impact.	4, 8, 16, 17, 18, 19
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?			X		According to the USDA Soil Survey, the shrink-swell potential for the Project soil type is moderate, and is not considered to be expansive. The proposed Project would therefore not increase risks to life or property as a result of expansive soil. Less Than Significant Impact.	1, 2, 3, 4, 5, 8, 18, 20
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?				Х	The Project Site is served by an existing onsite waste disposal system. The proposed Project does not require or include expansion of this system. No Impact.	4
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				Х	The Project Site does not contain any known unique geologic feature or paleontological resources. Disturbance of these resources is not anticipated. No Impact.	1, 3, 4, 5, 8, 12, 16, 18, 19

VIII. GREENHOUSE GAS EMISSIONS

Significance Criteria: The proposed Project would significantly impact greenhouse gas (GHG) emissions if it were to generate substantial GHG emissions exceeding the CEQA thresholds of significance adopted by the Lake County Air Quality Management District (LCAQMD) or conflict with an adopted plan, policy or regulation intended to reduce greenhouse gas emissions.

Environmental Setting: Climate change is caused by greenhouse gases (GHGs) emitted into the atmosphere around the world from a variety of sources, including the combustion of fuel for energy and transportation, cement manufacturing, and refrigerant emissions. GHGs are those gases that have the ability to trap heat in the atmosphere, a process that is analogous to the way a greenhouse traps heat. GHGs may be emitted as a result of human activities, as well as through natural processes. Increasing GHG concentrations in the atmosphere are leading to global climate change. The Lake County Air Basin is in attainment for all air pollutants and has therefore not adopted thresholds of significance for GHG emissions.

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 		Greenhouse gas emissions from Project-related construction activities occurring over an 8-12 week period would include the use of diesel- and gasoline-powered construction equipment, delivery vehicles and worker vehicles. GHG emissions resulting from construction activities would be negligible and temporary, and would not result in a significant impact to the environment. During the operating phase, the bioenergy plant would operate 24 hours per day, seven days per week except when shut down for maintenance. According to the Project Description, the Artis gasifier "delivers a clean syngas to a modified internal combustion engine and generator to create electricity." The syngas generated by the Artis gasifier is a fuel gas mixture consisting primarily of hydrogen, and carbon monoxide, with less than ten percent by volume being methane and carbon dioxide. The syngas is processed through a series of heat exchangers, hydrocarbon crackers and particulate filters before being delivered to the generator to fuel the system. Trace level emissions to below detectable levels from the sealed-system Artis gasifier result in a carbon neutral system. The applicant states, "Emissions testing will be done as part of project startup and commissioning activities. The Artis 100 systems have zero emissions and the generators we are proposing to use will all meet EPA and air quality board emission requirements." Approximately 2-5 trucks to the site per day are estimated to deliver feedstock. One employee per shift (two per day) will operate the facility. A diesel-powered front-end loader is estimated to operate 6-8 hours per day, five days per week. The diesel-powered chipper is anticipated to operate a maximum of three hours per day, five days per week. This is based on the assumption that all material will arrive unchipped; however, material will be delivered to the site in both chipped and unchipped form. The hammermill will operate on electricity and would therefore not contribute GHG emissions. Based on the temporary nature of	1, 2, 3, 5, 6, 12
plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		reduction of greenhouse gas emissions. No Impact.	1,2,3,3,6,12
	IX.	HAZARDS AND HAZARDOUS MATERIALS	

Significance Criteria: The Project would result in significant hazards or hazardous materials impacts if it exposed people to hazardous materials or placed them into hazardous situations; if it released hazardous materials or emissions into the environment or within 0.25 miles of a school; if it is located on a listed hazardous materials site; if it would create a hazard due to its proximity to a public airport or private airstrip; if it would create excessive noise for people in the area; if it would interfere with an emergency response or evacuation plan; or if it would expose people or structures to significant risks due to wildland fire.

Environmental Setting: The Project Site is located approximately five miles southeast of Kelseyville town center, on a 34.58-acre property oc predominantly by a fallow walnut orchard. The subject property is also occupied by two single-family residences and a travel trailer. The fire hazard for the majority of the subject parcel, including the Project Site, is moderate. The very north portion of the parcel adjacent to SR 29 has a fire hazard of very high. The nearest receptors are the two on-site residences and travel trailer, located 200 to 300 feet south-southeast of the Project Site.								
Would the project:								
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	X	Σ	 Hazardous materials associated with the Project include the use of diesel fuel and the use and storage of cleaning solvents. The loader and chipper will be fueled by a mobile fueling service. Solvents in containers of two gallons or less will be stored in a locked fireproof cabinet. The Project does not involve the routine disposal of hazardous materials. The use and storage of hazardous materials creates the opportunity for accidental releases to occur, requiring measures to prevent potential releases and to take proper action to contain, clean up and notify authorities should a release occur. 					
			Lake County Division of Environmental Health (LCEH) provided written comments on March 13, 2019. These included, in part, "If the applicant stores hazardous materials (defined as either virgin or waste 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 Business 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. If the amount of hazardous materials is less than the above quantities, the applicant will need to complete and submit a Hazardous Materials/Waste Declaration stating the name of the material and the quantity to be stored on site. Hazardous materials shall not be allowed to leak onto the ground or contaminate surface waters. Any release of a hazardous material must be immediately reported to LCEH." Other pertinent comments from LCEH include the protection of wells from hazardous materials.					
			the use or storage of combustible, explosive, caustic or otherwise hazardous materials shall comply with all applicable local, state and federal safety standards and shall be provided with adequate safety devices against the hazard of fire and explosion, and adequate firefighting and fire suppression equipment. Implementation of the following mitigation measures will reduce the impact from potential releases of hazardous materials to a less than significant level. Less Than Significant Impact with Mitigation Measures HAZ-1 and HAZ-2 Incorporated.					
			Mitigation Measures:					
			<u>HAZ-1</u> : The storage of potentially-hazardous materials shall be located at least 100 feet from any existing water well. These materials shall not be allowed to leak onto the ground or contaminate surface waters. Collected hazardous or toxic materials shall be recycled or disposed of through a registered waste hauler to an approved site legally authorized to accept such materials.					
			<u>HAZ-2:</u> If operation includes storage of hazardous materials equal to or greater than fifty-five (55) gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas, then a Hazardous Materials Inventory Disclosure Statement/Business Plan shall be submitted and maintained in compliance with requirements of Lake County Environmental Health Division. Industrial waste shall not be disposed of on site without review or permit from Lake County Environmental Health Division or the California Regional Water Quality Control Board. The permit holder shall comply with petroleum fuel storage tank regulations if fuel is to be stored on site.					

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?	X			The Project does not involve the storage of a significant volume of hazardous materials that could be released into the environment. The storage of small volumes of cleaning solvents will be stored in a locked cabinet inside the building. Should the storage of fuel be desired in the future, the operator must comply with all applicable local, state and federal regulations. Less Than Significant Impact with Mitigation Measures HAZ-1 and HAZ-2 Incorporated.	1, 2, 3, 5, 6, 23, 24, 25
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			Х	The nearest school is located over two miles from the Project Site. No Impact.	1, 2, 3, 5, 6, 7
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?			X	 The California Environmental Protection Agency (CALEPA) has the responsibility for compiling information about sites that may contain hazardous materials, such as hazardous waste facilities, solid waste facilities where hazardous materials have been reported, leaking underground storage tanks and other sites where hazardous materials have been detected. Hazardous materials include all flammable, reactive, corrosive, or toxic substances that pose potential harm to the public or environment. The following databases compiled pursuant to Government Code §65962.5 were checked for known hazardous materials contamination within ¼-mile of the Project Site: State Water Resources Control Board (SWRCB) GeoTracker database Department of Toxic Substances Control EnviroStor database SWRCB list of solid waste disposal sites with waste constituents above hazardous waste levels outside the waste management unit. The Project Site is not listed in any of these databases as a site containing hazardous materials as described above. No Impact. 	1, 2, 3, 4, 5, 6, 23, 24, 25, 26
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?			Х	The project is not located within two (2) miles of an airport and/or within an Airport Land Use Plan. The nearest airport is Lampson Field approximately 9.5 miles northwest of the Project Site. No Impact.	1, 2, 3, 4, 5, 6, 27
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		Х		Development of a small-scale bioenergy plant at this location would not impair or interfere with an adopted emergency response or evacuation plan. Less Than Significant Impact.	1, 2, 3, 4, 5, 6, 23
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	X			The Project Site is situated in a moderate fire hazard severity zone and is within the Local Responsibility Area of the Kelseyville Fire Protection District. The Project Site is surrounded by orchards, vineyards, and residential and commercial development. The Project includes both potential ignition sources (equipment) and fuel (wood chips), which, under certain conditions, could result in fire that could spread to adjacent vegetation. Proper operation and maintenance of equipment would minimize these impacts. Less Than Significant Impact with Mitigation Measures HAZ-3 and HAZ-4 Incorporated. Mitigation Measures: HAZ-3: The permit holder shall operate in full compliance with fire safety rules and regulations and instruct all project workers that the project involves working adjacent to flammable vegetation. All activities shall be performed in a safe and prudent manner with regards to fire prevention.	1, 2, 3, 4, 5, 6, 23, 28, 29
				prevent hot surfaces, sparks or any other heat sources from igniting grasses, brush or other highly combustible material.	

					HAZ-4: Vehicles and equipment shall be maintained and operated in a manner to prevent hot surfaces, sparks or any other heat sources from igniting grasses, brush or other highly combustible material.				
				X.	HYDROLOGY AND WATER QUALITY				
Significance Criteria: The Project would significantly impact hydrology and water quality if it violated water quality standards or waste discharge requirements or substantially degraded surface or groundwater quality; substantially decreased groundwater supplies or impeded sustainable groundwater management; altered drainage patterns in a manner that would cause substantial on- or off-site erosion, polluted runoff or excessive runoff that caused flooding; impeded or redirected flood flows; risked a release of pollutants due to inundation if in a flood hazard, tsunami or seiche zone; or conflicted with a water quality plan or sustainable groundwater management plan. Environmental Setting: The Project Site is located along the Highway 29 corridor in narrow valley terrain between the northeastern toe of the Mayacamas Mountains and the southern slope of Mount Konocti. This corridor consists of a series of isolated flats and small basins either drained internally or connected to Thurston Creek, which drains to the isolated basin of Thurston Creek. The property is drained along its eastern edge by an excavated ditch which flows north to SR 29 and then east to an unnamed tributary to Thurston Creek. The property drops approximately 80 feet in elevation from north to south into Hess Flat at an elevation of 1,880 feet msl. The Project Site does not contain perennial streams or ponded water of any type. Delineated aquatic resources consist of 0.136 acres of intermittent stream channel located in the southeast corner and continuing north along the east boundary of the subject parcel. The Project Site would be located over 350 feet from this drainage channel. A small drainage swale is located over 100 feet from the eastern edge of the proposed storage area.									
a) Violate any water quality standards or waste discharge		Х			Construction of the proposed Project will not generate any wastewater; therefore, there are no waste discharge requirements associated with the Project. Grading	1, 2, 3, 5, 6, 29, 30			
requirements or otherwise substantially degrade surface or ground water quality?					 activities in preparation for the building pad have the potential to cause erosion; however, Project drainage is designed to flow as sheet flow into well-drained soils downslope of the site. Gutters and downspouts installed on the building will be connected to an underground drainage pipe that will extend downgradient 20 feet beyond the lane that will encircle the building. The pipe will release roof drainage into a rock energy dissipator to prevent surface erosion. Due to the significant acreage of land downslope of the Project Site and the well-drained soils designated by the USDA and confirmed by the applicant, sediment generated from the Project is expected to settle out on the property and not be discharged off site. Project grading of one or more acres requires compliance with the State Water Resources Control Board (SWRCB) General Permit for Discharges Associated with Construction Activities (Construction Stormwater Permit). The area proposed for grading is 2,000 square feet for the plant production pad and some leveling in the 28,000-sf storage area; therefore, the Project does not qualify for the Construction Stormwater Permit. However, the chipping activity may require coverage under the SWRCB General Permit for Discharges Associated with Industrial Stormwater Permit would require development of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of a comprehensive stormwater monitoring program for the facility. HYD-1 requires the applicant to obtain any necessary permits, which would include a permit from the SWRCB if so required, in order to protect water quality for project-related erosion. Compliance with HAZ-1 and HAZ-2 will mitigate impacts to water quality as a result of hazardous material use and storage. Less Than Significant with Mitigation Incorporated. HYD-1: Prior to operation, the applicant shall obtain all necessary Federal, State and local agency permits and shall submit a copy of said permit(s). 				

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			Х		The proposed bioenergy plant is expected to use approximately 5 to 10 gallons of water daily supplied by the onsite well. As proposed, the project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. Less Than Significant Impact.	1, 2, 3, 5, 6, 30, 31
 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 offsite; 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? 		x			 The 34.58-acre Project Site is predominantly fallow orchard, with 5.06± acres occupied by residential development, roads and a parking lot. The disturbed acreage comprises 1.75 percent of the total acreage. The proposed Project will add 2,000± square feet of impervious surface to the parcel. (i) As discussed in (a) above, construction activities and operation of the Project will not result in substantial erosion or siltation, due to well-drained site soils, extensive acreage for percolation, and proposed drainage improvements that will direct roof runoff onto a rocky substrate in the orchard. Mitigation measures GEO-1 through GEO-4 address Project-related soil erosion. (ii) The increase of 2,000 square feet of impervious area will have a negligible effect on the rate and amount of surface runoff, and will not result in on- or off-site flooding. (iii) The increase of 2,000 square feet of impervious area on the 34.58-acre parcel will not cause stormwater to exceed the capacity of the stormwater drainage system or provide substantial additional sources of polluted runoff. (iv) The Project Site is not within a flood hazard zone, nor does flooding occur on the property. The Project will not impede or redirect flood flows. 	1, 2, 3, 5, 6, 7, 15, 18, 29, 32
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				Х	The Project Site is not located in an area of potential inundation by seiche or tsunami. The subject parcel is not located within a flood hazard zone. Therefore, there is no risk of release of pollutants due to inundation. No Impact.	1, 2, 3, 5, 6, 7, 9, 23, 32
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				Х	The proposed Project would not conflict with or obstruct water quality or management plans. No Impact.	1, 2, 3, 5, 6, 29
					XI. LAND USE AND PLANNING	
Significance Criteria: The Project plan, policy or regulation intended	t wou to av	ıld si oid c	ignifi or mit	cantl igate	y impact land use if it physically divided an established community or conflicted an environmental impact, such as the general plan or zoning code.	with a land use
Environmental Setting: The Project acres of the subject parcel has a Get the "DR" - Design Review Combin which includes the Project Site, ha commercial uses to the north and e by agricultural and residential uses	ct Sit neral ling C as a C ast, an	te is l Plan Overla Gener nd ag	ocate 1 Lan ay Di al Pla ricul	ed wit d Use strict an La tural	thin the unincorporated County of Lake, within the Riviera Area Plan boundary. The e Designation of Community Commercial, and is zoned "CH" Commercial Highwa and the "SC" - Scenic Combining District Overlay District. The southern $24.5\pm$ acr and Designation of Rural Residential and is zoned Rural Residential. The parcel is uses to the west, east, and south. The proposed Project Site within the subject acreage	e northern $10.5\pm$ y, and is within es of the parcel, s surrounded by ge is surrounded
Would the project:						
a) Physically divide an established community?				Х	The Project Site is located on approximately 34.58-acre parcel in a rural area of Lake County. The proposed Project would not physically divide an established community. No Impact.	1, 2, 3, 5, 6
b) Cause a significant		ł		X	This proposed Project is consistent with the Lake County General Plan Riviera	12356

established community?			community. No Impact.	
b) Cause a significant		Х	This proposed Project is consistent with the Lake County General Plan, Riviera	1, 2, 3, 5, 6
environmental impact due to a			Area Plan, and Lake County Zoning Ordinance. Pursuant to Section 27.11 [Table	
conflict with any land use plan,			B] of the Lake County Zoning Ordinance (LCZC), a Power Generation Facility is	
policy, or regulation adopted for			allowed in the Rural Residential zoning district subject to approval of a major use	
the purpose of avoiding or			permit. No Impact.	
mitigating an environmental				
effect?				

XII. MINERAL RESOURCES								
Significance Criteria: Impacts to mine mineral resource that has value to the re-	eral resources version and state	would be considered significant if the proposed Project were to result in the loss of a know or is otherwise locally important as designated on a local land use plan.	wn					
Environmental Setting: The Project Sir resources.	ite is not locate	d within an area identified by the State or County as regionally significant for containing	g mineral					
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?	X	The Aggregate Resource Management Plan (ARMP) does not identify the subject property as being located within a Quarry Resource Area. There are no regionally significant mineral resources identified within the Project area. No loss of a known mineral resource of value to the region or the state would result from the proposed Project. No impact.	3, 31, 32					
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?	X	The subject property is not designated as being a locally important mineral resource recovery site in the County of Lake's General Plan, the Riviera Area Plan or the Lake County ARMP. There are no existing quarries on the Project Site. The Project does not involve the extraction of mineral resources; therefore the Project would not result in the loss of availability of valuable or locally important mineral resources. No impact.1, 3	3, 31, 32					
		XIII. NOISE						
Significance Criteria: The Project wou Project, generated excessive groundborn airports or private airstrips.	uld have a sign ne noise or vibr	nificant impact if it temporarily or permanently exceeded local noise standards in the victoria ration; or would expose people residing or working in the area to excessive noise levels f	cinity of the from public					
Environmental Setting: The Project Site is located adjacent to a two-lane rural County road, and within an area dominated by agricultural uses. The area is exposed to the typical background noise associated with these activities, such as light vehicle traffic, human voices, and farm vehicles and equipment. Background noise is also provided by SR 29 to the north. The nearest residential receptors are two single-family residences and a travel trailer located on the subject property approximately 200 to 300 feet south-southeast of the proposed Project site. The nearest off-site single-family residence is located approximately 800 feet southwest of the edge of the property boundary. The Noise Element of the Lake County General Plan and Section 41.11 of the Lake County Zoning Ordinance protects residential areas and other noise-sensitive uses from excessive noise by implementing noise standards.								
a) 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?		Short-term noise levels would be increased during the construction phase of the Project. Construction-related noise may involve the use of a tractor/grader, compactor, water truck, and trucks delivering rock and concrete. Construction noise would occur over a period of approximately 8-12 weeks. For construction activities, General Plan Policy N-1.7 states, <i>"The County shall require construction when residential uses or other sensitive receptors are located within 500 feet."</i> Compliance with NOI-1 and NOI-2 will mitigate temporary construction noise to a less than significant level.Once Project construction is completed, noise associated with the operation would be generated by truck deliveries of feedstock, chipping equipment, and generators operating the bioenergy system on the west side of the building. The operation plan assumes $2 - 5$ trucks daily delivering both chipped and unchipped material. To prepare feedstock, unchipped material would be run through a diesel or electric-powered chipper and then through an electric-powered hammermill before transfer to the hopper or stockpiled for later use. It is anticipated that material will be processed for no longer than 2-3 hours per day, five days per week, with the front-end loader operating 6-8 hours per day. The biochar is stored until five tons is accumulated, at which time it would be shipped to a soil amendment wholesaler located in the Central Valley. Out shipments of biochar would therefore be significantly less frequent than deliveries generator noise would be attenuated by full aluminum weather protection and superior sound attenuated by full aluminum weather protection and superior sound attenuated by full aluminum weather protection and superior sound attenuated by full aluminum weather of the west side of the building, over 140 feet from Red Hills Road, over 200 feet from the nearest on-site residence. <td>2, 3, 4, 5</td>	2, 3, 4, 5					

b) Generation of excessive groundborne vibration or groundborne noise levels?		X			County noise standards require noise levels at the property line adjacent to residential and agricultural uses (west, south and east) not to exceed 55dBA between the hours of 7:00 a.m. and 10:00 p.m. and 45 dBA between the hours of 10:00 p.m. and 7:00 a.m. Where adjacent uses are commercial (north and east) noise levels must not exceed 60dBA during daytime hours and 55dBA during nighttime hours. The Project Description states that, " <i>Based on the distance of the operation from property lines and receptors and topography, the operation is capable of complying with County noise standards.</i> " Compliance with NOI-2 and NOI-3 will ensure that permanent Project activities will not exceed County noise standards. Less Than Significant with Mitigation Incorporated. <u>Mitigation Measures:</u> <u>NOI-1:</u> All construction activities including engine warm-up shall be limited to Monday Through Friday, between the hours of 7:00 a.m. and 7:00 p.m. to minimize noise impacts on nearby residents. Back-up beepers shall be adjusted to the lowest allowable levels. Contractors shall implement noise-reducing measures during construction when occupied residences or other sensitive receptors are located within 500 feet. <u>NOI -2:</u> The Project shall comply with the noise standards identified in Section 41.11 of the Zoning Ordinance, including, but not limited to: maximum non-construction project-related noise levels shall not exceed: (a) 55 dBA between the hours of 7:00 a.m. to 10:00 p.m. and 55 dBA between the hours of 7:00 a.m. adjacent to commercial districts; and (b) 60 dBA between the hours of 7:00 a.m. adjacent to commercial districts at the property lines as outlined in Table 11.1. Should the Project exceed these noise standards during construction or operational phases, noise-generating activities shall cease until noise attenuation measures are implemented such that the Project is compliant with noise standards. Refer to discussion in Section XII (a). Groundborne noise or vibration may occur during site development or operation; howeve	1, 2, 3, 4, 5
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?				X	The proposed Project is not located within an airport land use plan or within two miles of a public airport. No Impact.	1, 3
					XIV. POPULATION AND HOUSING	
Significance Criteria: The proposinduced substantial unplanned populousing would be required.	sed Pr ulatio	ojec n gro	t wou owth	ıld re or dis	sult in significant impacts to the local population or housing stock if it directly or in splaced a substantial number of people or housing such that the construction of repl	idirectly acement
Environmental Setting: The subje	et pro	opert	y is l	ocate	d in an established agricultural area with low residential density.	
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)?				X	The Project does not involve the construction of new homes or businesses, or the extension of roads or other infrastructure that would induce population growth. No Impact.	1, 2, 4, 5

b) Displace substantial numbers			'	Х	No people or housing will be displaced as a result of the project. No Impact.	1, 2, 4, 5					
of existing people or housing,			'								
replacement housing elsewhere?			'								
replacement nousing else where.											
XV. PUBLIC SERVICES											
Significance Criteria: The Project service facilities or staffing, include	ing fi	ild res	sult in polie	n a si ce pro	gnificant impact to public services if it resulted in a requirement for increased or ex otection, schools and parks.	panded public					
Environmental Setting: The subje	ect pr	roper	ty is s	serve	d by the Lake County Sheriff Department, the Kelseyville Fire Protection District, a	ind is located					
within the Kelseyville Unified School District.											
Would the project:											
a) Would the project result in			Х		The proposed Project during operation and construction will not result in the	1, 2, 3, 4, 5					
substantial adverse physical			'		need for additional police or fire protection, parks or other public facilities. The						
impacts associated with the			'		Project would not affect the number of students served by local schools, not would it increase the number of new residents to the area, which could require						
altered governmental facilities			'		the construction of expanded school facilities Less Than Significant						
need for new or physically altered			'		the construction of expanded sensor facilities. Less Than organicant						
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			'								
- Fire Protection?			'								
- Police Protection?			'								
- Schools?			'								
- Parks?			'								
- Other Public Facilities?											
					XVI. RECREATION						
Significance Criteria: Impacts to	TOOTE	ration	- WOL	14 be	cionificant if the Draiset regulted in increased use of existing parks or regreational	facilities to the					
extent that substantial deterioration	1 was	s acce	elerat	ed or	if the Project involved the development or expansion of recreational facilities that	would have an					
adverse effect on the physical envir	ronm	ient.									
Environmental Setting: The only	park	with	in the	Rivi	era planning area is Clear Lake State Park, located nearly seven miles northwest of	the Project Site.					
The nearest public parks are Kelsey	/VIIIC	: Park the F	and	Pione st Site	eer Park, located over five miles northwest of the Project Site. Boggs wountain State	e Park is located					
Would the project	SUUL	the r	10,00	/L Dite							
Would the project.			_								
a) Increase the use of existing			'	Х	The proposed Project involves the construction and operation of a bioenergy plant,	1, 2, 3, 4, 5					
neighborhood and regional parks			'		and as such, will have no impacts on existing parks or other recreational facilities.						
or other recreational facilities			'		No Impact.						
deterioration of the facility would			'								
occur or be accelerated?			'								
b) Does the project include			<u> </u>	Х	The Project does not include or require the construction or expansion of any	1, 2, 3, 4, 5					
recreational facilities or require			'		recreational facilities. No Impact.						
the construction or expansion of			'								
recreational facilities which might			'								
have an adverse physical effect on			'								
the environment?		<u> </u>	<u> </u>								
					XVII. TRANSPORTATION						
Significance Criteria: Impacts to t	trans	porta	tion a	ind tr	affic would be significant if the Project conflicted with a local plan, ordinance or po	olicy addressing					
transit, roadway, bicycle and pedes	strian	ı facil	lities;	, cont	licted with CEQA Guidelines Sec. 15064.3(b) which contains criteria for analyzin	g transportation					
impacts: substantially increased har	zards	s due :	to ge	omet	ric design features; or resulted in inadequate emergency access.						

Environmental Setting: The Project Site is located in a low density residential and agricultural region of the Rivieras planning area. The Project Site is situated on private land, accessed via a private driveway accessed from Red Hills Road, a two-lane, a rural County-maintained road. The private driveway is shared by two residences and provides access to the Tribe's community gathering areas and parking lot in the northeast portion of the property. Red Hills Road connects SR 29 to the north of the Project Site and SR 175 to the southwest, and has no sidewalks, bicycle or pedestrian lanes. The nearest school is over five miles from the Site. The subject property is located adjacent to the proposed Lake 29 Expressway Project, which would widen eight miles of SR 29 between Kelseyville and Lower Lake to four lanes to improve safety and increase capacity for trucks and commercial traffic. The highway project would be developed by Caltrans in the next few years, beginning with the segment that includes the intersection of SR 29 and Red Hills Road.

Would the project:			
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	X	The Project Site is accessible off of Red Hills Road, approximately 1,000 feet from SR 29, the principal east-west commercial route through Lake County. There are no bicycle or pedestrian facilities in the vicinity of the Project Site. A minor temporary increase in construction-related traffic is anticipated during the construction phase. When operational, truck traffic to the site will increase by 2-3 trucks per day (4-6 trips/day) and vehicle traffic will increase by two employees per day (4 trips/day). The Project does not conflict with any local or regional transportation plans or facilities. Less Than Significant Impact.	1-5, 33-38
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	X	Construction of the Project would temporarily generate additional vehicle trips resulting from work crew members traveling to and from the Site, and the delivery of materials. The construction period is expected to occur over an 8 to 12-week period. The increase in vehicle miles traveled (VMT) during Project construction is considered to be equivalent to those generated by an accessory building construction project, and considered less than significant. Operation of the plant is expected to generate up to 12 vehicle trips per day, five days per week, resulting in a minor increase in VMT after the Project is completed. Less Than Significant Impact.	1-5, 33-38
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Х	The Project does not propose any changes to road alignment or other features, nor does it involve incompatible uses that could increase traffic hazards. The equipment and vehicles used to construct and operate the plant would be similar to those used for agricultural uses on adjacent farms. Less Than Significant Impact.	4, 5
d) Result in inadequate emergency access?	X	The construction and operation of the plant will not adversely impact existing emergency access. The existing driveway will be widened, improving accessibility for emergency vehicles. Less Than Significant Impact.	4, 5, 24

XVIII. TRIBAL CULTURAL RESOURCES

Significance Criteria: An impact to tribal cultural resources would be significant if the Project were to substantially reduce the significance of a tribal cultural resource, a listed or eligible historic resource, or a resource considered significant by a California Native American tribe. Assembly Bill (AB) 52 was signed into law on September 25, 2014, requiring lead agencies to evaluate a project's potential to impact tribal cultural resources and establishes a consultation process for California Native American Tribes as part of CEQA. Tribal cultural resources include "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are eligible for inclusion in the California Register of Historical Resources (California Register) or included in a local register of historical resources. Lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." The consultation process must be completed before a CEQA document can be certified.

Environmental Setting: The Project Site lies at the foot of Mount Hanna, approximately 2.5 miles south of Clear Lake. Approximately 86 percent of the subject property is comprised of a fallow walnut orchard. The proposed Project Site is located within the existing orchard. There are no perennial watercourses or springs on the subject property. A blanket of shattered obsidian is prevalent on the property.

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

with cultural value to a California Hallee Hindelean hiele, and that is.						
a) Listed or eligible for listing in				Х	See response to Section V (a). No Impact.	1, 2, 4, 5, 15,
the California Register of						16
Historical Resources, or in a local						
register of historical resources as						
defined in Public Resources Code						
section 5020.1(k), or						

b) A resource determined by the	Х		A Request for Review was mailed on February 14, 2019 to the following tribes:	1, 2, 3, 5, 6,
lead agency, in its discretion and		Big Valley Rancheria, Cortina Rancheria, Elem Colony, Koi Nation, Middletown		15, 16
supported by substantial			Rancheria, Mishewal-Wappo of Alexander Valley, Redwood Valley, Robinson	
evidence, to be significant			Rancheria, Upper Lake Habematolel and Yocha Dehe, in addition to the Scotts	
pursuant to criteria set forth in			Valley Band of Pomo Indians, the applicant for the subject Project.	
subdivision (c) of Public				
Resources Code section 5024.1.			A response was received from Vocha Debe, stating that the project is not within	
In applying the criteria set forth in			the aboriginal territories of the Vocha Dehe Wintun Nation and declining	
subdivision (c) of Public			comment	
Resources Code 5024.1 the lead			comment.	
agency shall consider the				
significance of the resource to a			The subject property is owned by the Scotts Valley Band of Pomo Indians. The	
California Nativa Amarican triba			Tribe's cultural monitors have surveyed the property for archaeological evidence,	
California Native American utbe.			and to date have found none. Cultural monitors will be employed during site	
			development activities.	
			Less Than Significant with Mitigation Measures CUL-1 and CUL-2	
		1 1	Incorporated.	
				·

XIX. UTILITIES AND SERVICE SYSTEMS

Significance Criteria: Impacts to utility and service systems would be significant if the Project resulted in the construction or expansion of utilities that could cause significant environmental effects; have insufficient water supplies available to the Project during normal to extremely dry years; resulted in inadequate capacity of the wastewater treatment plant; generated solid waste exceeding the capacity of local infrastructure or impairing the achievement of solid waste reduction goals; or failed to comply with any management and reduction statutes or regulations related to solid waste.

Environmental Setting: The Project Site consists of a portion of a fallow walnut orchard situated on the east side of Red Hills Road, approximately 1,000 feet south of its intersection with SR 29. The Site contains two single-family residences, a travel trailer and a "public" restroom used by tribal members during ceremonial gatherings. These units are served by an on-site well with (2) 2,000-gallon storage tanks and an on-site septic disposal system. Electricity is provided by PG&E and trash collection is provided by the local waste hauler. The residences are also supplied with telecommunications services. There is no storm drain system; stormwater infiltrates into well-drained site soils.

Would	tĺ	he project:
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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 telecommunications facilities, the construction or relocation of which could cause significant environmental effects?		X		The bioenergy system will require approximately 5-10 gallons of water per day. Water for dust control will be used judiciously, as feedstock requires a low moisture content of 20-25 percent. Water for the operation will be supplied by the on-site well by installing a "T" connector to the existing distribution system piping, extending a line and outlet to the Project Site and using a commercial grade hose for water delivery. The Project's primary electrical need is the transmission line between the plant's co-generator and the PG&E pole to the northwest of the plant on Red Hills Road to provide a 240v, 3-phase, 100-amp electrical connection. The transmission line will be installed overhead as required by PG&E. It will connect the co-generator units to a transformer set towards the top of the pole as installed by PG&E's employees. Secondary electrical needs will include power to the operation's interior and exterior LED lighting. According to the applicant, PG&E is prepared to provide these electrical services. Less Than Significant Impact.	1, 2, 3, 5, 6
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?		Х		As discussed in Section XIX(a), water demand associated with the facility is expected to be low, and can be provided by an existing on-site well, storage and distribution system. Project-related water demands are not dependent on seasonal precipitation. Less Than Significant Impact.	4
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?			Х	The subject parcel is served by an on-site septic system. No Impact.	4, 23

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?			Х		The operation will generate a limited amount of trash; existing curbside trash collection will be expanded to include the bioenergy operation. The existing landfill has sufficient capacity to accommodate the Project's solid waste disposal needs. Eastlake Landfill, South Lake Refuse Center, and Quackenbush Mountain Resource Recovery and Compost Facility are located approximately 12 miles northeast of the subject parcel. Lake County Waste Solutions Transfer Station and Recycling Center is located approximately 12 miles northwest of the subject parcel. Less Than Significant Impact.	1, 2, 4, 5, 39, 40
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X The facility is designed to reduce waste by converting it into energy. Comments received from CalRecycle indicate that the biomass plant does not require a solid waste permit as long as it complies with PRC 40106 [definition of "biomass conversion"] and Title 14 CCR Section 17855(a)(5)(C), which excludes the handling of compostable materials if, "the activity is located at the site op biomass conversion and is for use in biomass conversion as defined in Public Resources Code section 40106." Another exclusion likely to pertain to the Project is found in Section 17855(a)(5)(I), which states, "The activity is the storage of yard trimmings at a publicly designated site for the collection of loc clearing necessary for fire protection provided that the public agency designating the site has notified the fire protection agency." The primary source of wood waste is from PG&E's line clearing program. As such, the Project does not require a solid waste permit and is understood to be compliant with federal state and local regulations related to the reduction of solid waste. Less Thar Significant Impact.		1, 2, 3, 5, 23, 39, 40	
					XX. WILDFIRE	
Significance Criteria: Impacts to Responsibility Area (SRA). Additi emergency response plan; exposed prevailing winds; require the instal as a result of post-fire runoff, slope	wildf onall 1 pro lation	ire w ly, th ject o n or r abilit	rould e app occup nainte v or d	be les licant ants enanc lraina	ss than significant with the incorporated mitigation measures as the project is located t shall adhere to all Federal, State and local agency requirements. and may substant to wildfire pollutants or uncontrolled spread of wildfire due to site conditions su the of infrastructure that could exacerbate fire risk; or expose people or structures to ge changes.	within the State attially impair an ch as slope and significant risks
Environmental Setting: The Project Site is located approximately five miles southeast of Kelseyville town center, on a 34.58-acre property occupied predominantly by a fallow walnut orchard. The fire hazard rating for the majority of the subject parcel, including the Project Site, is moderate. The very north portion of the parcel adjacent to SR 29 has a fire hazard rating of very high. The Project Site is located within the State Responsibility Area (SRA) zone. The nearest receptors are the two on-site residences and a travel trailer, located 200 to 300 feet south-southeast of the Project Site.					operty occupied lerate. The very lity Area (SRA)	
<i>If located in or near state responsib.</i> a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	ility c	ureas	or la	nds ci	Assified as very high fire hazard severity zones, would the project: The Project Site is located within a moderate/high fire hazard severity zone and is within the State Responsibility Area. The Site is located within the response area of the Lake County Emergency Operations Plan, updated in 2018 by the Department of Emergency Services. The proposed Project will not substantially impair the Emergency Operations Plan. Less Than Significant	1, 2, 3, 5, 6, 23, 25, 28, 29
b) 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?			X		The Project would not be situated in conditions that would exacerbate wildfire risks. Less Than Significant Impact.	1, 2, 3, 5, 6, 23, 25, 28, 29

 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 	Х	x	Infrastructure exists on the property, including roads, water storage tanks and electrical service. The proposed operation will require electrical service, which will be delivered from a PG&E utility pole located on Red Hills Road. An overhead line will connect to a utility pole that will be situated on the west side of the parcel. Additionally, the applicant shall adhere to all current <u>California Fire Codes</u> , <u>including 4290 and 4291 of the Public Resource Code</u> regulations and/or requirements Less Than Significant with Mitigation Incorporated. FIRE-1: Prior to occupancy, new electrical service on the subject parcel shall be sited and maintained to avoid impact by falling trees, overgrown vegetation or other potential sources of ignition that could increase fire risk.	1, 2, 3, 5, 6
significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			flooding, landslides, slope instability, or drainage changes would not be significantly increased due to the Project. Less Than Significant Impact.	21, 23, 32
		XX	I. MANDATORY FINDINGS OF SIGNIFICANCE	
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?	X		The proposed Project proposes to disturb just less than one acre of land within an old, fallow walnut orchard. A biological resources assessment encountered no special status plant species or wildlife habitat within the 34.58-acre parcel. There are no Waters of the U.S. or fish-bearing streams on the property. There are no historic or known cultural resources on the property. Based on the findings and conclusions contained in the Initial Study, the Project has the potential to significantly impact Aesthetics, Air Quality, Geology/Soils, Hazards & Hazardous Materials, Hydrology/Water Quality, Noise, Tribal Cultural Resources and Wildfire. However, the implementation of mitigation measures described herein will reduce all potential impacts to a less than significant level.	ALL
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the 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)?	X		The proposed Project has the potential to significantly impact Aesthetics, Air Quality Geology/Soils, Hazards & Hazardous Materials, Hydrology/Water Quality, Noise, Tribal Cultural Resources and Wildfire. These impacts, in combination with the impacts of other past, present and reasonably foreseeable future projects could cumulatively contribute to significant effects on the environment. Implementation of mitigation measures identified in each section would avoid or reduce potential impacts to less than significant levels. Based on the findings and conclusions contained in the Initial Study, the proposed Project would have impacts that are individually limited, but are not cumulatively considerable.	ALL
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	Х		The proposed Project has the potential to result in adverse indirect or direct effects on human beings in the areas of Aesthetics, Air Quality, Hazards & Hazardous Materials, Noise, Tribal Cultural Resources and Wildfire. Implementation of mitigation measures identified in each section would avoid or reduce the substantial adverse indirect or direct effects on human beings to a less than significant level.	ALL

XXI. MITIGATION MONITORING AND REPORTING PROGRAM											
Potential Impact	Mitigation Measure	Implementation Responsibility	Monitoring & Reporting Responsibility	Timing	Date Implemented						
AESTHETICS											
Impact public views from Red Hills Road.	AES-1: All structures associated with the Project, including the building and any new fencing, shall use neutral, earth-tone colors in order to blend into the surrounding environment. Low glare building materials shall be used for new building construction.	Applicant	Applicant	Prior to occupancy							
	AES-2: Existing vegetation that provides screening to the Project Site shall be maintained or replaced with plantings as specified in AES-1.	Applicant	Applicant	During site preparation							
Generate a new source of light and glare from exterior lighting.	AES-3: All outdoor lighting shall be shielded and downcast or otherwise positioned in a manner that will not broadcast light or glare beyond the boundaries of the subject property. All lighting equipment shall comply with the recommendations of the International Dark-Sky Association (www.darksky.org) and provisions of Section 21.48 of the Zoning Ordinance. Security lighting shall be motion activated.	Applicant	Applicant	Prior to occupancy							
	AIR QUALITY	•			•						
Impact air quality temporarily during construction activities and permanently during wood processing activities.	AIR-1: Prior to the commencement of construction, applicant shall submit to the Lake County Air Quality Management District a complete list of all equipment to be used at the site with the potential to emit air contaminants, including diesel powered generators, pumps, off-road equipment, etc. and secure all necessary permits for all eligible operations and equipment as required by the District. Diesel powered equipment must meet the requirements of the State Air Toxic Control Measures for CI engines (stationary and portable). All mobile diesel equipment used must be in compliance with State registration requirements. Portable and stationary diesel powered equipment must meet the requirements of the for CI engines.	Applicant	Applicant	Prior to commencement of site preparation							
	AIR-2: Prior to operation, primary access roads and parking shall be surfaced to minimize dust impacts to the public, visitors and road traffic. At a minimum, chip seal surfacing is required. Paving with asphaltic concrete is preferred. All areas subject to semi truck/trailer traffic shall require asphaltic concrete paving or equivalent to prevent fugitive dust generation. Gravel surfacing may be adequate for low use/overflow driveways and parking areas if it receives regular palliative treatment. The use of white rock for surfacing is prohibited.	Applicant/ Contractor	Applicant	During site development and construction							
	AIR-3: All vegetation removed during site development shall be chipped and spread for ground cover, erosion control and/or biomass feedstock. The burning of vegetation, construction debris, or waste material is prohibited.	Applicant	Applicant	During site development							

	AIR-4: Dust control measures shall be implemented to minimize fugitive dust emissions from the Project Site. Dust control measures may consist of approved chemical, structural, or mechanical methods and shall be reapplied at the necessary intervals to prevent wind erosion.	Contractor	Applicant	During site development and construction
	CULTURAL RESOURCES/TRIBAL CULTURAL	RESOURCES		· · · ·
Disturb an archaeological resource or human remains during construction activities.	CUL-1: Should any archaeological, paleontological, or cultural materials be discovered during site development, all activity shall be halted in the vicinity of the find(s), and a qualified archaeologist retained to evaluate the find(s) and recommend mitigation procedures, if necessary, subject to the approval of the Community Development Director. The applicant shall halt all work and immediately contact the Lake County Sheriff's Department and the Community Development Department if any human remains are encountered.	During site development		
	CUL-2: A cultural resource monitor shall be present during ground disturbance activities.	Applicant	Applicant	During site development
	GEOLOGY/SOILS			<u> </u>
Create soil erosion during construction activities and from the alteration of drainage patterns due to new impervious area and roof drainage.	GEO-1: The permit holder shall protect the local watershed with the implementation of Best Management Practices (BMPs) in accordance with the Grading Ordinance and the Project Description dated October 24, 2019 to prevent or reduce discharge of all pollutants and hazardous materials offsite. No silt, sediment or other materials exceeding natural background levels shall be allowed to discharge from the project area. The natural background level is the level of erosion that currently occurs from the area in a natural, undisturbed state. Typical BMPs include the placement of straw, mulch, seeding, straw wattles, silt fencing and the planting of native vegetation on all disturbed areas. Following construction, all exposed soil shall be protected by covering with vegetation, mulch, gravel or other surface treatment as appropriate for permanent erosion control. Erosion and sediment control measures shall be in place by the end of the grading project and shall be maintained until such time that permanent control has been established.	Applicant/ Contractor	Contractor	Prior to and during site development and construction
	GEO-2: Excavation, filling, vegetation clearing or other disturbance of the soil shall not occur between October 15 and April 15 unless authorized by the Community Development Director. The actual dates of the allowable grading period may be adjusted according to weather and soil conditions at the discretion of the Community Development Director.	Applicant/ Contractor	Applicant/ Contractor	Prior to and during site development and construction
	GEO-3: The permit holder shall monitor the site during the rainy season (October 15 – April 15), including post-installation, implementation of BMPs, erosion control maintenance, and other improvements as needed.	Applicant/ Contractor	Applicant/ Contractor	During site development and construction
	GEO-4: Native vegetation shall be retained and protected where its removal is not necessary to implement the grading project or to meet fire safety regulations.	Applicant/ Contractor	Applicant/ Contractor	Prior to and during site

				33
				development and
				construction
	HAZARDS & HAZARDOUS MATERI	ALS		
Create a hazard to the public or the environment due to an accidental release of hazardous materials.	<u>HAZ-1</u> : The storage of potentially-hazardous materials shall be located at least 100 feet from any existing water well. These materials shall not be allowed to leak onto the ground or contaminate surface waters. Collected hazardous or toxic materials shall be recycled or disposed of through a registered waste hauler to an approved site legally authorized to accept such materials.	Applicant	Applicant	For duration of the use
	<u>HAZ-2:</u> If operation includes storage of hazardous materials equal to or greater than fifty-five (55) gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas, then a Hazardous Materials Inventory Disclosure Statement/Business Plan shall be submitted and maintained in compliance with requirements of Lake County Environmental Health Division. Industrial waste shall not be disposed of on site without review or permit from Lake County Environmental Health Division or the California Regional Water Quality Control Board. The permit holder shall comply with petroleum fuel storage tank regulations if fuel is to be stored on site.	Applicant	Applicant	For duration of the use
Expose people or structures, directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	<u>HAZ-2:</u> If operation includes storage of hazardous materials equal to or greater than fifty-five (55) gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas, then a Hazardous Materials Inventory Disclosure Statement/Business Plan shall be submitted and maintained in compliance with requirements of Lake County Environmental Health Division. Industrial waste shall not be disposed of on site without review or permit from Lake County Environmental Health Division or the California Regional Water Quality Control Board. The permit holder shall comply with petroleum fuel storage tank regulations if fuel is to be stored on site.	Applicant	Applicant	For duration of the use
	HAZ-4: Vehicles and equipment shall be maintained and operated in a manner to prevent hot surfaces, sparks or any other heat sources from igniting grasses, brush or other highly combustible material.	Applicant	Applicant	For duration of the use
	HYROLOGY/WATER QUALITY			
Degrade surface water quality due to industrial activities.	HYD-1: Prior to operation, the applicant shall obtain all necessary Federal, State and local agency permits and shall submit a copy of said permit(s) to the Community Development Department within 30 days of obtaining the permit(s).	Applicant	Applicant	Prior to commencement of the activity requiring the permit.
	NOISE			
Exceed noise standards beyond the property boundaries due to construction activities and	NOI-1: All construction activities including engine warm-up shall be limited to Monday Through Friday, between the hours of 7:00am and 7:00pm to minimize noise impacts on nearby residents. Back-up beepers	Applicant/ Contractor	Applicant/ Contractor	During site development and construction

operating equipment associated with the new facility.	shall be adjusted to the lowest allowable levels. Contractors shall implement noise-reducing measures during construction when occupied residences or other sensitive receptors are located within 500 feet. NOI -2: The Project shall comply with the noise standards identified in Section 41.11 of the Zoning Ordinance, including, but not limited to: maximum non-construction project-related noise levels shall not exceed: (a) 55 dBA between the hours of 7:00 a.m. to 10:00 p.m. and 45 dBA between the hours of 10:00 p.m. to 7:00 a.m. to 10:00 p.m. and 55 dBA between the hours of 7:00 a.m. to 10:00 p.m. and 55 dBA between the hours of 10:00 p.m. to 7:00 a.m. to 10:00 p.m. and phases, noise-generating activities shall cease until noise attenuation measures are implemented such that the Project is compliant with noise standards.	Applicant/ Contractor	Applicant	For the duration of the use permit
	WILDFIRE			
Increase fire risk due to new utility pole and overhead lines to the parcel.	FIRE-1: Prior to occupancy, new electrical service on the subject parcel shall be sited and maintained to avoid being impacted by falling trees, overgrown vegetation or other potential sources of ignition that could increase fire risk.	Applicant/ Contractor	Applicant	Prior to construction and for the duration of the use permit

* Impact Categories defined by CEQA

****Source List (listed in the order in which they appear)**

- 1. Lake County General Plan
- 2. Lake County Zoning Ordinance
- 3. Rivieras Area Plan, adopted January 9, 2007
- 4. County of Lake Major Use Permit Application and Supplemental Materials
- 5. Site Visit, September 23, 2019.
- 6. Scenic Combining Overlay District Map
- California Streets and Highways Code, Section 263.3, <u>http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=SHC&division=1.&title=&part=&chapter=2.&article=2.5</u>.
- 8. Lake County GIS Portal
- 9. https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx
- 10. Important Farmland Map, <u>https://maps.conservation.ca.gov/agriculture/</u>
- 11. Lake County Air Quality Management District, www.lcaqmd.net
- 12. Ultramafic, Ultrabasic, Serpentine Rock and Soils of Lake County Map, undated.
- 13. Lake County Air Quality Management District Memorandum, dated March 8, 2019.
- 14. Biological Resource Assessment with Botanical Survey and Delineation of Waters of the U.S., prepared by Northwest Biosurvey, July 1, 2019.
- 15. Northwest Information Center Letter, File No. 18-1569, February 22, 2019
- 16. UP 19-05, IS 19-09, Attachment 4, Archaeological Reassessment, provided by Northwest Information Center, Sonoma State University, Rohnert Park, CA, undated.
- 17. U.S.G.S. Geologic Map and Structure Sections of the Clear Lake Volcanic, Northern California, Miscellaneous Investigation Series, 1995
- 18. Official Alquist-Priolo Earthquake Fault Zone maps for Lake County, https://www.conservation.ca.gov/cgs/geohazards/eq-zapp
- 19. U.S.D.A. Lake County Soil Survey
- Landslide Hazards in the Eastern Clear Lake Area, Lake County, California, Landslide Hazard Identification Map No. 16, California Department of Conservation, Division of Mines and Geology, DMG Open –File Report 89-27, 1990
- 21. Lake County Grading Ordinance, adopted 2007
- 22. Lake County/City Area Planning Council, <u>https://www.calcog.org/index.php?src=directory&view=members&srctype=detail&back=members&re</u> <u>fno=32</u>
- 23. Lake County Division of Environmental Health Memorandum, March 13, 2019
- 24. 2018 Lake County Emergency Operations Plan, Office of Emergency Services, May 1, 2018
- 25. Lake County Local Hazard Mitigation Plan Update, January 2018
- 26. Hazardous Waste and Substances Sites List, www.envirostor.dtsc.ca.gov/public
- 27. Kelseyville Fire Protection District
- 28. Lake County Airport Land Use Compatibility Plan, adopted 1992
- 29. California State Water Resources Control Board Storm Water Program, https://www.waterboards.ca.gov/water_issues/programs/stormwater/
- 30. Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region Fifth Edition, May 2019
- 31. Lake County Aggregate Resource Management Plan
- 32. California Geologic Survey Information Warehouse: Mineral Land Classification, https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc
- 33. 2018 Regional Transportation Improvement Program, Lake County/City Area Planning Council, adopted November 8, 2017
- 34. 2017 Lake County Regional Transportation Plan Final, Dow & Associates, February 14, 2018
- 35. Active Transportation Plan for Lake County, Lake County/City Area Planning Council, December 2016
- 2011 Lake County Regional Transportation Bikeway Plan, Lake County/City Area Planning Council, adopted August 10, 2011
- 37. Lake County 2030 Regional Blueprint, October 2010.
- 38. California Department of Transportation (CALTRANS)
- 39. Lake County Record Bee, "4-Lane Construction on HWY 29 to Begin 2019," August 23, 2018.
- 40. CalRecycle Solid Waste Information System https://www2.calrecycle.ca.gov/SWFacilities/Directory/17-AA-0001/Detail/
- 41. California Code of Regulations, https://govt.westlaw.com/

Attachment 1


Scotts Valley Band of Pomo Indians

Red Hills Bioenergy Project 7130 Red Hills Road, Kelseyville Assessor's Parcel No. 009-021-070

PROJECT DESCRIPTION Revised 10/23/2019

Property Description: Scotts Valley Band of Pomo Indians (SVBPI) through its tribally owned company, Scotts Valley Energy Company, LLC (SVEC) proposes to construct and operate a bioenergy plant on its fully owned property located at 7130 Red Hills Road, Kelseyville. This property encompasses 35.58 acres of which approximately 10.5 acres, running parallel with and adjacent to Highway 29, are designated Commercial Highway and the remaining 24.5± acres are designated Rural Residential. The site currently hosts two single-family residences, a travel trailer, a public restroom structure consisting of two discrete bathrooms, two permitted septic systems serving the fore mentioned structures and a well with two 2,000 gallon water tanks providing water to these structures plus water valves placed at strategic locations throughout the property.

Currently SVBPI has entered into a temporary lease agreement with PG&E for use of just under four acres of the property to store and chip forest material coming from its line clearance program. When the material accumulates, a tub grinder stored on site will be operated for intervals of 2-3 hours at a time. The chipped material will be stored in piles on the property and used in the Project's storage area when construction begins. The agreement is for six months with options to renew. The leased area is located south of the parking lot along the eastern edge of the property, south to the public bathroom and west to the edge of the driveway. The Lake County Community Development Department approved this activity and issued an Encroachment Permit.

History: SVBPI purchased the property 23 years ago. Prior to its ownership, the land was a commercial walnut grove, with the owners living on site. SVBPI maintained the walnut grove in its early ownership years but abandoned that effort due to the age and condition of the trees. While the vast majority of the walnut trees remain in place, the original owner's home and 2 barns have been removed because they were deemed a health, safety and fire hazard. Neither were determined to be of historical value and hence neither are registered on the NRHP as documented in an 11 page report provided by the Northwest Information Center at Sonoma State University. The report references the former archaeological survey conducted on the property. In short, page 4 of the report states, "A pedestrian survey of the project areas conducted by qualified archeologists in January 2001 also provided no evidence of historical or prehistoric archeological properties." It further states, "Our review of the submitted HPSR leads us to concur with FHWA's determination that the property at 7130 Red Hills Road is not eligible for inclusion on the NRHP under any of the criteria established by 36 CFR 60.4."

Archaeology: SVBPI is not aware of any flatland or lowland sites in Lake County that could not be a possible archaeological site given the existence of Native Americans in the area since 12,000 BCE. A blanket of shattered obsidian is prevalent on the property, which is a minor indication that obsidian may have been mined as some point in time. However, during its years of ownership, SVBPI's certified cultural monitors have surveyed the property for archaeological evidence. To date no such evidence has been found. Nevertheless, SVBPI will retain one or more of its cultural monitors, as needed, during the project's site preparation and construction phases.

Biological Report: A biological resource assessment with a botanical survey, wildlife survey and delineation of waters of the entire property was conducted by Northwest Biosurvey of Kelseyville, California in accordance with the California Department of Fish and Wildlife's protocol for floristic-level botanical surveys and Corps of Engineers' survey requirements. The purpose of this study was to provide a definitive assessment of the presence of sensitive plant and wildlife species and Waters of the U.S. The study was in two parts consisting of pre-survey research of the literature and followed by two field surveys. The report concluded there are no sensitive plant or wildlife species/habitat, and no Waters of the U.S. on the property.

Project Site: The project will be sited on less than an acre of land. Its footprint will be rectangular in dimension. The western short side will run parallel to Red Hills Road and set 140' off the edge of the road. The south long side will run adjacent to and parallel with the property's existing lane and will be 270 feet in length The site will consist of four major elements: bioenergy plant housed within a building, outdoor storage area and new travel lanes.

Bio-Energy Plant: Each of the (2) Omni Bioenergy Artis 100kW units is a co-current fixed bed system designed to produce Syngas from most forms of carbon based biomass materials (feedstock) through a proprietary process capable of yielding industry leading energy content. The Artis systems can achieve this goal in a smaller space and at a fraction of the cost of legacy technology alternatives. In the case of the Red Hills Bioenergy Project, the feedstock will be at least 80% BioMAT Category 3 forestry-sourced waste wood that would otherwise decay in place, be open-burned or deployed to landfills.

The Artis 100 has no open flame components and is a sealed system. The units employ programmable electric heaters to achieve optimal temperatures. Once biomass enters the Artis system the biomass is heated to a level that reduces the biomass to a gas known as Syngas and a solid byproduct known as Biochar. The system uses a customized auger-based compacting system to control both feedstock throughput and Syngas production quality. Using a hybrid of pyrolysis and gasification, the oxygen and moisture in the biomass/feedstock help produce a higher energy Syngas allowing for better, more efficient energy generation. As the final step the Artis delivers a clean Syngas to a modified internal combustion engine and generator to create electricity.

The core of the Artis system is the proprietary hybrid pyrolysis and gasification unit that includes a configurable system controller, feed delivery management, feed lock hopper and gas management.

- The Artis 100 can be shipped with major components pre-assembled. Once on-site, installation moves quickly and the system can be operational in 4 to 6 weeks including additional peripherals for feedstock processing and a prime mover/generator for electricity.
- The biomass feedstock will be pre-processed to approximately 1/4 of an inch in diameter.
- Optimal moisture content of feedstock is 10-20%.
- The Artis 100 is designed to operate at a neutral atmospheric pressure, which minimizes energy input and simplifies the operational complexity of the system.
- The Artis pyrolysis/gasification process is a sealed system and releases no emissions.
- Generators used as prime movers will meet or exceed all EPA and California emissions requirements. [See spec sheet]
- By employing the sealed auger compaction approach, the Artis system operates in the near absence of air (Oxygen and Nitrogen) resulting in a much more efficient Syngas production process and cleaner, safer operation.

- The Biochar produced can be deployed for net carbon sequestration of the original feedstock carbon. The Biochar is automatically delivered from the reactor for removal.
- Artis systems can be configured to optimize the interdependent factors of speed (feed rate) and temperature.
- The Artis is configurable by the preferred temperature for pyrolysis based on the highest gas profile given the feedstock type.
 - \circ The configurable range is from 400 to about 1100° C.
 - The feed rate is adjustable in a range of 10% to 100% of an Artis unit design capacity.

The System Controller can be programmed to introduce a controlled amount of steam depending on the moisture content of the Syngas or the moisture content of the feedstock. Steam may be employed to assist in the conversion of Biochar to Syngas if the user prefers more Syngas and less, or no Biochar. The Syngas is processed through a series of heat exchangers, hydrocarbon crackers and particulate filters before being delivered to the generator.

Building: The 2,000-square foot bioenergy plant will be housed in an enclosed building and sit on a 40' x 50' six-inch thick concrete pad. The sides of the metal building will be 10' high and there will be two 18'-wide roll-up doors and one pedestrian entrance. The roll-up doors will be located on the west and east sides of the building; the pedestrian entrance on the east side. An "A" frame metal roof with a centerline apex of 16' will cover the building and pad. The roof will be supported by steel pillars. The building will be located on the project's west side and 160 feet from the edge of Red Hills Road.

Storage Area: The storage area will be sited on the east side of the plant. It will encompass approximately 28,000 square feet as shown on the Site Plan. Its function will be to process and house the production plant's feedstock. The surface of the storage area will be a 6" pad of wood chips. This is intended to ensure that soil erosion will not occur in the winter season as well as ensuring that rock and related material will not be carried to the production plant. A two-phase chipping process will be used to reduce the forest material to ¹/₄" diameter. This activity will occur in this storage area.

Travel Lanes: 20' wide travel lanes will encircle the building in order to provide easy access to the bioenergy equipment by maintenance trucks and personnel. There will also be two 20' wide lanes bordering two sides of the forest material storage area. The first lane will parallel the south side running between the lane on the eastern side of the building and the eastern edge of the storage area. The second lane will run parallel to the eastern edge of the storage area in a north to south direction (see Site Plan). There will be a hammerhead "T" at the northern end of the lane to accommodate the turning around of the 2 - 5 ton trucks delivering the forest material. All lanes will be surfaced with either $\frac{1}{2}$ " gravel or with a new composite material consisting of dirt and cement, if the applicator machinery can be secured.

Operations: The operation plan assumes 2-5 trucks in the 2-5 ton range delivering forest material daily. It will arrive chipped or unchipped. In both cases the trucks will unload in piles in the storage area. The chipped material will be further reduced in size by processing through a hammer mill to $\frac{1}{4}$ -inch in diameter. Unchipped material will be run first through a chipper, and then transferred via a front loader or conveyor belt to the hammermill. Once through the hammermill, the material will be transferred to the plant's hopper or stockpiled. It is anticipated that the hopper will be loaded twice a day in early morning and early evening. The biochar will be transferred from the production plant to large sacks and stored on pallets. When five tons of biochar is accumulated, it will be shipped to a soil amendment wholesaler located in the Central Valley.

The plant will operate 24 hours per day, seven days per week except when it is shut down for scheduled maintenance on average one day per week. The operation is highly automated with system safeguards in place to shut the operation down in the event of a malfunction. Consequently, the plan calls for a full-time employee working 5.5 hours per day, seven days a week on a split-shift schedule. The operator will be responsible for chipping feedstock, feeding the hopper, packaging biochar and monitoring the plant's operation. Equipment employed in the storage area includes one front loader, one hammermill, and possibly two conveyor belt units placed between the chipper and the hammermill and the hammermill and the hopper.

Grading: The project's only grading will be to create a level base for setting the building's concrete pad, i.e., 2000 square feet. The first step will be to remove six walnut trees (of which one is a stump) from the pad area. The next step is to address the grade differential. The current differential for the building's proposed siting is on average 2.5' running from a high on the south side to a low on the north side. The elevation running west to east is constant. To create a level base, scraping to a depth of one foot will start on the south side and the material will be moved to the north side. It is anticipated that the cut volume will equal the fill volume, resulting in no import or export of soil. It is estimated that the soil movement will not exceed 45 cubic yards of material.

There are an additional 19 walnut trees (of which 4 are dead or stumps) situated in the proposed storage and lane areas. These trees will be cut down and stumps ground away. Thereafter, the areas will be scraped to remove the weeds grass and bushes in preparation for the respective base material as noted above.

Drainage: Historically, drainage is not an issue within the property. There is a small drainage swale located not less than 100' from the eastern edge of the lane adjacent to the eastern edge of the storage area. This swale functions to infiltrate and dissipate water coming from the southeast section of the property (upslope). Due to high infiltration rates of site soils, it is not anticipated that the project area will add to nor need to use this swale to accommodate the natural runoff that currently occurs within the project footprint. However, there will be two gutters installed on the east-west sides of the building's roof. Each gutter will have a downspout at each end of the building or 4 downspouts. The down spouts will be connected to 4'' diameter underground drainage pipe and the pipe will be extended north to a distance of 20' past the building's adjacent lane and released into the open field. Rocks of various sizes will be placed at the exit point to dissipate the released water and prevent ground erosion.

Construction Duration: The construction phase is estimated to take not more than 8 to 12 weeks. This includes: site grading, forming and completing an egress apron, setting rebar and pouring the plant's pad, installing roof supports and roof, digging drains and connecting downspouts, trenching water line and electrical line, and installing production equipment. The number of workers will include: 2 workers during grading, and 4-6 workers for remaining work. There will be 1 tractor/grader used to grade the site, 1 compactor to compact area for the pad, storage area and new travel lanes, 1 water tanker to suppress dust during grading, approximately 10 truck trips hauling road base at 5 cubic yards per trip, 8 cement truck trips hauling 5 cubic yards in each trip.

Construction Period Storage: Construction vehicles, equipment and materials will be staged either along the south side of the property's existing lane or in the storage area once the trees have been removed.

Greenhouse Gas Emissions:

Construction Phase: Normal emissions from construction vehicles, graders, trenchers, compactors and concrete curing.

Operating Phase: Standard emissions from a diesel powered front end loader operating 6-8 hours per day. Standard emission from a diesel powered wood chipper and hammer mill, although purchase of electric powered versions will be investigated as well. Trace level emissions to below detectable levels from the sealed-system Artis gasifier. The Syngas delivered from the gasifier to a combustion engine electricity generator is primarily Hydrogen and Carbon Monoxide, with less than 10% by volume being Methane and Carbon Dioxide. The electricity generator will meet all EPA and regional air quality board standards with an emission level cleaner than a natural gas generator. Emissions testing will be done as part of project startup and commissioning activities. The Artis 100 systems have zero emissions and the generators we are proposing to use will all meet appropriate EPA and air quality board emission requirements.

Impervious Surfaces: The primary impervious surface from the project is 2,000 square feet in the form of a concrete pad on which the production plant building will be placed. Water diversion from the roof is presented under "Drainage." Secondary areas include the 20' wide lanes surrounding the pad and the additional lanes on two sides of the storage area. The property's soil percolates easily as demonstrated by its history of no soil erosion.

Dust Control: Dust that may occur during land re-leveling or construction will be controlled by the dispersal of water. The water used for this activity will come from the site's existing water line or water tender, whichever is most efficient. Any dust created during the operational phase will be managed with water application, tarping/cover, and good feedstock management practices.

Electricity: There are three electrical needs. The first and foremost is the transmission line between the plant's co-generator and the PG&E pole to the north west of the concrete pad and adjacent to and between the property's boundary line and Red Hills Road. This transmission line will be overhead as required by PG&E. It will connect the co-generator units, set on the west side of the building, to a transformer set towards the top of the pole as installed by PG&E's employees. The second electrical need will be lighting in the plant. This lighting will be LED with lights set above the bottom of the roof line as to prevent glare emanating to surrounding properties. The source of this light will come from the plant itself and only activated when needed to conduct monitoring or maintenance activities. The third electrical need will be light poles placed on the perimeter of the two lanes that parallel the storage area.

Water Supply: The property has its own agriculture well and pump located at the north end of the property. Water is pumped to the south end of the property and stored in (2) 2,000-gallon tanks that are located between the public bathroom and the two existing homes. The tanks serve all three units plus water outlets strategically placed on the property. The well pump, water tanks and distribution system are maintained by SVBPI's Housing staff. An additional ³/₄- to one-inch water line will be added to the production plant to supply the 5-10 gallons of water daily. The water source for this need will be the existing PVC water line that runs north to south between the property's well and water storage tanks. Connection will be made by cutting into and setting a "T" connector at the most logical access point. The water will be transmitted to the northeast corner of the concrete pad via a ³/₄" schedule 40 PVC pipe, and buried to the depth required by code. An eye wash unit will be installed adjacent to the faucet. A standard commercial grade hose will be used to connect and supply water to the production units.

Hazardous Materials: The operation will require diesel fuel to operate the chipper and loading tractor. Diesel will be provided by a fueling service. Cleaning solvents will be held in small quantities, no more than 2-gallon containers each, and all kept in a fireproof storage cabinet secured by lock and key. There are no historical records documenting the dumping or uses of hazardous material on the site; hence, no hazardous materials mitigation efforts needed.

Trash Disposal: The operation and its staff will generate a very limited amount of trash. This trash will be disposed of in standard trash and recycling bins. The bins will be rolled to the edge of the property and placed along side of the current residential bins for a weekly pick-up. The bins will be kept adjacent to the concrete pad in a location that presents no sight line to neighbors nor traffic on Red Hills Road. Thus, no additional trash enclosure is planned nor required.

Fencing: 3' high chain link fencing encompasses the perimeter of the entire 35.58 -acre property. In addition, an 8' high chain link fence will be installed around the perimeter of the lanes surrounding the building. This fencing will have two large locked gate openings. The first will be on the east side of the building and allow access for movement of chipped material from the storage areas to the bioenergy equipment inside the building. The second will be on the south side to allow for access by staff and maintenance vehicles. There will also be placed on the south side a pedestrian gate. There is one main gate or entrance to the property at large, normally kept open but can be locked, if needed.

Lighting: As noted above under "electricity", there are two exterior lighting elements. The first is overhead lighting beneath the roof and above the bioenergy plant. This lighting will be standard LED units, which will be placed to avoid glare emanating beyond the perimeter of the concrete pad. The second element will be street lighting. Up to 4 poles will be placed along the two lanes that border the forest material area. The poles will be of the same style as the existing poles on the main lane through the property. The light will be down casting again as to minimize light impacting the neighboring properties.

Parking: Parking for staff and maintenance personnel will occur on the south and west lanes adjacent to the building. Additional parking exists in the paved parking lot and throughout the property if needed.

Landscaping: The Red Hills property is in an agriculture setting. Accordingly, no formal landscape plan is proposed for the project. Rather the surrounding area will be retained in its current natural state.

Visibility/Aesthetics: The attached photos were taken at various locations on Red Hills Road and Soda Bay Road, with the southernmost place being the entrance of the Beckstoffer vineyard, to the northernmost place being the first rise on Soda Bay Road north of Highway 29, approximately ½ mile in both directions. The photos show a minimum visual impact from these vantage points, primarily because of the existing foliage both on the property and adjacent property.

Odors: The system has no emissions or odors.

Noise: The Level 2 Housed Gen-Set that power the system will be enclosed in full aluminum weather protection and superior sound attenuation for specific low noise application. This includes a critical grade muffler. The generators will be located on the west side of the production plant, over 140 feet from the County Road, over 200 feet from residences on the property, and over 800 feet from the nearest off-site residence. Outdoor chipping operations will take place approximately 2-3 hours per day, 5 days per week, and are also set back from nearby residences. The operation is expected to comply with County noise requirements.

See attached Omni BioEnergy, LLC Artis gasification specifications sheets.

UP 19-05, IS 19-09, Attachment 2, Artis 100 Cut Sheet

Jmni BioEnergy, LLC

Waste To Clean Energy Solutions

www.omnibioenergy.com 415.302.1245

Jmni BioEnergy, LLC

Omni Bioenergy is a Green Energy Solutions company formed to expand and commercialize innovative solutions for renewable energy generation, fuels and storage. Omni provides cutting edge systems. consulting services, engineering, support, procurement and construction services to its development partners and customers. Omni has the capability to validate, commercialize, procure and extend next generation renewable energy and fuel solutions that facilitate 24x7 or "on demand"energy generation opportunities

Our Products - ARTIS Gasification

- Type: Co-Current Fixed Bed VariTemp and Speed /Active feed
- Size: 50kW to 500kW Systems can be combined
- Product: Syngas
- Reactor Conditions: Pressure (atm): 1
- · Operating Cycle: up to 24hrs/330DPY as required
- Utilities Per 100kW system:
- Electricity Consumption: ~30 kW
- Water Consumption: Minimal
- Electrical Connection: 240v / 3 Phase /100amp
- Capable of remote operation and monitoring
- Smart Grid and Micro Grid capable

PROCESS FLOW DIAGRAM



- · Waste to Renewable Power
 - Gasifier produces uniform gas and biochar in a sealed reactor designed to thermally process biomass without open flame or emissions
 - · Biochar is separated for use or sale
 - Internal combustion engine (ICE) generator produces electricity for use on site and or export to the grid
- Typical Syngas composition from untreated wood
- Hydrogen 44.3%
- CO 44.6%
- Carbon dioxide 2.9%
- Methane 5.5%
- C2 Trace BDL
- Oxygen 0%
- Nitrogen Trace BDL
- Chlorine Trace BDL
- Sulfur Trace BDL
- <u>H2O 2.4%</u>
- Total: 100%
- Carbon footprint of biomass power plants is generally neutral as determined by US EPA and DoE
- CARB states, fuels made from diverted organic waste are carbon negative due to methane capture and reduced fossil fuel use
- ALL peripherals used in Omni Bioenergy deployments meet EPA and Regional air quality standards



(ARTIS 50kW system)

- ARTIS Gasifiers are a renewable energy power solution with significant advantages over other available gasification systems. Our modular systems and highly configurable design, operational flexibility and "clean" systems approach makes us a lower cost solution and puts us at the forefront of a rapidly growing market. Some examples of our "best in breed" solution include:
- More efficient and cost effective
- 90% Biomass agnostic
- Fully Programmable
- Carbon Neutral to Negative
- "Hyper Clean" process
- Prime, Backup or on Demand power
- Highly configurable to customer needs
- · Produces high quality, clean energy syngas
- Syngs can be converted to 99.999 hydrogen
- Building block for complete grid independent solution



🕝 mni BioEnergy, LLC

Multiple Income/Savings Opportunities

Omni's approach to waste to green energy projects afford our clients multiple paths to RRol (Rapid Return on Investment) and profitability. The ability to work off grid, leverage utility tariff programs, grants, subsidies, behind the meter and or net metering gives us wide flexibility when looking at project economics. Secondary revenue streams such as Biochar and Hydrogen production serve to not only enhance the overall economic upside of these projects but allow the operator to achieve carbon neutral to negative status.

- Energy sales
- Operating expense reduction
- Elimination of tipping fees
- Biochar sales
- Hydrogen sales



- **Reduce Greenhouse Gas Emissions**
- Qualify for Class I/II Renewable Energy Credits
- Reduce Electricity Demand from the Grid





Projects Focus

Our primary focus is on 3 verticals: Agriculture, forestry and municipal waste processing operations. Having a wide range of scale-able solutions as well as a broad portfolio of peripheral options to select from gives Omni the ability to serve a broad range of clients while delivering the best possible solutions for their needs. Omni will consider ANY carbon based feedstock option for potential projects.

Services

Omni offers a wide array of services including:

- System design and engineering
- Site locations and development
- Pro Forma economic analysis
- Permitting and agency approvals
- Construction planning and execution
- Site operation
- Ongoing product support
- Full life-cycle development



ENERGY FROM WASTE Smart Planet Stewardship

Excellence as a Standard

Omni Bioenergy is not just a business to us. Green Energy is not just a solution. Planet Stewardship is not just a marketing pitch. We believe that you are what you leave behind for the children. Their future is WHY we work as hard as we do to design, build and deploy the best systems we can for each and every customer we work with. Its not just an obligation.

It's a love.



For more information call us at 415.302.1245 or Email us at info@omnibioenergy.com

> Omni Bioenergy LLC 623 Oakdale Avenue Corte Madera, CA 94925

GILLETTE GENERATORS

LIQUID COOLED DIESEL ENGINE GENERATOR SET

Madal -		STANDBY	PRIME
wiodel	HZ	130°C RISE	105°C RISE
T4D-1500-60 HERTZ	60	150	150



All generator sets are USA prototype built and thoroughly tested. Production models are USA factory built and 100% load tested.



UL1446, UL508, UL142, UL498



NFPA 110, 99, 70, 37

All generator sets meet NFPA-110 Level 1, when equipped with the necessary accessories and installed per NFPA standards.



NEC 700, 701, 702, 708



ANSI

NEMA ICS10, MG1, ICS6, AB1

ANSI C62.41, 27, 59, 32, 480, 40Q, 81U, 360-05



SCE ASCE 7-05 & 7-10

All generator sets meet 180 MPH rating.





60 HZ MODEL

T4D-1500

"OPEN" GEN-SET

There is no enclosure, so gen-set must be placed within a weather protected area, uninhabited by humans or animals, with proper ventilation. Silencer not supplied, as installation requirements are not known. However, this item is available as optional equipment.



"LEVEL 2" HOUSED GEN-SET

Full aluminum weather protection and superior sound attenuation for specific low noise applications. Critical grade muffler is standard.

GENERATOR	VOLT	AGE	РН	H7	130°C RISE STANDBY RATING		105°C RISE PRIME RATING	
MODEL	L-N	L-L			KW/KVA	AMP	KW/KVA	AMP
T4D-1500-1-1	120	240	1	60	150/150	625	150/150	625
T4D-1500-3-2	120	208	3	60	150/187	521	150/187	521
T4D-1500-3-3	120	240	3	60	150/187	451	150/187	451
T4D-1500-3-4	277	480	3	60	150/187	225	150/187	225
T4D-1500-3-16	346	600	3	60	150/187	180	150/187	180

GENERATOR RATINGS

RATINGS: All three phase gen-sets are 12 lead windings, rated at .8 power factor. 130° C "STANDBY RATINGS" are strictly for gen-sets that are used for back-up emergency power to a failed normal utility power source. This standby rating allows varying loads, with no overload capability, for the entire duration of utility power outage. 105° C "PRIME RATINGS" are strictly for gen-sets that provide the prime source of electric power, where normal utility power is unavailable or unreliable. A 10% overload is allowed for a total of 1 hour, within every 12 hours of operation, on every PRIME RATED systems. All gen-set power ratings are based on temperature rise measured by resistance method as defined by MIL-STD 705C and IEEE STD 115, METHOD 6.4.4. All generators have class H (180°C) insulation system on both rotor and stator windings. All factory tests and KW/KVA charts shown above are based 130°C (standby), and 105°C (prime) R/R winding temperature, within a maximum 40°C ambient condition. Generators operated at standby power ratings must not exceed the temperature rise limitation for class H insulation system, as specified in NEMA MG1-22.40. Specifications & ratings are subject to change without prior notice.

APPLICATION & ENGINEERING DATA FOR MODEL T4D-1500-60 HZ

GENERATOR SPECIFICATIONS

ManufacturerStamford Generators	
Model & Type UCDI274K-311, 4 Pole, 4 Lead, Single Phase	
UCI274G-311, 4 Pole, 12 Lead, Three Phase	
UCI274G-17, 4 Pole, 12 Lead, 600V, Three Phase	
ExciterBrushless, shunt excited	
Voltage RegulatorSolid State, HZ/Volts	
Voltage Regulation ¹ / ₂ %, No load to full load	
FrequencyField convertible, 60 HZ to 50 HZ	
Frequency Regulation $\pm \frac{1}{2}\%$ (1/2 cycle, no load to full load)	
Unbalanced Load Capability100% of standby amps	
One Step Load Acceptance 100% of nameplate rating	
Total Stator and Load InsulationClass H, 180°C	
Temperature Rise	
3 Ø Motor Starting @ 30% Voltage Dip (208-240V)1500 kVA	
3 Ø Motor Starting @ 30% Voltage Dip (480V-600V) 2300 kVA	
Bearing	
CouplingDirect flexible disc.	
Total Harmonic Distortion Max 3½% (MIL-STD705B)	
Telephone Interference Factor Max 50 (NEMA MG1-22)	
Deviation Factor Max 5% (MIL-STD 405B)	
AlternatorSelf ventilating and drip-proof	
Ltd. Warranty Period 24 Months from start-up date or	

GENERATOR FEATURES

- World Renown Stamford Electric Generator having UL-1446 certification.
- Full generator protection with **Deep Sea 7420** controller, having UL-508 certification.
- Automatic voltage regulator with over-excitation, underfrequency compensation, under-speed protection, and EMI filtering. Entire solid-state board is encapsulated for moisture protection.
- Generator power ratings are based on temperature rise, measured by resistance method, as defined in MIL-STD 705C and IEEE STD 115, Method 6.4.4.
- Power ratings will not exceed temperature rise limitation for class H insulation as per NEMA MG1-22.40.
- Insulation resistance to ground, exceeds 1.5 meg-ohm.
- Stator receives 2000 V. hi-potential test on main windings, and rotor windings receive a 1500 V. hi-potential test, as per MIL-STD 705B.
- Full amortisseur windings with UL-1446 certification.
- Complete engine-generator torsional acceptance, confirmed during initial prototype testing.
- Full load testing on all engine-generator sets, before shipping.

ENGINE SPECIFICATIONS AND APPLICATIONS DATA

ENGINE

ManufacturerVOLVO-PENTA
Model and TypeTAD871VE, 4 cycle, liquid Cooled
AspirationTurbo After Cooler, Air to Air
Charged Air Cooled SystemAir to Air
Cylinder Arrangement
Displacement Cu. In. (Liters)
Bore & Stroke in (Cm)4.33 x 5.31 (11.0 x 13.5)
Compression Ratio
Main Bearings Tin Overlay with Babbit Backing
Cylinder HeadCast Iron with overhead Cam
PistonsAluminum Alloy with Graphite Coating
CrankshaftInduction Hardened, Heat Treated Forged
Valves Heat Treated and Hardened Exhaust Valve
GovernorElectronic, EMS 2.2
Frequency Regulation± 1/4%
Air CleanerDry, Replaceable Cartridge
Engine Speed
Max Power, bhp (kwm) Standby
BMEP: psi (MPa) Standby
Ltd. Warranty Period 2 Year or 1000 hrs, first to occur

FUEL SYSTEM

Туре	Diesel Fuel Oil (ASTM No. 2-D)
Combustion System	Direct Injection
Fuel Injection Pump	Electronic, Delphi E3
24 VDC Coolant heaters	Optional Equipment
Fuel Filter	Yes with Water Separator

FUEL CONSUMPTION

GAL/HR (LITER/HR)	STANDBY	PRIME	
100% LOAD	11.5 (43.5)	11.5 (43.5)	
75% LOAD	9.62 (36.5)	9.62 (36.5)	
50% LOAD	6.81 (25.8)	6.81 (25.8)	
DEF Consumption is 6% of fuel consumption			

OIL SYSTEM

Туре	Full Pressure
Oil Pan Cap. W/ filter qt. (L)	
Oil Filter	3, Replaceable Cartridge type

ELECTRICAL SYSTEM

Ignition SystemElectronic Eng. Alternator/Starter: 24 VDC, negative ground, 110 amp/hr.

Recommended battery to $-18^{\circ}C(0^{\circ} \text{ F})$:(2) 12 VDC, BCI# 31, Max. Dimensions: 14"lg x 6 3/4" wi x 10" hi, with standard round posts. Min output 1000 CCA. Battery tray (max. dim. at 15"lg x 7"wi). This model has (2) battery trays, (2) hold down straps, (2) sets of battery cables, and (1) battery charger. Installation of (2) 12VDC starting batteries connected in series for 24VDC output is required, with possible higher AMP/HR rating, as described above, if the normal environment temperature averages $-13^{\circ} \text{ F} (-25^{\circ}\text{C})$ or cooler.

CERTIFICATIONS

All engines are EPA emissions certified. All non-emergency stationary diesel engines are Tier IV Final compliant.

APPLICATION & ENGINEERING DATA FOR MODEL T4D-1500-60 HZ

COOLING SYSTEM

Type of System	Air to Air, Charged Air Cooler
Coolant Pump	Pre-lubricated, self-sealing
Cooling Fan Type	Pusher
Fan Diameter inches (cm)	
Fan drive ratio	
Ambient Capacity of Radiator °F	(°C)131 (55)
Engine Jacket Coolant Capacity g	al. (L)8.70 (33)
Radiator Coolant Capacity gal. (L)
Water Pump Capacity gpm (L/mit	n)122 (462)
Heat Reject Coolant: Btu/min	
Air to Air Heat Reject, BTU/min.	
Heat Radiated to Ambient, BTU/1	min4,253
Low Radiator Coolant Level Shut	downStandard
Note: Coolant temp. shut-down swite	ch setting at 228°F (109°C) with
50/50 (water/antifreeze) mix.	

COOLING AIR REQUIREMENTS

Combustion Air cfm (m ³ /min)	1,646 (46.6)
Max Air Intake Restrictions:	
Clean Air Cleaner, KPA (psi)	5 (1.5)
Radiator Cooling Air, SCFM (m ³ /min)	

EXHAUST SYSTEM

Exhaust Outlet Size	5"
Max. Back Pressure in KPA (in. H2O)	
Exhaust Flow, at rated KW, CFM (m3/min)	886 (25.1)
Exhaust Temp, (Stack) °F (°C)	709 (376)

SOUND LEVELS MEASURED IN dB(A)

	Open	Level 2	
	Set	Encl.	
Level 2, Critical Silencer			
Level 3, Hospital Silencer			

Note: Open sets (no enclosure) have optional silencer system choices due to unknown job-site applications. Level 2 enclosure has installed critical silencer with upgrade to Level 3 hospital silencer. Sound tests are averaged from several test points and taken at 23 ft. (7 m) from source of noise at normal operation.

DERATE GENERATOR FOR ALTITUDE

3% per 1000 ft. (305m) above 3000 ft. (914m) from sea level

DERATE GENERATOR FOR TEMPERATURE

2% per 10°F (5.6°C) above 104°F (40°C)

DIMENSIONS AND WEIGHTS

	Open	Level 2	
	Set	Enclosure	
Length in (cm)			
Width in (cm)			
Height in (cm)			
Net Weight lbs (kg)			
Ship Weight lbs (kg)			

DEEP SEA 7420 DIGITAL MICROPROCESSOR CONTROLLER



Deep Sea 7420

The "**7420**" controller is an auto start mains (utility) failure module for single gen-set applications. This controller includes a backlit LCD display which <u>continuously</u> displays the status of the engine and generator at all times.

The "**7420**" controller will also monitor speed, frequency, voltage, current, oil pressure, coolant temp., and fuel levels. These modules have been designed to display warning and shut down status. It also includes: (11) configurable inputs • (8) configurable outputs • voltage monitoring • mains (utility) failure detection • (250) event logs • configurable timers • automatic shutdown or warning during fault detection • remote start (on load) • engine preheat • advanced metering capability • hour meter • text LCD displays • protected solid state outputs • test buttons for: stop/reset • manual mode • auto mode • lamp test • start button • power monitoring (kWh, kVAr, kVAh, kVArh)

This controller includes expansion features including RS232, RS484 (using MODBUS-RTU/TCP), direct USB connection with PC, expansion optioned using DSENet for remote annunciation and remote relay interfacing for a distance of up to 3300FT. The controller software is freely downloadable from the internet and allows monitoring with direct USB cable, LAN, or by internet via the built in web interface.



Further expansion is available by adding the optional "WebNet" gateway interface module. This device will allow comprehensive monitoring of the generator via the cloud including identification, location, and status. Some advantages of this module include: reduced site visits and maintenance costs • remote fuel management • fault analysis • asset tracking • automatic system alerts • maximized system up-time.

STANDARD FEATURES FOR MODEL T4D-1500-60 HZ

STANDARD FEATURES

CONTROL PANEL:

Deep Sea 7420 digital microprocessor with logic allows programming in the field. Controller has:

- STOP-MANUAL-AUTO modes and automatic engine shutdowns, signaled by full text LCD indicators:
- Low oil pressure
- Engine fail to start
- High engine temp
- Engine over speedEngine under speed
- Low Radiator Level Three auxiliary alarms
 - alarms Over & under voltage
- Battery fail alarm

Also included is tamper-proof engine hour meter

ENGINE:

Fuel filter • Full flow Oil filter • Air filter • Fuel pump • Oil pump • Solenoid type starter motor • Hi-temp radiator • Jacket water pump • Thermostat • Pusher fan and guard • Exhaust manifold • Electronic Governor • 24 VDC battery charging alternator • Flexible fuel and exhaust connectors • Vibration isolators • Open coolant recovery system with 50/50 water to anti-freeze mixture • flexible oil & radiator hose • Shut-down sensors for low oil pressure, high coolant temp., low coolant level, high ambient temp.

Design & specifications subject to change without prior notice. Dimensions shown are approximate. Contact Gillette for certified drawings. DO NOT USE DIMENSIONS FOR INSTALLATION PURPOSES.

AC GENERATOR SYSTEM:

AC generator • Shunt excited • Brushless design • Circuit Breaker installed and wired to gen-set • Direct connection to engine with flex disc • Class H, 180°C insulation • Self ventilated • Drip proof construction • UL Certified

VOLTAGE REGULATOR:

1% Voltage regulation • EMI filter • Under-speed protection • Over-excitation protection • total encapsulation

DC ELECTRICAL SYSTEM:

Battery trays • Battery cables • Battery hold down straps • 3-stage battery charger with float, absorption, & bulk automatic charge stages

WEATHER / SOUNDPROOF ALUMINUM HOUSING:

Corrosion Resistant Protection consisting of:

- (9) Heated and Agitated Wash Stages
- Zinc Phosphate Etching-Coating Stage
- Final Baked on Enamel Powder Coat
- 18/8 Stainless Steel Hardware









Omni BioEnergy, LLC

Artis 100 Gasifier Fact Sheet – 2019

Gasifier Unit:	Artis 100 kW	
Technology:	Co-Current Fixed Bed - VariTemp and Speed / Active feed	
Emissions:	Carbon Neutral, Zero Emissions Platform	
Process Data:		
Туре:	Co-Current Fixed Bed – VariTemp and Speed / Active feed	
Size:	GEP: 330 kW, Net Energy Output 102 kW	
Feed Stock:	Untreated Wood	
Moisture:	Assumed 9.6%	
Product:	Syngas	
Feed Stock Rate:	21.2 gms/sec: 1.83 MTPD	
Reactor Conditions:	Pressure (atm): 1 - Temperature (C) – 750	
Liquid waste flowrate		
(from dryer scrubber):	Dependent on Feed Stock Moisture	
Biochar Production:	12.3% - 0.23 MTPD	
Ash Content:	~1.34%	
Design gas output rate:	(scfm): ~65	
Operating gas output rate (Nm3/kg feed):	57.1 scfm (1.271 m^3 / kg feed)	
HHV LHV	321 Btu/scf 294 Btu/scf	
Gas Exit Temp (oC):	750	
Heating value (kJ/m3):	11.96 MJ/m^3	
Heavy metals content:	N/A – Varies with feed stock	
Particulate content		
(g/Nm3):	MERV 7-8	
Tar content (g/Nm3):	N/A - Feedstock and Temp dependent	



2

Artis 100 Gasifier Fact Sheet – 2019

Product:	
Hydrogen	44.3%
CO	44.6%
Carbon dioxide	2.9%
Methane	5.5%
C2+	Trace BDL
Oxygen	0%
Nitrogen	Trace BDL
Chlorine	Trace BDL
Sulfur	Trace BDL
<u>H2O</u>	<u>2.4%</u>
Total:	100%
Bi Products:	Syngas, BioChar, H2O
Design gas output rate:	(scfm): ~65
Operating Cycle:	24hrs/350 DPY
Utilities:	
Electricity per 100kW	Energy required: ~30 kW
Water per 100kW	Minimal TBD
Electrical Connection	240v / 3 Phase / 100amp

Attachment B





Photo 1. View from the first rise in Soda Bay Road north of Highway 29 looking south acrossPG&E's substation. In the foreground. The vantage point is between ½ and ¾ mile to the north of the property. Project would not be visible from this vantage point. 10/2/2019.



Photo 2. View to south from Red Hills Road, west side of road, 100 feet from Highway 29. The Project would be barely visible from this vantage point because of the incline of the property. rising north to south and the existing foliage on the property 10/2/2019.



Photo 3. View from Red Hills Road approximately 600 feet from the northwest corner of Project's building. View is looking north to south. Project would barely be visible from this vantage point. The pole in this photo is where the connection of power to PG&E's grid will occur. 10/2/2019.



Photo 4. View to north from Red Hills Road at Beckstoffer Vineyard entrance approximately ½ mile south of the Project Site. Trees parallel to road provide screening from locations south of the property. 10/13/19.



Photo 5. View to northeast from Red Hills Road adjacent to the single-family residence located on the west side of the road. Foliage along the sightline from the residential unit to the Project's building provides a visual barrier, that makes only a very small portion of the building's roof line visible. 10/2/2019.



Photo 6. Windshield view from Red Hills Road to north; Project Site entrance on right. Lack of vegetation makes the structure partially visible from this vantage point. 10/13/19.



Photo 7. Windshield view from Red Hills Road to north-north east. View partially obscured by vegetation. 10/13/2019.



Photo 8. Windshield view from Red Hills Road to north-north east just south of Project Site entrance. This will be the most visible public vantage point. 10/13/2019.

UP 19-05, IS 19-09, Attachment 3, Biological Review

BIOLOGICAL RESOURCE ASSESSMENT WITH BOTANICAL SURVEY and DELINEATION OF WATERS OF THE U.S.

for the

SCOTTS VALLEY BAND OF POMO INDIANS APN 009-021-07 LAKE COUNTY, CALIFORNIA

July 1, 2019

Prepared by Northwest Biosurvey



BIOLOGICAL RESOURCE ASSESSMENT WITH BOTANICAL SURVEY and DELINEATION OF WATERS OF THE U.S. for the SCOTTS VALLEY BAND OF POMO INDIANS APN 009-021-07 LAKE COUNTY, CALIFORNIA

July 1, 2019

36)

Prepared for: Scotts Valley Band of Pomo Indians 1005 Parallel Drive Lakeport, CA 95453 c/o Terre Logsdon terre.logsdon@sv-nsn.gov

Prepared by: Northwest Biosurvey 1905 Westlake Drive Kelseyville, CA 95451 (707) 889-1061

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Scotts Valley Pomo Biological Resource Assessment Report, APN 009-021-07

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Scotts Valley Pomo Biological Resource Assessment Report, APN 009-021-07

1.0 **PROJECT DESCRIPTION**

1.1 <u>Proposed Project</u>: This biological resource assessment and survey covers a parcel of approximately 34.6 acres which is proposed for additional development, including a solar project. The site lies approximately 6 miles southeast of Kelseyville, California.

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 taxa¹. 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 <u>and</u> 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 conducted as part of the assessment. Due to the fact that delineations are prepared with a standard format for U.S. Army Corps of Engineers review, the delineation is provided in its own section (Appendix C).

1.2 Location: The project site is located at 7130 Red Hills Road, Clearlake Highlands, California, 95451 (APN 009-021-07; T13N R8W Sec. 34, Clearlake Highlands, Calif. 7¹/₂' Topographic Map). A location map is provided in **Figure 1**.

¹ Many 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.



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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 sensitive species potentially 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 habitat features such as vernal pools and serpentine soils

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, 2019
- California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (2019 edition)
- 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. 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.).

2.1 <u>Botanical Survey Methods</u>: A full, in-season floristic-level survey was conducted for the project site. The CNDDB report and maps for the Clearlake Highlands quadrangle were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of A Manual of California Vegetation (Sawyer et al. 2009) as modified by the California Native Plant Society (CNPS) and mapped on a 1"=85' aerial photo. Vegetation community names are based on an assessment of dominant cover species.

Plants occurring on the site were identified using The Jepson Manual of Higher Plants of California. Where necessary, species names were updated based on the 6th edition, CNPS Inventory of Rare and Endangered Plants of California. A map of the plant communities is provided in **Figure 2**.

2.2 <u>Delineation Methods</u>: The delineation was conducted 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.

2.3 <u>Survey Dates</u>: Site visits for in-season floristic surveys, mapping, and the delineation were made on April 10 and June 28, 2019.

2.4 <u>Biological Assessment Staff</u>: The assessment, botanical field surveys, plant taxonomy, and the delineation were conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has over 30 years of experience as a biologist in the government and private sectors. He completed his wetland delineation training under Terry Huffman of Huffman & Associates, Inc.

Field surveys, GIS mapping, additional database review, and final report preparation were conducted by Leigh Zalusky. Leigh Zalusky has a Bachelor of Science Degree in Computer Engineering from the University of California, Davis. He has developed extensive skills in plant taxonomy and ecology while managing and assisting in the development of the Seigler Valley Wetland Mitigation Bank and while assisting Northwest Biosurvey staff in field surveys and vegetation mapping over the past four years.

Database review, pre-survey research, and report preparation were conducted by Danielle Zalusky. Ms. Zalusky has 15 years of experience as a planner in local government and the private sector and 16 years as a field biologist. She has a Bachelor of Arts Degree all course work toward an M.A. Degree in Rural and Town Planning from Chico State University. Prior to joining Northwest Biosurvey in 2002, Ms. Zalusky was a senior planner for the Lake County Community Development Department.

3.0 SITE CHARACTERISTICS

3.1 Topography and Drainage: The site is located along the Highway 29 corridor in narrow valley terrain between the northeastern toe of the Mayacamas Mountains and the southern slope of Mount Konocti. This corridor consists of a series of isolated flats and small basins either drained internally or connected to Thurston Creek, which drains to the isolated basin of Thurston Lake. This property is drained along its eastern edge by an excavated ditch which flows north to State Highway 29 and then east to an unnamed tributary to Thurston Creek. The property drops approximately 80 feet in elevation from north to south into Hess Flat at an elevation of 1,880 feet msl (mean sea level).

3.2 <u>Soils:</u> The survey area contains a single soil type, which is weathered from obsidian formations and is described as follows:

Glenview-Arrowhead complex, 5-15% slopes (soil unit 138):

This unit is on volcanic hills. Native vegetation is mainly brush with scattered conifers. The unit contains about 60% Glenview very gravelly loam and 20% Arrowhead extremely gravelly sandy loam. The Glenview soil is very deep and well drained. It formed in material weathered from obsidian. Permeability is moderately slow and runoff is medium. The Arrowhead soil is moderately deep and well drained, and formed in material weathered from obsidian. Permeability is slow and runoff is medium. The hazard of erosion is moderate for both soils.

3.3 <u>Vegetation Types:</u> This site contains two 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 below in **Table 1**. They are described below the table and shown in the vegetation map provided in **Figure 2**.

VEGETATION TYPE	ACRES	PERCENT OF TOTAL
Interior Live Oak Woodland	1.55	4.48
Mixed Chaparral	1.48	4.28
Walnut Orchard	29.80	86.18
Ruderal	1.75	5.06
Total	34.58	100.0%

TABLE 1. AREAS OF VEGETATION TYPES

Interior Live Oak:

This community consists of a remnant stand of interior live oak woodland along an ephemeral drainage on the eastern edge of the property. It is heavily dominated by interior live oak trees (Quercus wislizeni var. wislizeni) to a height of 50 feet. Due to its narrow width, sufficient sunlight penetrates this community to support a dense shrub layer. This consists of both common and Stanford manzanita (Arctostaphylos manzanita ssp. manzanita; A. stanfordiana ssp. stanfordiana) with sub-dominant contributions from scrub oak shrubs (Quercus berberidifolia) and birch-leaf mountain mahogany (Cercocarpus betuloides var. betuloides) in the more open areas. The ground cover is primarily leaf litter with low growing poison oak (Toxicodendron diversilobum).

Mixed Chaparral:

This dense shrub community occupies the southeastern corner of the property. While much of it remains intact along the southern property boundary, the shrub layer has been cleared elsewhere, leaving a scattered upper canopy of knobcone pines (*Pinus attenuata*). The shrub layer is recovering through stump sprouting. The community supports a heterogeneous mix of common manzanita, deerbrush (*Ceanothus integerrimus*), interior live oak shrub² (*Quercus wislizeni var. frutescens*), poison oak, and coyote brush (*Baccharis pilularis*). The community includes a scattered upper canopy of knobcone pine. The ground cover within undisturbed areas consists of leaf litter.

² The distinction between interior live oak trees (Quercus wislizeni var. wislizeni) and shrubs (Q. wislizeni var. frutescens) appears to be subjective, at least in field and lab identifications not involving genetic testing. Differences in plant height appear to be far more dependent on soil depth, soil moisture, aspect, and fire history than on genetic variation. The taxonomic distinction is not used in this report. We base the distinction between shrubland and woodland on community structure.

Walnut Orchard:

The majority of the property (86-percent) is occupied by a fallow walnut orchard. This orchard appears to be regularly disked leaving a substrate of exposed earth.

Ruderal:

This term refers to areas disturbed by human activity including roads and structures. The property is occupied by three residences, a parking lot, and roadways.


4.0 PRE-SURVEY RESEARCH RESULTS

4.1 <u>CNPS Electronic Inventory Analysis</u>: 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 Lake 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 (including vernal pool species, etc.). The CNPS database search does not allow fine-tuning for specific soil types and many specific habitats.

4.2 <u>California Natural Diversity Database</u>: The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the Clearlake Highlands 7½ quadrangle 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 these quadrangles, the table provides a brief description 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.

TABLE 2. CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND ENDANGERED PLANTS Selected CNPS Plants by Scientific Name:

Scientific Name	Name	Family	Lifeform	CRPR	CESA	FESA	Period	Habitat
Antirrhinum virga	twig-like snapdragon	Plantaginaceae	perennial herb	4.3	None	None	Jun-Jul	Chaparral, Lower montane coniferous forest
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
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Ericaceae	perennial evergreen shrub	1B.1	None	None	Feb-Apr	Chaparral, Lower montane coniferous forest (openings)
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	28.3	None	None	Jun-Sep	Marshes and swamps (freshwater)
Calochortus uniflorus	pink star-tulip	Liliaceąe	perennial bulbiferous herb	4.2	None	None	Apr-Jun	Coastal prairie, Coastal scrub, Meadows and seeps, North Coast coniferous forest
Calyptridium quadripetalum	four-petaled pussypaws	Montiaceae	annual herb	4.3	None	None	Apr-Jun	Chaparral, Lower montane coniferous forest
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	Orobanchaceae	annual herb (hemiparasiti c)	4.3	None	None	Jul-Aug	Closed-cone coniferous forest, Chaparral, Cismontane woodland
Eriastrum brandegeeae	Brandegee's eriastrum	Polemoniaceae	annual herb	18.1	None	None	Apr-Aug	Chaparral, Cismontane woodland
Eryngium constancei	Loch Lomond button-celery	Apiaceae	annual / perennial herb	1B.1	CE	FE	Apr-Jun	Vernal pools
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B,2	CE	None	Apr-Aug	Marshes and swamps (lake margins). Vernal pools
Hesperolinon adenophyllum	glandular western flax	Linaceae	annual herb	18.2	None	None	May-Aug	Chaparral, Cismontane woodland, Valley and foothill grassland
Hesperolinon bicarpellatum	two-carpellate western flax	Linaceae	annual herb	18.2	None	None	May-Jul	Chaparral (serpentinite)
Hesperolinon didymocarpum	Lake County western flax	Linaceae	annual herb	18.2	CE	None	May-Jul	Chaparral, Cismontane woodland, Valley and foothill grassland

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Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Horkelia bolanderi	Bolander's horkelia	Rosaceae	perennial herb	18.2	None	None	(May)Jun- Aug	Chaparral, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	2B.1	None	None	Sep-May	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps (often alkali), Riparian scrub
Lasthenia burkei	Burke's goldfields	Asteraceae	annual herb	18.1	CE	FE	Apr-Jun	Meadows and seeps (mesic), Vernal pools
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
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	Limnanthaceae	annual herb	4.2	None	None	Mar- May(Jun)	Chaparral, Cismontane woodland, Valley and foothill grassland, Vernal pools
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	3.1	None	None	Mar-Jun	Valley and foothill grassland, Vernal pools (alkaline)
Navarretia Ieucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	18.1	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Polemoniaceae	annual herb	18.1	СТ	FE	May-Jun	Vernal pools (volcanic ash flow)
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Polemoniaceae	annual herb	1B.2	CE	FE	May-Jun	Vernal pools (volcanic ash flow)
Potamogeton zosteriformis	eel-grass pondweed	Potamogetonaceae	annual herb (aquatic)	28.2	None	None	Jun-Jul	Marshes and swamps (assorted freshwater)
Sedella leiocarpa	Lake County stonecrop	Crassulaceae	annual herb	18.1	CE	FE	Apr-May	Cismontane woodland, Valley and foothill grassland, Vernal pools
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Malvaceae	perennial herb	18.2	None	None	(Jun)Jul- Aug	Meadows and seeps, Riparian forest
Toxicoscordion fontanum	marsh zigadenus	Melanthiaceae	perennial bulbiferous herb	4.2	None	None	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps

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Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	28.3	None	None	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest

Key for Table 2:

CNPS Rare Plant Threat Rank Definitions

- 18.1 = 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
- 18.3 = 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.
- Plants about which we need more information (Review List) 3
- 3.1 = Plants about which we need more information (Review List); seriously threatened in California
- = Plants about which we need more information (Review List); moderately threatened in California 3.2
- 3.3 = Plants about which we need more information (Review List); not very threatened in California
- 4.1 = Plants of limited distribution (watch list); seriously threatened in California
- 4.2 = Plants of limited distribution (watch list); moderately threatened in California
- 4.3 = Plants of limited distribution (watch list); not very threatened in California

State and Federal Status:

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

- SR = State. Rare = State. Threatened ST

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- SE = State Endangered. SD = State Delisted
- FP = FE =CDFW Fully Protected
- Federal Endangered
- SSC = CDFW Species of Special Concern WL = CDFW Watch List = Federal Threatened
- Federal Delisted FD =

TABLE 3. CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE CLEARLAKE HIGHLANDS, CALIF. 7¹/₂' QUADRANGLE

Habitat Type	Habitat Present
Coastal and Valley Freshwater Marsh	No
Northern Basalt Flow Vernal Pool	No
Northern Volcanic Ash Vernal Pool	No
Clear Lake Drainage Resident Trout Stream	No

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Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS*/NatureServe Status	Blooming Season	Habitat Present
Antirrhinum virga	twig-like snapdragon	Chaparral, lower montane coniferous forest, /rocky, openings, often serpentinite;//4.3	June-July per. herb	Habitat not present
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Chaparral, cismontane woodland, lower montane conif, forest/volcanic;//IB.3	March-May everg. shrub	Habitat not present
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Chaparral, lower montane coniferous forest/rocky, often serpentine:/-/1B.1	FebApril ann. herb	Habitat not present
Brasenia schreberi	watershield	Marshes & swamps/freshwater;//2B.3	June-Sept. rhizom. herb, aquatic	Habitat not present
Calochortus uniflorus	pink star-tulip	Northern Coastal scrub, North Coastal coniferous forest, mixed evergreen forest, redwood forest, closed-cone pine forest/ wetland-riparian;/-/4.2	Apr-June per. herb	Habitat not present
Calyptridium quadripetalum	four-petaled pussypaws	Chaparral, lower montane coniferous forest/sandy or gravelly, usually serpentinite;//4.3	April-June ann. herb	Habitat not present
Cordylanthus tenuis ssp. brunneus	serpentine bird`s-beak	Closed-cone coniferous forest, chaparral, cismontane woodland/usually serpentinite;//4.3	July-Aug. ann. herb	Habitat not present
Eriastrum brandegeeae	Brandegee's eriastrum	Chaparral, cismontane woodland, valley & foothill grassland/barren volcanic soils, often in open areas;/-/1B.1	April-Aug. ann. herb	Habitat not present
Eryngium constancei	Loch Lomond button-celery	Volcanic ash flow vernal pools; FE/SE/1B.1	April-June ann./per. herb	Habitat not present

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Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS*/NatureServe Status	Blooming Season	Habitat Present
Gratiola heterosepala	Doggs Lake hedge-hyssop	Freshwater marsh, marshes & swamps (freshwater), vernal pools, sometimes lake margins/clay;/SE/1B.2	April Aug. ann. herb	Habitat not present
Harmonia hallii	Hall's harmonia	Chaparral/serpentine hills & ridges, open rocky areas;/- -/1B.2	April-June ann. herb	Habitat not present
Hemizonia congesta ssp. calyculata	Mendocino tarplant	Valley and foothill grassland, foothill woodland/often serpentine;//4.3	July-Nov. ann. herb	Habitat not present
Hesperolinon bicarpellatum	two-carpellate western flax	Chaparral/serpentine barrens at edge of chaparral;/ /1B.2	May-July ann. herb	Habitat not present
Horkelia bolanderi	Bolander's horkelia	Lower montane conif. forest, chaparral, meadows & seeps, valley & foothill grassland/grassy margins of vernal pools and meadows;//1B.2	June-Aug, per. herb	Habitat not present
Imperata brevifolia	California satintail	Chaparral, coastal scrub, meadows & seeps (alkali), riparian scrub/mesic or riparian sites;//2B.1	SeptMay rhiz. herb	Habitat not present
Lasthenia burkei	Burke's goldfields	Meadows and seeps, vernal pools, swales; FE/SE/1B.1	April-June ann. herb	Habitat not present
Leptosiphon acicularis	bristly leptisiphon	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland;//4.2	April-July ann. herb	Poor habitat present
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	Chaparral, cismontane woodland, valley & foothill grassland, vernal pools/vernally mesic;//4.2	March-May (June) ann. herb	Habitat not present
Myosurus minimus ssp. apus	little mousetail	Valley foothill grassland, coastal sage scrub, freshwater wetlands, wetland-riparian/vernal pools;//3.1	March-June ann. herb	Habitat not present
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Cismontane woodland, lower montane conif. forest, meadows & seeps, valley & foothill grassland, vernal pools, swales/adobe or alkaline soils;/-/1B.1	May-July ann. herb	Habitat not present
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Volcanic ash flow vernal pools; FE/ST/1B.1	May-June ann. herb	Habitat not present
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Volcanic ash flow vernal pools; FE/SE/1B.2	May-June ann. herb	Habitat not present
Piperia michaeilii	Michael's rein orchid	Foothill woodland, yellow pine forest, northern coastal scrub, coastal sage scrub, closed-cone pine forest.;/ /4.2	April-Aug per. herb	Habitat not present

Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS*/NatureServe Status	Blooming Season	Habitat Present
Potamogeton zosteriformis	eel-grass pondweed	Marshes & swamps, ponds, lakes & streams;//2B.2	June-July ann. herb	Habitat not present
Sedella leiocarpa	Lake County stonecrop	Cismontane woodland, valley & foothill grassland, vernal pools/vernally mesic depressions in volcanic outcrops; FE/SE/IB.1	April-May ann. herb	Habitat not present
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Marshes & seeps, riparian forest/mesic;//1B.2	July-Aug. per. herb	Habitat not present
Toxicoscordion fontanum	marsh zigadenus	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps/vernally mesic, often serpentinite;//4.2	April-July bulb. herb	Habitat not present
Viburnum ellipticum	oval-leaved viburnum	Chaparral, cismontane woodland, lower montane coniferous forest;/-/2B.3	May-June decid. shrub	Poor habitat present

*See CNPS list for key

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		Lightight Requirements		
Wildlife Species	Common Name	Chabitat Requirements,	Season	Brocont
-		Status	Fresent	Present
Pyrgulopsis ventricosa	Clear Lake pyrg (snail)	Freshwater; inhabits springs and small spring-fed streams; G1/S1	year-round	Habitat not present
Dubiraphia brunnescens	brownish dubiraphian riffle beetle	Aquatic; inhabits exposed, wave-washed willow roots in shallow water. Known only from NE shore of Clear Lake; G1/S1	year-round	Habitat not present
Hedychridium milleri	Borax Lake cuckoo wasp	External parasite of wasp and bee larva. Endemic to Central California. Possibly extirpated; G1?/S1?	year-round	Habitat not present
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/C4/S1	year-round	Habitat not present
Lavinia symmetricus ssp. 4	Clear Lake – Russian River roach	Closely-related species found either in tributaries to Clear Lake, Lake County, or the Russian River and its tributaries: SSC/G4(T2-Imperiled)/S2S3	year-round	Habitat not present
Archoplites interruptus	Sacramento perch	Warm water: sloughs, slow-moving rivers, ponds; SSC/G2G3/S1	year-round	Habitat not present
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	Habitat not present

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Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
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	Habitat not present
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Densely foliaged riparian thickets of willow and other deciduous trees and shrubs; FT/SE/G5/S1	year-round	Habitat not present
Ardea alba	great egret	Fresh & saline emergent wetlands, swampy woods, tidal estuaries, mangroves, streams, ponds; also fields and meadows; G5/S4	sometimes migratory	Poor habitat present
Ardea herodias	great blue heron	Shallow ponds and estuaries, & salt and fresh emergent wetlands; G5/S4	sometimes migratory	Habitat not present
Corynorhinus townsendii	Townsend's big-eared bat	Roosts in open near relatively mesic sites, mainly montane forest habitats; SSC/G3/S2	year-round	Habitat not present
Myotis lucifugus	little brown bat	Roost in hollow trees, caves (in winter), human made features. Habitats are widely varied and include bogs, forested or herbaceous wetlands, riparian habitats, woodlands, chapartal, grasslands, orchards and fields in more urban areas. They forage over water; G3/S2S3	Migratory; usually hibernate during winter	Habitat not present
Myotis yumanensis	Yuma myotis	Open conifer forests and riparian woodlands with nearby water. Roosts may be found in caves, mines, under bridges, and buildings; G5/S4	year-round	Habitat not present
Antrozous pallidus	pallid bat	Open, dry habitats, forest habitats, in caves, tunnels, buildings, bridges; sensitive to human disturbance; SSC/G5/S3	local migrant	Poor habitat present

<u>Key</u>:

SEVIT SE/ST/SD=State Endangered/Threatened/Delisted SC/SCD=State Candidate for Listing/Delisting SSC=CDFW Species of Special Concern SFP=CDFW Fully Protected WL=CDFW Watch List FE/FT/FD=Federal Endangered/Threatened/Delisted FPE/FF7/FD=Federal Proposed Endangered/Threatened/Delisting

NatureServe Conservation Status:

G1/S1 = Global/State Critically Imperiled G2/S2 = Global/State Imperiled G3/S3 = Global/State Vulnerable G4/S4 = Global/State Apparently Secure G5/S5 = Global/State Secure SNR=Not rated FC=Federal Candidate

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4.3 <u>Wildlife Habitat Analysis Results</u>: The Wildlife Habitat Relationships analysis lists a number of native wildlife species as potentially occurring on the site based on the geographic location and wildlife habitats present. Selected sensitive species are included in the wildlife assessment based on local knowledge and experience. The complete WHR results are presented in **Appendix B**.

4.4 <u>Wildlife Assessment</u>: Based on the pre-survey research conducted for this study, a total of seventeen sensitive wildlife species need to be accounted for within the project area. These consist of the species identified as present within the Clearlake Highlands quadrangles by the CNDDB, along with applicable sensitive species listed as potentially present by the WHR analysis. 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.

Clear Lake Pyrg (Pyrgulopsis ventricosa):

This small snail is found within the Seigler Creek drainage in the south end of the Clear Lake basin. No suitable habitat is present within the survey area.

Brownish dubiraphian riffle beetle (Dubiraphia brunnescens):

Known only from the northeastern shore of Clear Lake, Lake County, this beetle inhabits exposed, wave-washed willow roots. This species is not present within the survey area due to the lack of suitable water resources.

Borax Lake cuckoo wasp (Hedychridium milleri):

The cuckoo wasp is a parasite of wasp and bee larvae, laying its eggs in the nest of the host insect. There is only one account of this subspecies from 1963 from this locality (Borax Lake); it is endemic to Central California and is unlikely to be present within the survey area.

Ricksecker's water scavenger beetle (Hydrochara rickseckeri):

This species is known from accounts in the San Francisco Bay Area. It occupies ponds and shallow waters of streams, lakes, or marshes. This species is listed here because it is identified in an adjacent quadrangle near Boggs Lake in Lake County. There are no suitable water resources present within the survey area to support this species.

- Clear Lake hitch (Lavinia exilicauda chi);
- Clear Lake-Russian River roach (Lavinia symmetricus ssp. 4);
- Sacramento perch (Archoplites interruptus):

All of these fish require access to Clear Lake, which is not provided by the short-term ephemeral channels on the property.

Foothill yellow-legged frog (Rana boylii):

These frogs are relatively common along the shaded banks of perennial headwater streams, and they are heavily dependent on the presence of perennial water and are seldom far from pools where they can seek shelter from predation. The short-term ephemeral channels within the parcel do not meet these requirements.

Western pond turtle (Actinemys marmorata):

These turtles prefer slow or ponded water with sheltering vegetation but will range widely through less suitable habitat in search of these sites. When present, pond turtles are readily observed basking along shorelines or on logs in shallow water. There are no suitable water resources present within the survey area to support this species.

Western yellow-billed cuckoo (Coccyzus americanus occidentalis):

This bird requires deciduous riparian thickets or forests with dense low-level foliage adjacent to water for cover and nesting; willows and cottonwoods are nearly always a component. Their preferred nesting habitat is valley foothill riparian adjacent to larger streams or rivers such as are found in the lowlands of the Central Valley, and around Clear Lake. This species has state endangered status while nesting. The survey area does not contain suitable riparian habitat to support this species.

Great egret (Ardea alba);

Great blue heron (Ardea herodias):

All of these birds require proximity to large bodies of water or wetlands where they have access to fish and amphibians, their main sources of food. All build large stick nests close to water; herons and cormorants in this region are found around Clear Lake in large rookeries. No large stick nests were observed in the project area and the site lacks suitable tall structures for nests.

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 California Fully Protected status of these raptors pertains to nesting pairs with an emphasis on protecting nesting habitat. No suitable nesting habitat occurs within the project area although kites may hunt over the property.

- Townsend's western big-eared bat (Corynorhinus townsendii ssp. townsendii):
- Little brown bat (Myotis lucifugus):
- Yuma myotis (Myotis yumanensis):

All of these bat species prefer cool mesic habitats distant from human activity. Preferred habitat does not occur within the project area.

Pallid bat (Antrozous pallidus);

Optimal habitat for pallid bats consists of open, dry habitats with rocky areas, but they are also found in oak savanna grasslands, and in open forest and woodlands with access to riparian and open water for feeding and drinking in northern California. Foraging occurs over open country. The shrubby oaks on the property provide poor habitat for the bats and they are unlikely to be present.

5.0 FIELD SURVEY RESULTS

5.1 <u>Botanical Field Survey Results</u>: Table 4 presents the results of the floristic-level botanical survey within the survey area. Each of the sensitive plant taxa potentially occurring at the sites and listed in Tables 2 and 3 was specifically searched for during the survey. The survey identified a total of 60 plant taxa on the property, including native and introduced plants.

The relatively small number of species identified is a result of the small survey area, the lack of diversity within the ruderal areas and orchard, and the small palette size of the natural plant communities.

No plants with sensitive status were discovered during the in-season floristic-level botanical surveys.

Habit	Species	Common Name	Family	Origin
forb	Anthriscus caucalis	bur chervil	Apiaceae	A
forb	Torilis arvensis	field hedge parsley	Apiaceae	A
forb	Asclepias californica	California milkweed	Apocynaceae	N
forb	Asclepias fascicularis	narrow-leaved milkweed	Apocynaceae	N
forb	Anaphalis margaritaceae	pearly everlasting	Asteraceae	N
forb	Centaurea melitensis	tocalote, Napa star thistle	Asteraceae	A
forb	Centaurea solstitialis	yellow star thistle	Asteraceae	A
forb	Micropus californicus	cottontop	Asteraceae	N
forb	Brassica nigra	black mustard	Brassicaceae	A
forb	Cardamine breweri	Brewer's bittercress	Brassicaceae	N
forb	Croton setigerus	turkey mullein	Euphorbiaceae	N
forb	Euphorbia oblongata	eggleaf spurge	Euphorbiaceae	A
forb	Vicia villosa ssp. villosa	winter vetch, hairy vetch	Fabaceae	A
forb	Erodium cicutarium	red-stem storksbill	Geraniaceae	A
forb	Hypericum concinnum	gold-wire	Hypericaceae	N
forb	Marrubium vulgare	horehound	Lamiaceae	A
forb	Salvia sonomensis	Sonoma creeping sage	Lamiaceae	N
forb	Chlorogalum pomeridianum	wavyleaf soap plant	Liliaceae	N
forb	Eschscholzia californica	California poppy	Papaveraceae	N
forb	Rumex crispus	curly dock	Polygonaceae	A
forb	Ranunculus muricatus	spiny-fruit buttercup	Ranunculaceae	A
forb	Reseda luteola	Dyer's rocket	Resedaceae	A
forb	Galium porrigens var. porrigens	climbing bedstraw, graceful bedstraw	Rubiaceae	N

TABLE 4. FLORA FOR APN 009-021-07

Habit	Species	Common Name	Family	Origin
forb	Pedicularis densiflora	warrior's plume, Indian warrior	Scrophulariaceae	N
forb	Verbascum thapsus	woolly mullein	Scrophulariaceae	A
grass	Aira caryophyllea	silver European hairgrass	Poaceae	A
grass	Avena barbata	slender wild oat	Poaceae	A
grass	Bromus hordeaceus	soft chess	Poaceae	A
grass	Bromus madritensis ssp. rubens	red brome	Poaceae	A
grass	Elymus caput-medusae	medusahead	Poaceae	A
grass	Elymus multisetus	big squirreltail	Poaceae	N
grass	Festuca microstachys	desert fescue, small fescue	Poaceae	N
grass	Poa bulbosa	bulbous bluegrass	Poaceae	A
shrub	Sambucus nigra ssp. caerulea	blue elderberry	Adoxacaceae	N
shrub	Rhus trilobata	basket bush, skunkbrush	Anacardiaceae	N
shrub	Toxicodendron diversilobum	poison oak	Anacardiaceae	N
shrub	Baccharis pilularis	coyote brush, chaparral broom	Asteraceae	N
shrub	Arctostaphylos crustacea ssp. crustacea	brittle-leaf manzanita	Ericaceae	N
shrub	Arctostaphylos manzanita ssp. manzanita	common manzanita	Ericaceae	N
shrub	Arctostaphylos stanfordiana ssp. stanfordiana	Stanford manzanita	Ericaceae	N
shrub	Cytisus multiflorus	Spanish broom	Fabaceae	A
shrub	Cytisus scoparius	Scotch broom	Fabaceae	A
shrub	Quercus berberidifolia	California scrub oak	Fagaceae	N
shrub	Quercus wislizeni var. frutescens	interior live oak	Fagaceae	N
shrub	Eriodictyon californicum	California yerba santa	Hydrophyllaceae	N
shrub	Ceanothus cuneatus var. cuneatus	buckbrush	Rhamnaceae	N
shrub	Ceanothus integerrimus	deerbrush, blue blossom	Rhamnaceae	N

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Habit	Species	Common Name	Family	Origin
shrub	Ceanothus integerrimus	deerbrush	Rhamnaceae	N
shrub	Frangula californica ssp. californica	California coffeeberry	Rhamnaceae	N
shrub	Adenostoma fasciculatum	chamise	Rosaceae	N
shrub	Cercocarpus betuloides var. betuloides	birch-leaf mountain mahogany	Rosaceae	N
shrub	Heteromeles arbutifolia	toyon	Rosaceae	N
shrub	Rubus armeniacus	Himalayan blackberry	Rosaceae	A
tree	Quercus lobata	California valley oak	Fagaceae	N
tree	Quercus wislizeni var. wislizeni	interior live oak	Fagaceae	N
tree	Juglans regia	English walnut	Juglandaceae	A
tree	Oleo europaea	European olive	Oleaceae	A
tree	Pinus attenuata	knobcone pine	Pinaceae	N
tree	Pinus ponderosa	ponderosa pine	Pinaceae	N
vine	Marah fabaceus	California manroot	Cucurbitaceae	N

A=Alien, N=Native

6.0 DELINEATION OF WATERS OF THE U.S.

6.1 The discussion of waters of the U.S. and Aquatic Resources in discussed in Appendix C, along with a map of possible aquatic resources.

7.0 SUMMARY AND RECOMMENDATIONS

7.1 <u>Summary</u>: 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 Wildlife Habitat Relationships System
- Vegetation mapping
- Delineation of waters of the U.S.

Sensitive Plants: A total of 60 native and introduced plant taxa were identified on the property during the in-season, floristic-level botanical surveys. No sensitive taxa were identified. 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.

The relatively small number of species identified is a product of the lack of diversity within the ruderal areas and the orchard, and the small pallet size of the natural plant communities.

Sensitive Wildlife: A total of seventeen sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the Clearlake Highlands quadrangle and the WHR database. The species listed include insects, isopods, aquatic reptiles and amphibians, raptors, and small mammals. The site does not contain perennial streams or ponded water of any type, making it unsuitable for any of the listed aquatic species. The lack of roosting structures makes it poor habitat for nesting raptors and roosting bats.

Possible Waters of the U.S.: Two short-term ephemeral drainages were mapped on the parcel. This is discussed in Appendix C, Aquatic Resources Report.

7.2 <u>Recommendations</u>:

1. Sensitive Plants and Wildlife:

Potential Impacts: No plants with sensitive regulatory status were found on this parcel during the in-season, florisitic-level botanical survey conducted for this project. Due to the current agricultural and ruderal (developed) nature of this property, the potential for wildlife with sensitive regulatory status to occur there is very low. Consequently, the proposed project does not have a significant potential to adversely impact plants or wildlife with sensitive regulatory status. Additionally, the use of this property by local wildlife would be minimal and the proposed project is unlikely to cause adverse impacts to them.

2. Waters of the U.S.

Potential Impact: The survey area contains approximately 0.1357 acre of stream channels. Placement of fill within any possible waters of the U.S. mapped in Appendix C, Figure 1 would be regulated under the Clean Water Act.

Proposed Mitigation for Impacts to Waters of the U.S. 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.

3. Erosion Control:

Potential Impacts: Vegetation clearing and grading activities have a potential to result in sediment runoff into waterways.

<u>Proposed Mitigation</u>: All work should incorporate extensive erosion control measures consistent with Lake County Grading Regulations. 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

CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES

WITHIN THE

SURROUNDING CALIF. 71/2' QUADS.

Surrounding 9-Quad List: Clearlake Highlands Quadrangles

QUAD NAME	SCIENTIFIC NAME	COMMON NAME		CAL.	CDFG	CNPS
Benmore Canyon	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	5
Benmore Canyon	Haliaeetus leucocephalus	bald eagle	Delisted	End	FP	-
Benmore Canyon	Emys marmorata	western pond turtle	None	None	SSC	2
Benmore Canyon	Asclepias solanoana	serpentine milkweed	None	None		4.2
Benmore Canyon	Harmonia hallii	Hall's harmonia	None	None	28	1B.2
Benmore Canyon	Layia septentrionalis	Colusa layia	None	None	12	1B.2
Benmore Canyon	Amsinckia lunaris	bent-flowered fiddleneck	None	None	27	1B.2
Benmore Canyon	Astragalus clevelandii	Cleveland's milk-vetch	None	None	20	4.3
Benmore Canyon	Fritillaria purdyi	Purdy's fritillary	None	None		4.3
Benmore Canyon	Malacothamnus helleri	Heller's bush-mallow	None	None	38	3.3
Benmore Canyon	Clarkia gracilis ssp. tracyi	Tracy's clarkia	None	None	24	4.2
Benmore Canyon	Collomia diversifolia	serpentine collomia	None	None	3. C	4.3
Benmore Canyon	Leptosiphon acicularis	bristly leptosiphon	None	None	28	4.2
Benmore Canyon	Eriogonum tripodum	tripod buckwheat	None	None		4.2
Benmore Canyon	Potamogeton zosteriformis	eel-grass pondweed	None	None	3 2	2B.2
Benmore Canyon	'Horkelia bolanderi	Bolander's horkelia	None	None	2.3	1B.2
Clk Highlands	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	
Clk Highlands	Rana draytonii	California red-legged frog	Threat	None	SSC	÷
Clk Highlands	Haliaeetus leucocephalus	baid eagle	Delisted	End	FP	3
Clk Highlands	Ardea alba	great egret	None	None	-	*
Clk Highlands	Ardea herodias	great blue heron	None	None	-	<u>s</u>
Clk Highlands	Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threat	End	-	
Clk Highlands	Strix occidentalis caurina	northern spotted owl	Threat	Threat	-	×
Clk Highlands	Archoplites interruptus	Sacramento perch	None	None	SSC	2
Clk Highlands	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	-	
Clk Highlands	Lavinia symmetricus ssp. 4	Clear Lake - Russian River roach	None	None	SSC	× .
Clk Highlands	Hedychridium milleri	Borax Lake cuckoo wasp	None	None	-	8
Clk Highlands	Dubiraphia brunnescens	brownish dubiraphian riffle beetle	None	None	-	
Clk Highlands	Antrozous pallidus	pallid bat	None	None	SSC	
Clk Highlands	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	8
Clk Highlands	Myotis lucifugus	little brown bat	None	None		2
Clk Highlands	Myotis yumanensis	Yuma myotis	None	None		
Clk Highlands	Pyrgulopsis ventricosa	Clear Lake pyrg	None	None	30	3

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QUAD NAME SCIENTIFIC NAME COMMON NAME		COMMON NAME	FED.	CAL.	CDFG	CNPS
Clk Highlands	Emys marmorata	western pond turtle	None	None	SSC	-
Clk Highlands	Clear Lake Drainage Resident Trout Stm	Clear Lake Drainage Resident Trout Stm	None	None	-	-
Clk Highlands	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	None	None	-	-
Clk Highlands	Northern Basalt Flow Vernal Pool	Northern Basalt Flow Vernal Pool	None	None	-	-
Clk Highlands	Northern Volcanic Ash Vernal Pool	Northern Volcanic Ash Vernal Pool	None	None	-	-
Clk Highlands	Eryngium constancei	Loch Lomond button-celery	End	End	-	1B.1
Clk Highlands	Harmonia hallii	Hall's harmonia	None	None	-	1B.2
Clk Highlands	Hemizonia congesta ssp. calyculata	Mendocino tarplant	None	None	-	4.3
Clk Highlands	Lasthenia burkei	Burke's goldfields	End	End	-	1B.1
Clk Highlands	Brasenia schreberi	watershield	None	None	-	2B.3
Clk Highlands	Viburnum ellipticum	oval-leaved viburnum	None	None	-	2B.3
Clk Highlands	Sedella leiocarpa	Lake County stonecrop	End	End	-	1B.1
Clk Highlands	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	-	1B.3
Clk Highlands	Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None		1B.1
Clk Highlands	Calochortus uniflorus	pink star-tulip	None	None	-	4.2
Clk Highlands	Limnanthes floccosa ssp. floccosa	woolly meadowfoam	None	None	-	4.2
Clk Highlands	Hesperolinon bicarpellatum	two-carpellate western flax	None	None	-	1B.2
Clk Highlands	Sidalcea oregana ssp. hydrophila	' marsh checkerbloom	None	None	- `	1B.2
Clk Highlands	Toxicoscordion fontanum	marsh zigadenus	None	None	-	4.2
Clk Highlands	Calyptridium quadripetalum	four-petaled pussypaws	None	None	-	4.3
Clk Highlands	Piperia michaelii	Michael's rein orchid	None	None	-	4.2
Clk Highlands	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
Clk Highlands	Antirrhinum virga	twig-like snapdragon	None	None	-	4.3
Clk Highlands	Gratiola heterosepala	Boggs Lake hedge-hyssop	None	End	-	18.2
Clk Highlands	Imperata brevifolia	California satintail	None	None	-	2B.1
Clk Highlands	Eriastrum brandegeeae	Brandegee's eriastrum	None	None	-	1B.1
Clk Highlands	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Clk Highlands	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	-	1B.1
Clk Highlands	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	End	Threat	-	1B.1
Clk Highlands	Navarretia leucocephala ssp. plieantha	many-flowered navarretia	End	End	-	1B.2
Clk Highlands	Potamogeton zosteriformis	eel-grass pondweed	None	None	-	2B.2
Clk Highlands	Myosurus minimus ssp. apus	little mousetail	None	None	-	3.1
Clk Highlands	Horkelia bolanderi	Bolander's horkelia	None	None	-	1B.2
Clearlake Oaks	Haliaeetus leucocephalus	bald eagle	Delisted	End	FP	-
Clearlake Oaks	Pandion haliaetus	osprey	None	None	WL	-

QUAD NAME	UAD NAME SCIENTIFIC NAME COMMON NAME FE		FED.	CAL.	CDFG	CNPS
Clearlake Oaks	Archoplites interruptus	Sacramento perch	None	None	SSC	-
Clearlake Oaks	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	-	-
Clearlake Oaks	Dubiraphia brunnescens	brownish dubiraphian riffle beetle	None	None	-	-
Clearlake Oaks	Pekania pennanti	fisher - West Coast DPS	None	Threat	SSC	-
Clearlake Oaks	Antrozous pallidus	pallid bat	None	None	SSC	-
Clearlake Oaks	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	-
Clearlake Oaks	Myotis yumanensis	Yuma myotis	None	None	-	-
Clearlake Oaks	Gonidea angulata	western ridged mussel	None	None	-	-
Clearlake Oaks	Emys marmorata	western pond turtle	None	None	SSC	-
Clearlake Oaks	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	None	None	-	-
Clearlake Oaks	Hemizonia congesta ssp. calyculata	Mendocino tarplant	None	None	-	4.3
Clearlake Oaks	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Clearlake Oaks	Brasenia schreberi	watershield	None	None	-	2B.3
Clearlake Oaks	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	-	1B.3
Clearlake Oaks	Erythronium helenae	St. Helena fawn lily	None	None	-	4.2
Clearlake Oaks	Calyptridium quadripetalum	four-petaled pussypaws	None	None	-	4.3
Clearlake Oaks	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Clearlake Oaks	Potamogeton zosteriformis	eel-grass pondweed	None	None	-	28.2
Kelseyville	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	-
Kelseyville	Taricha rivularis	red-bellied newt	None	None	SSC	-
Kelseyville	Progne subis	purple martin	None	None	SSC	-
Kelseyville	Pandion haliaetus	osprey	None	None	WL	-
Kelseyville	Calasellus californicus	An isopod	None	None	-	-
Kelseyville	Linderiella occidentalis	California linderiella	None	None	-	-
Kelseyville	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	-	-
Kelseyville	Lavinia symmetricus ssp. 4	Clear Lake - Russian River roach	None	None	SSC	-
Kelseyville	Bombus caliginosus	obscure bumble bee	None	None	-	-
Kelseyville	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	None	None	-	-
Kelseyville	Erethizon dorsatum	North American porcupine	None	None	-	-
Kelseyville	Emys marmorata	western pond turtle	None	None	SSC	-
Kelseyville	Clear Lake Drainage Cyprinid/Catostomid Stm	Clear Lake Drainage Cyprinid/Catostomid Stm	None	None	-	-
Kelseyville	Clear Lake Drainage Resident Trout Stm	Clear Lake Drainage Resident Trout Stm	None	None	-	-
Kelseyville	Clear Lake Drainage Seasonal Lakefish Spawn Stm	Clear Lake Drainage Seasonal Lakefish Spawn Stm	None	None	-	-
Kelseyville	Northern Volcanic Ash Vernal Pool	Northern Volcanic Ash Vernal Pool	None	None	-	-
Kelseyville	Harmonia hallii	Hall's harmonia	None	None	-	1B.2

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QUAD NAME SCIENTIFIC NAME		NAME COMMON NAME				CNPS
Kelseyville	Lasthenia burkei	Burke's goldfields	End	End	*	1B.1
Kelseyville	Layia septentrionalis	Colusa layia	None	None	8	18.2
Kelseyville	Micropus amphibolus	Mt. Diablo cottonweed	None	None		3.2
Kelseyville	Azolla microphylla	Mexican mosquito fern	None	None	÷	4.2
Kelseyville	Amsinckia lunaris	bent-flowered fiddleneck	None	None		1B.2
Kelseyville	Streptanthus barbiger	bearded jewelflower	None	None	-	4.2
Kelseyville	Brasenia schreberi	watershield	None	None		2B.3
Kelseyville	Legenere limosa	legenere	None	None		18.1
Kelseyville	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	÷	IB.3
Kelseyville	Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None	-	1B.1
Kelseyville	Astragalus breweri	Brewer's milk-vetch	None	None		4.2
Kelseyville	Monardella viridis	green monardella	None	None	÷	4.3
Kelseyville	Trichostema ruygtii	Napa bluecurls	None	None		1B.2
Kelseyville	Limnanthes floccosa ssp. floccosa	woolly meadowfoam	None	None	× .	4.2
Kelseyville	Hesperolinon adenophyllum	glandular western flax	None	None	2	1B.2
Kelseyville	Sidalcea oregana ssp. hydrophila	marsh checkerbloom	None	None	*	1B.2
Kelseyville	Calyptridium quadripetalum	four-petaled pussypaws	None	None	3	4.3
Kelseyville	Clarkia gracilis ssp. tracyi	Tracy's clarkia	None `	None	a	4.2
Kelseyville	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	*	4.3
Kelseyville	Gratiola heterosepala	Boggs Lake hedge-hyssop	None	End	<u> </u>	1B.2
Kelseyville	Orcuttia tenuis	slender Orcutt grass	Threat	End	10	1B.1
Kelseyville	Eriastrum brandegeeae	Brandegee's eriastrum	None	None		1B.1
Kelseyville	Leptosiphon acicularis	bristly leptosiphon	None	None	3	4.2
Kelseyville	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	End	Threat		1B.1
Kelseyville	Navarretia leucocephala ssp. plleantha	many-flowered navarretia	End	End	24	1B,2
Kelseyville	Potamogeton zosteriformis	eel-grass pondweed	None	None		2B.2
Kelseyville	Horkelia bolanderi	Bolander's horkelia	None	None	3 .	1B.2
Lower Lake	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	-
Lower Lake	Taricha rivularis	red-bellied newt	None	None	SSC	-
Lower Lake	Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Lower Lake	Haliaeetus leucocephalus	bald eagle	Delisted	End	FP	-
Lower Lake	Ardea herodias	great blue heron	None	None	2	38
Lower Lake	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	12 C	
Lower Lake	Lavinia symmetricus ssp. 4	Clear Lake - Russian River roach	None	None	SSC	25
Lower Lake	Saldula usingeri	Wilbur Springs shorebug	None	None	(#)	(#

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Lower Lake	Antrozous pallidus	pallid bat	None	None	SSC	
Lower Lake	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	
Lower Lake	Myotis lucifugus	little brown bat	None	None	-	
Lower Lake	Myotis yumanensis	Yuma myotis	None	None	-	÷.
Lower Lake	Emys marmorata	western pond turtle	None	None	SSC	-
Lower Lake	Lomatium hooveri	Hoover's lomatium	None	None	3.	4.3
Lower Lake	Harmonia hallii	Hall's harmonia	None	None	1.0	1B.2
Lower Lake	Lasthenia burkei	Burke's goldfields	End	End	34	1B.1
Lower Lake	Layia septentrionalis	Colusa layia	None	None	3-1 C	1B.2
Lower Lake	Amsinckia lunaris	bent-flowered fiddleneck	None	None		1B.2
Lower Lake	Astragalus rattanii var: jepsonianus	Jepson's milk-vetch	None	None	54 E	1B.2
Lower Lake	Fritillaria pluriflora	adobe-lily	None	None		1B.2
Lower Lake	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None		1B.2
Lower Lake	Malacothamnus helleri	Heller's bush-mallow	None	None	124	3.3
Lower Lake	Leptosiphon acicularis	bristly leptosiphon	None	None	21	4.2
Lower Lake	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	e.	1B.1
Lower Lake	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	End	Threat	÷	1B.1
Lower Lake	Potamogeton zosteriformis	eel-grass pondweed	None	Ndne		2B.2
Lower Lake	Delphinium uliginosum	swamp larkspur	None	None	-	4.2
Lucerne	Rana draytonii	California red-legged frog	Threat	None	SSC	-
Lucerne	Taricha rivularis	red-bellied newt	None	None	SSC	10
Lucerne	Haliaeetus leucocephalus	bald eagle	Delisted	End	FP	
Lucerne	Branta hutchinsii leucopareia	cackling (=Aleutian Canada) goose	Delisted	None	WL	
Lucerne	Ardea herodias	great blue heron	None	None	-	÷.
Lucerne	Falco mexicanus	prairie falcon	None	None	WL	
Lucerne	Pandion haliaetus	osprey	None	None	WL	
Lucerne	Phalacrocorax auritus	double-crested cormorant	None	None	WL	
Lucerne	Archoplites interruptus	Sacramento perch	None	None	SSC	٠
Lucerne	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	-	34
Lucerne	Dubiraphia brunnescens	brownish dubiraphian riffle beetle	None	None	-	27
Lucerne	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	
Lucerne	Lasionycteris noctivagans	silver-haired bat	None	None	100	12
Lucerne	Margaritifera falcata	western pearlshell	None	None	199 F	÷.
Lucerne	Anodonta oregonensis	Oregon floater	None	None	:#S	
Lucerne	Gonidea angulata	western ridged mussel	None	None	•	1

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QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Lucerne	Emys marmorata	western pond turtle	None	None	SSC	
Lucerne	Clear Lake Drainage Cyprinid/Catostomid Stm	Clear Lake Drainage Cyprinid/Catostomid Stm	None	None		2
Lucerne	Clear Lake Drainage Seasonal Lakefish Spawn Stm	Clear Lake Drainage Seasonal Lakefish Spawn Stm	None	None		81
Lucerne	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	None	None	<u>ii</u>	22
Lucerne	Layia septentrionalis	Colusa layia	None	None	2	1B.2
Lucerne	Amsinckia lunaris	bent-flowered fiddleneck	None	None		1B.2
Lucerne	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	3	1B.3
Lucerne	Lupinus antoninus	Anthony Peak lupine	None	None	13	1B.2
Lucerne	Hesperolinon adenophyllum	glandular western flax	None	None		1B.2
Lucerne	Hesperolinon bicarpellatum	two-carpellate western flax	None	None		IB.2
Lucerne	Leptosiphon acicularis	bristly leptosiphon	None	None	(e	4.2
Lucerne	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	8	4.3
Lucerne	Potamogeton zosteriformis	eel-grass pondweed	None	None	5 0	2B.2
Middletown	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	*
Middletown	Haliaeetus leucocephalus	bald eagle	Delisted	End	F₽	
Middletown	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	
Middletown	Lasionycteris noctivagans	silver-haired bat No		None	-	
Middletown	Lasiurus cinereus	hoary bat	None	None `	-	
Middletown	Myotis yumanensis	Yuma myotis	None	None	-	*
Middletown	Emys marmorata	western pond turtle	None	None	SSC	
Middletown	Northern Basalt Flow Vernal Pool	Northern Basalt Flow Vernal Pool	None	None	2 1	
Middletown	Lomatium repostum	Napa lomatium	None	None	5	4.3
Middletown	Erigeron greenei	Greene's narrow-leaved daisy	None	None	121	1B.2
Middletown	Harmonia hallii	Hall's harmonia	None	None	100	1B.2
Middletown	Helianthus exilis	serpentine sunflower	None	None	121	4.2
Middletown	Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	None	None	200	18.2
Middletown	Lasthenia burkei	Burke's goldfields	End	End	565	1B.1
Middletown	Amsinckia lunaris	bent-flowered fiddleneck	None	None		1B.2
Middletown	Streptanthus hesperidis	green jewelflower	None	None	 (m) 	1B.2
Middletown	Legenere limosa	legenere	None	None	1941	1B.1
Middletown	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	None	None	5 2 9)	4.2
Middletown	Sedella leiocarpa	Lake County stonecrop	End	End	100	1B.1
Middletown	Astragalus breweri	Brewer's milk-vetch	None	None	(a)	4.2
Middletown	Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	None	None	355	1B.2
Middletown	Trifolium hydrophilum	saline clover	None	None	(2)	1B.2

QUAD NAME SCIENTIFIC NAME COMMON NAME		COMMON NAME	FED.	CAL.	CDFG	CNPS
Middletown	Calochortus uniflorus	pink star-tulip	None	None	19	4.2
Middletown	Erythronium helenae	St. Helena fawn lily	None	None	2 .	4.2
Middletown	Hesperolinon bicarpellatum	two-carpellate western flax	None	None	12	1B.2
Middletown	Hesperolinon didymocarpum	Lake County western flax	None	End	3	1B.2
Middletown	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None	34	1B.2
Middletown	Castilleja rubicundula var. rubicundula	pink creamsacs	None	None		1B.2
Middletown	Erythranthe nudata	bare monkeyflower	None	None	9 9	4.3
Middletown	Gratiola heterosepala	Boggs Lake hedge-hyssop	None	End	54 - C	1B.2
Middletown	Calamagrostis ophitidis	serpentine reed grass	None	None	25	4.3
Middletown	Orcuttia tenuis	slender Orcutt grass	Threat	End	34	1B.1
Middletown	Collomia diversifolia	serpentine collomia	None	None	<u>i</u>	4.3
Middletown	Leptosiphon acicularis	bristly leptosiphon	None	None	St.	4.2
Middletown	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	a	1B.2
Middletown	Leptosiphon latisectus	broad-lobed leptosiphon	None	None		4.3
Middletown	Navarretia cotulifolia	cotula navarretia	None	None		4.2
Middletown	Navarretia jepsonii	Jepson's navarretia	None	None	14	4.3
Middletown	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None		1B.1
Middletown	Navarretia leucocephala ssp. plieantha 👘	many-flowered navarretia	End	End	電気量	1B.2
Middletown	Navarretia paradoxinota	Porter's navarretia	None	None		1B.3
Middletown	Delphinium uliginosum	swamp larkspur	None	None		4.2
The Geysers	Dicamptodon ensatus	California giant salamander	None	None	SSC	<u>ت</u>
The Geysers	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	
The Geysers	Taricha rivularis	red-bellied newt	None	None	SSC	÷.
The Geysers	Progne subis	purple martin	None	None	SSC	
The Geysers	Lavinia symmetricus ssp. 4	Clear Lake - Russian River roach	None	None	SSC	*
The Geysers	Hysterocarpus traskii pomo	Russian River tule perch	None	None	SSC	Q
The Geysers	Entosphenus tridentatus	Pacific lamprey	None	None	SSC	
The Geysers	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threat	None	34	×
The Geysers	Bombus occidentalis	western bumble bee	None	None	2	÷
The Geysers	Emys marmorata	western pond turtle	None	None	SSC	*
The Geysers	Clear Lake Drainage Resident Trout Stm	Clear Lake Drainage Resident Trout Stm	None	None	34	
The Geysers	Asclepias solanoana	serpentine milkweed	None	None		4.2
The Geysers	Harmonia hallii	Hall's harmonia	None	None		1B.2
The Geysers	Layia septentrionalis	Colusa layia	None	None	<u>64</u>	1B.2
The Geysers	Cryptantha dissita	serpentine cryptantha	None	None		1B.2

OUAD NAME	SCIENTIFIC NAME	COMMON NAME	COMMON NAME			CDFG	CNPS
The Geysers	Streptanthus barbiger	bearded jewelflower		None	None		4.2
The Geysers	Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower		None	None		1B.2
The Geysers	Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewelflower		None	None	\odot	1B.3
The Geysers	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory		None	None	-	4.2
The Geysers	Calystegia collina ssp. tridactylosa	three-fingered morning-glory		None	None	100	1B.2
The Geysers	Arctostaphylos manzanita ssp. elegans	Konocti manzanita		None	None	2	1B.3
The Geysers	Astragalus breweri	Brewer's milk-vetch		None	None	8	4.2
The Geysers	Astragalus clevelandii	Cleveland's milk-vetch		None	None	*	4.3
The Geysers	Lupinus sericatus	Cobb Mountain lupine		None	None	÷	1B.2
The Geysers	Erythronium helenae	St. Helena fawn lily		None	None	3	4.2
The Geysers	Fritillaria purdyi	Purdy's fritillary		None	None	3	4.3
The Geysers	Hesperolinon adenophyllum	glandular western flax		None	None	3	1B.2
The Geysers	Sidalcea oregana ssp. hydrophila	marsh checkerbloom		None	None		1B.2
The Geysers	Calyptridium quadripetalum	four-petaled pussypaws		None	None	S	4.3
The Geysers	Clarkia gracilis ssp. tracyi	Tracy's clarkia		None	None	÷ .	4.2
The Geysers	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak		None	None		4.3
The Geysers	Antirrhinum virga	twig-like snapdragon		None	None	3	4.3
The Geysers	Calamagrostis ophitidis	serpentine reed grass	÷.	None	None	3	4.3
The Geysers	Panicum acuminatum var. thermale	Geysers panicum		None	End	3 4	1B.2
The Geysers	Collomia diversifolia	serpentine collomia		None	None		4.3
The Geysers	Eriastrum brandegeeae	Brandegee's eriastrum		None	None	(#	1B.1
The Geysers	Leptosiphon acicularis	bristly leptosiphon		None	None	1	4.2
The Geysers	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia		End	Threat		1B.1
The Geysers	Ceanothus confusus	Rincon Ridge ceanothus		None	None	3 1	1B.1
The Geysers	Ceanothus divergens	Calistoga ceanothus		None	None		18.2
Whispering Pines	Dicamptodon ensatus	California giant salamander		None	None	SSC	
Whispering Pines	Rana boylii	foothill yellow-legged frog		None	Cand Threat	SSC	
Whispering Pines	Rana draytonii	California red-legged frog		Threat	None	SSC	÷
Whispering Pines	Taricha rivularis	red-bellied newt		None	None	SSC	
Whispering Pines	Progne subis	purple martin		None	None	SSC	÷.
Whispering Pines	Bombus occidentalis	western bumble bee		None	None	-	3
Whispering Pines	Antrozous pallidus	pallid bat		None	None	SSC	18
Whispering Pines	Corynorhinus townsendii	Townsend's big-eared bat		None	None	SSC	
Whispering Pines	Lasiurus blossevillii	western red bat		None	None	SSC	35
Whispering Pines	Lasiurus cinereus	hoary bat		None	None	100	÷.

QUAD NAME SCIENTIFIC NAME F		FED.	CAL.	CDFG	CNPS	
Whispering Pines	Myotis evotis	long-eared myotis	None	None	-	-
Whispering Pines	Myotis thysanodes	fringed myotis	None	None	-	-
Whispering Pines	Emys marmorata	western pond turtle	None	None	SSC	-
Whispering Pines	Central Valley Drng Rainbow Trout/Cyprinid Stm	Central Valley Drng Rainbow Trout/Cyprinid Stm	None	None	-	-
Whispering Pines	Clear Lake Drainage Resident Trout Stm	Clear Lake Drainage Resident Trout Stm	None	None	-	-
Whispering Pines	Grimmia torenii	Toren's grimmia	None	None	-	1B.3
Whispering Pines	Mielichhoferia elongata	elongate copper moss	None	None	-	4.3
Whispering Pines	Chlorogalum pomeridianum var, minus	dwarf soaproot	None	None	-	1B.2
Whispering Pines	Eryngium constancei	Loch Lomond button-celery	End	End	-	1B.1
Whispering Pines	Asclepias solanoana	serpentine milkweed	None	None	-	4.2
Whispering Pines	Erigeron greenei	Greene's narrow-leaved daisy	None	None	-	1B.2
Whispering Pines	Helianthus exilis	serpentine sunflower	None	None	-	4.2
Whispering Pines	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Whispering Pines	Amsinckia lunaris	bent-flowered fiddleneck	None	None	-	1B.2
Whispering Pines	Cryptantha dissita	serpentine cryptantha	None	None	-	1B.2
Whispering Pines	Arabis blepharophylla	coast rockcress	None	None	-	4.3
Whispering Pines	Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower	None	None	-	1B.2
Whispering Pines	Streptanthus brachiatus ssp. hoffmanii	Freed's jewelflower	None	None	-	1B.2
Whispering Pines	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
Whispering Pines	Downingia willamettensis	Cascade downingia	None	None	-	28.2
Whispering Pines	Legenere limosa	legenere	None	None	-	1B.1
Whispering Pines	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	None	None	-	4.2
Whispering Pines	Sedella leiocarpa	Lake County stonecrop	End	End	-	18.1
Whispering Pines	Carex praticola	northern meadow sedge	None	None	-	2B.2
Whispering Pines	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	-	1B.3
Whispering Pines	Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None	-	1B.1
Whispering Pines	Astragalus breweri	Brewer's milk-vetch	None	None	-	4.2
Whispering Pines	Astragalus clevelandii	Cleveland's milk-vetch	None	None	-	4.3
Whispering Pines	Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	None	None	-	1B.2
Whispering Pines	Lupinus sericatus	Cobb Mountain Iupine	None	None	-	1B.2
Whispering Pines	Erythronium helenae	St. Helena fawn lily	None	None	-	4.2
Whispering Pines	Fritillaria purdyi	Purdy's fritillary	None	None	-	4.3
Whispering Pines	Hesperolinon adenophyllum	glandular western flax	None	None	-	1B.2
Whispering Pines	Hesperolinon bicarpellatum	two-carpellate western flax	None	None	-	1B.2

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QUAD NAME SCIENTIFIC NAME		COMMON NAME	FED.	CAL.	CDFG	CNPS
Whispering Pines	Sidalcea oregana ssp. hydrophila	marsh checkerbloom	None	None	-	1B.2
Whispering Pines	Calyptridium quadripetalum	four-petaled pussypaws	None	None	-	4.3
Whispering Pines	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
Whispering Pines	Cordylanthus tenuis ssp. capillaris	Pennell's bird's-beak	End	Rare	-	1B.2
Whispering Pines	Erythranthe nudata	bare monkeyflower	None	None	-	4.3
Whispering Pines	Antirrhinum subcordatum	dimorphic snapdragon	None	None	-	4.3
Whispering Pines	Antirrhinum virga	twig-like snapdragon	None	None	-	4.3
Whispering Pines	Penstemon newberryi var. sonomensis	Sonoma beardtongue	None	None	-	1B.3
Whispering Pines	Calamagrostis ophitidis	serpentine reed grass	None	None	-	4.3
Whispering Pines	Imperata brevifolia	California satintail	None	None	-	2B.1
Whispering Pines	Panicum acuminatum var. thermale	Geysers panicum	None	End	-	1B.2
Whispering Pines	Collomia diversifolia	serpentine collomia	None	None	-	4.3
Whispering Pines	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Whispering Pines	Leptosiphon grandifiorus	large-flowered leptosiphon	None	None	-	4.2
Whispering Pines	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Whispering Pines	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	-	1B.1
Whispering Pines	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	End	Threat	-	1B.1
Whispering Pines	Navarretia leucocephala ssp. plieantha	many-flowered navarretia	End `	End	-	1B.2
Whispering Pines	Eriogonum nervulosum	Snow Mountain buckwheat	None	None	-	18.2
Whispering Pines	Delphinium uliginosum	swamp larkspur	None	None	-	4.2
Whispering Pines	Ceanothus confusus	Rincon Ridge ceanothus	None	None	-	18.1
Whispering Pines	Ceanothus divergens	Calistoga ceanothus	None	None	-	1B.2
Whispering Pines	Horkelia bolanderi	Bolander's horkelia	None	None	-	1B.2

6.

Key for Table:

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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; fairly 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; fairly threatened in Calif.

2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif. 3 = Plants about which we need more information (Review List)

3.1 = Plants about which we need more information (Review List); seriously threatened in California 3.2 = Plants about which we need more information (Review List); fairly threatened in California

3.3 = Plants about which we need more information (Review List); not very threatened in California

4.1 = Plants of limited distribution (watch list); seriously threatened in California

4.2 = Plants of limited distribution (watch list); fairly threatened in California

4.3 = Plants of limited distribution (watch list); not very threatened in California

CDFW / State and Federal Status:

SE/ST/SD = State Endangered/Threatened/Delisted SC/SCD = State Candidate for Listing/Delisting SSC = CDFW Species of Special Concern SFP = State Fully Protected WL = CDFW Watch List FE/FT/FD = Federal Endangered/Threatened/Delisted FPE/FPT/FPD/FP = Federal Proposed Endangered/Threatened/Delisting FC = Federal Candidate

State and Federal Status:

Threat = Threatened End = Endangered Prop = ProposedCand = Candidate Cand End/Threat = State Candidate for Endangered/Threatened

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APPENDIX B

REGIONAL WHR DATABASE 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 PT = Federally-Proposed Threatened FC = Federal Candidate CD = CDF Sensitive HA = Harvest

CE = California Endangered SC = California Species of Special ConcernBL = BLM Sensitive

CF = California Fully Protected

CP = California Protected

CT = California Threatened PE = Federally-Proposed Endangered FS = USFS Sensitive

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		Nati	ve/Introduced
B251	BAND-TAILED PIGEON			НА	NATIVE
B277	COMMON POORWILL				NATIVE
B317	HAMMOND'S FLYCATCHER				NATIVE
B337	HORNED LARK				NATIVE
B348	WESTERN SCRUB-JAY	s.			NATIVE
B391	WRENTIT				NATIVE
B425	ORANGE-CROWNED WARBLER				NATIVE
B437	TOWNSEND'S WARBLER				NATIVE
B495	LARK SPARROW				NATIVE
B499	SAVANNAH SPARROW	CE	SC		NATIVE
B543	LESSER GOLDFINCH				NATIVE
B798	WHITE-THROATED SPARROW				NATIVE
B799	HARRIS'S SPARROW				NATIVE
M006	ORNATE SHREW	FE	SC		NATIVE
M034	HOARY BAT				NATIVE
M037	TOWNSEND'S BIG-EARED BAT		SC	BL FS	NATIVE
M055	YELLOW-PINE CHIPMUNK				NATIVE
M059	SONOMA CHIPMUNK				NATIVE
M075	GOLDEN-MANTLED GROUND SQUIRREL				NATIVE
M117	DEER MOUSE		SC		NATIVE

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M119	BRUSH MOUSE					NATIVE
M120	PINYON MOUSE					NATIVE
M134	CALIFORNIA VOLE	FE	CE	SC	BL	NATIVE
R071	DESERT NIGHTSNAKE					NATIVE

Total Number of Species: 24

Query Parameters

Included Locations

Lake Co

Included Location Seasons

Migrant, Summer, Winter, Yearlong

Included Habitats & (Stages)

Deciduous Orchard, Mixed Chaparral, Valley Oak Woodland

Habitat Suitability Threshold

Reproduction - Low, Cover - Low, Feeding - Low

Included Habitat Seasons

Migrant, Summer, Winter, Yearlong

Excluded Elements

Algae, Amphibians, Aquatics - Emergent, Aquatics - Submerged, Bank, Barren, Birds - Large, Bogs, Brush Pile, Burrow, Campground, Carrion, Cave, Cliff, Duff, Dump, Fern, Fish, Fungi, Grain, Grass/water, Invertebrates - Aquatic, Jetty, Kelp, Lakes, Lithic, Litter, Log - Large (hollow), Log - Large (rotten), Log - Large (sound), Log - Medium (hollow), Log -Medium (rotten), Log - Medium (sound), Mine, Mud Flats, Nest Box, Nest Island, Nest Platform, Pack Stations, Ponds, Riparian Inclusion, Rivers, Rock, Salt Ponds, Sand Dune, Shrub/grass, Shrub/water, Slash - Large (hollow), Slash - Large (rotten), Slash - Large (sound), Slash - Small, Snag - Large (rotten), Snag - Large (sound), Snag - Medium (rotten), Snag - Medium (sound), Snag - Small (rotten), Snag - Small (sound), Soil - Friable, Soil - Gravelly, Soil - Organic, Soil - Saline, Soil - Sandy, Springs, Springs - Hot, Springs - Mineral, Steep Slope, Streams - Intermittent, Streams - Permanent, Stump (rotten), Stump (sound), Talus, Tidepools, Tree - Broken Top Live, Tree - With Cavities, Tree - With Loose Bark, Tree/grass, Tree/shrub, Tree/water, Trees - Fir, Vernal Pools, Water, Water - Created Body, Water - Fast, Water -Slow, Water/agriculture, Wharf

Included Species All Species Included

Included Special Statuses Native

APPENDIX C

AQUATIC RESOURCES/DELINEATION REPORT

- 2
DELINEATION OF WATERS OF THE U.S.

1.0 <u>Methodology</u>

1.1 <u>Purpose of Delineation:</u> This delineation has been conducted at the request of the local permitting agency in order to determine the extent of possible waters of the U.S. on the project.

1.2 Delineation Procedure: This delineation has been conducted as prescribed in the Corps of Engineers Wetlands Delineation Manual, January 1987, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, 2008. 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; however, all nomenclature and wetland indicator status have been checked with the U.S. Army Corps of Engineers. 2016. National Wetland Plant Lists: Arid West and California.

The survey included use of Google satellite images, 7.5' USGS quadrangle maps, and LIDAR mapped overlays along with an extensive foot survey.

1.3 Delineation Date: Delineation fieldwork was completed on April 10, 2019.

1.4 <u>Delineation Staff</u>: The delineation was conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has more than 35 years of experience as a biologist in the government and private sectors. He completed his wetland delineation training under Terry Huffman of Huffman & Associates, Inc.

Fieldwork, mapping, and report preparation were also conducted by Leigh Zalusky. Leigh Zalusky has a Bachelor of Science Degree in Computer Engineering from the University of California, Davis. Leigh also received formal delineation training under Terry Huffman of Huffman & Associates, Inc.

2.0 Existing Conditions

2.1 <u>Location</u>: The project site is located at 7130 Red Hills Road, Clearlake Highlands, California, 95451(APN 009-021-07; T13N R8W Sec. 34, Kelseyville, Calif. $7\frac{1}{2}$ ' Topographic Map). A location map is provided in **Figure 1**.

2.2 <u>Site Topography and Drainage</u>: The site is located along the Highway 29 corridor in narrow, valley terrain between the northeastern toe of the Mayacamas Mountains and the southern slope of Mount Konocti. This corridor consists of a series of isolated flats and small basins either drained interiorly or connected to Thurston Creek, which drains to the isolated basin of Thurston Lake. This property is drained along its eastern edge by an excavated ditch which flows north to State Highway 29 and then east to an unnamed tributary to Thurston Creek. The property drops approximately 80 feet in elevation from north to south into Hess Flat at an elevation of 1,880 feet msl (mean sea level).

3.2 <u>Soils:</u> Based on the Soil Survey of Lake County, California prepared by the U.S. Resource Conservation Service, the survey area contains the following soil types:

Glenview-Arrowhead complex, 5-15% slopes (soil unit 138):

This unit is on volcanic hills. Native vegetation is mainly brush with scattered conifers. The unit contains about 60% Glenview very gravelly loam and 20% Arrowhead extremely gravelly sandy loam. The Glenview soil is very deep and well drained. It formed in material weathered from obsidian. Permeability is moderately slow and runoff is medium. The Arrowhead soil is moderately deep and well drained, and formed in material weathered from obsidian. Permeability is slow and runoff is medium. The hazard of erosion is moderate for both soils.

3.0 Aquatic Resources Results

3.1 Waters of the U.S: The results of the delineation are shown on the aerial photo base map provided in **Appendix C**, **Figure 1**. Waters of the U.S. within the property consist of intermittent stream channels and ephemeral drainages. <u>No potential wetland resources were found</u>.

The total area of all delineated aquatic resources is 0.136<u>acre</u>. The delineation results are shown in **Table 1**.

Name	Cowardin Code	HGM Code	Waters Type	Latitude	Longitude	Length (ft)	Width (ft)	Area (acres)
Stream Segments								
ES1	R6		Isolate	38.927037°	-122.738945°	1689	3.5	0.1357
Total Stream Segments:							0.1357	
Total Possible Waters of U.S. Within Survey Area						0.1357		

TABLE 1. POSSIBLE AQUATIC RESOURCES WITHIN THE SURVEY AREA

4.0 **RECOMMENDATIONS**

Any work proposed within the possible waters of the U.S. will require permits from the following:

- U.S. Army Corps of Engineers (Nationwide Permit)
- Regional Water Quality Control Board (Water Quality Certification 401 permit)
- California Department of Fish and Wildlife (1602 Stream Alteration Agreement)

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Sooth Valley Pomo Biological Resource Assessment Report. ARI 009-001-07

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Attachment 1



Scotts Valley Band of Pomo Indians

Red Hills Bioenergy Project 7130 Red Hills Road, Kelseyville Assessor's Parcel No. 009-021-070

PROJECT DESCRIPTION Revised 10/23/2019

Property Description: Scotts Valley Band of Pomo Indians (SVBPI) through its tribally owned company, Scotts Valley Energy Company, LLC (SVEC) proposes to construct and operate a bioenergy plant on its fully owned property located at 7130 Red Hills Road, Kelseyville. This property encompasses 35.58 acres of which approximately 10.5 acres, running parallel with and adjacent to Highway 29, are designated Commercial Highway and the remaining 24.5± acres are designated Rural Residential. The site currently hosts two single-family residences, a travel trailer, a public restroom structure consisting of two discrete bathrooms, two permitted septic systems serving the fore mentioned structures and a well with two 2,000 gallon water tanks providing water to these structures plus water valves placed at strategic locations throughout the property.

Currently SVBPI has entered into a temporary lease agreement with PG&E for use of just under four acres of the property to store and chip forest material coming from its line clearance program. When the material accumulates, a tub grinder stored on site will be operated for intervals of 2-3 hours at a time. The chipped material will be stored in piles on the property and used in the Project's storage area when construction begins. The agreement is for six months with options to renew. The leased area is located south of the parking lot along the eastern edge of the property, south to the public bathroom and west to the edge of the driveway. The Lake County Community Development Department approved this activity and issued an Encroachment Permit.

History: SVBPI purchased the property 23 years ago. Prior to its ownership, the land was a commercial walnut grove, with the owners living on site. SVBPI maintained the walnut grove in its early ownership years but abandoned that effort due to the age and condition of the trees. While the vast majority of the walnut trees remain in place, the original owner's home and 2 barns have been removed because they were deemed a health, safety and fire hazard. Neither were determined to be of historical value and hence neither are registered on the NRHP as documented in an 11 page report provided by the Northwest Information Center at Sonoma State University. The report references the former archaeological survey conducted on the property. In short, page 4 of the report states, "A pedestrian survey of the project areas conducted by qualified archeologists in January 2001 also provided no evidence of historical or prehistoric archeological properties." It further states, "Our review of the submitted HPSR leads us to concur with FHWA's determination that the property at 7130 Red Hills Road is not eligible for inclusion on the NRHP under any of the criteria established by 36 CFR 60.4."

Archaeology: SVBPI is not aware of any flatland or lowland sites in Lake County that could not be a possible archaeological site given the existence of Native Americans in the area since 12,000 BCE. A blanket of shattered obsidian is prevalent on the property, which is a minor indication that obsidian may have been mined as some point in time. However, during its years of ownership, SVBPI's certified cultural monitors have surveyed the property for archaeological evidence. To date no such evidence has been found. Nevertheless, SVBPI will retain one or more of its cultural monitors, as needed, during the project's site preparation and construction phases.

Biological Report: A biological resource assessment with a botanical survey, wildlife survey and delineation of waters of the entire property was conducted by Northwest Biosurvey of Kelseyville, California in accordance with the California Department of Fish and Wildlife's protocol for floristic-level botanical surveys and Corps of Engineers' survey requirements. The purpose of this study was to provide a definitive assessment of the presence of sensitive plant and wildlife species and Waters of the U.S. The study was in two parts consisting of pre-survey research of the literature and followed by two field surveys. The report concluded there are no sensitive plant or wildlife species/habitat, and no Waters of the U.S. on the property.

Project Site: The project will be sited on less than an acre of land. Its footprint will be rectangular in dimension. The western short side will run parallel to Red Hills Road and set 140' off the edge of the road. The south long side will run adjacent to and parallel with the property's existing lane and will be 270 feet in length The site will consist of four major elements: bioenergy plant housed within a building, outdoor storage area and new travel lanes.

Bio-Energy Plant: Each of the (2) Omni Bioenergy Artis 100kW units is a co-current fixed bed system designed to produce Syngas from most forms of carbon based biomass materials (feedstock) through a proprietary process capable of yielding industry leading energy content. The Artis systems can achieve this goal in a smaller space and at a fraction of the cost of legacy technology alternatives. In the case of the Red Hills Bioenergy Project, the feedstock will be at least 80% BioMAT Category 3 forestry-sourced waste wood that would otherwise decay in place, be open-burned or deployed to landfills.

The Artis 100 has no open flame components and is a sealed system. The units employ programmable electric heaters to achieve optimal temperatures. Once biomass enters the Artis system the biomass is heated to a level that reduces the biomass to a gas known as Syngas and a solid byproduct known as Biochar. The system uses a customized auger-based compacting system to control both feedstock throughput and Syngas production quality. Using a hybrid of pyrolysis and gasification, the oxygen and moisture in the biomass/feedstock help produce a higher energy Syngas allowing for better, more efficient energy generation. As the final step the Artis delivers a clean Syngas to a modified internal combustion engine and generator to create electricity.

The core of the Artis system is the proprietary hybrid pyrolysis and gasification unit that includes a configurable system controller, feed delivery management, feed lock hopper and gas management.

- The Artis 100 can be shipped with major components pre-assembled. Once on-site, installation moves quickly and the system can be operational in 4 to 6 weeks including additional peripherals for feedstock processing and a prime mover/generator for electricity.
- The biomass feedstock will be pre-processed to approximately 1/4 of an inch in diameter.
- Optimal moisture content of feedstock is 10-20%.
- The Artis 100 is designed to operate at a neutral atmospheric pressure, which minimizes energy input and simplifies the operational complexity of the system.
- The Artis pyrolysis/gasification process is a sealed system and releases no emissions.
- Generators used as prime movers will meet or exceed all EPA and California emissions requirements. [See spec sheet]
- By employing the sealed auger compaction approach, the Artis system operates in the near absence of air (Oxygen and Nitrogen) resulting in a much more efficient Syngas production process and cleaner, safer operation.

- The Biochar produced can be deployed for net carbon sequestration of the original feedstock carbon. The Biochar is automatically delivered from the reactor for removal.
- Artis systems can be configured to optimize the interdependent factors of speed (feed rate) and temperature.
- The Artis is configurable by the preferred temperature for pyrolysis based on the highest gas profile given the feedstock type.
 - \circ The configurable range is from 400 to about 1100° C.
 - The feed rate is adjustable in a range of 10% to 100% of an Artis unit design capacity.

The System Controller can be programmed to introduce a controlled amount of steam depending on the moisture content of the Syngas or the moisture content of the feedstock. Steam may be employed to assist in the conversion of Biochar to Syngas if the user prefers more Syngas and less, or no Biochar. The Syngas is processed through a series of heat exchangers, hydrocarbon crackers and particulate filters before being delivered to the generator.

Building: The 2,000-square foot bioenergy plant will be housed in an enclosed building and sit on a 40' x 50' six-inch thick concrete pad. The sides of the metal building will be 10' high and there will be two 18'-wide roll-up doors and one pedestrian entrance. The roll-up doors will be located on the west and east sides of the building; the pedestrian entrance on the east side. An "A" frame metal roof with a centerline apex of 16' will cover the building and pad. The roof will be supported by steel pillars. The building will be located on the project's west side and 160 feet from the edge of Red Hills Road.

Storage Area: The storage area will be sited on the east side of the plant. It will encompass approximately 28,000 square feet as shown on the Site Plan. Its function will be to process and house the production plant's feedstock. The surface of the storage area will be a 6" pad of wood chips. This is intended to ensure that soil erosion will not occur in the winter season as well as ensuring that rock and related material will not be carried to the production plant. A two-phase chipping process will be used to reduce the forest material to ¹/₄" diameter. This activity will occur in this storage area.

Travel Lanes: 20' wide travel lanes will encircle the building in order to provide easy access to the bioenergy equipment by maintenance trucks and personnel. There will also be two 20' wide lanes bordering two sides of the forest material storage area. The first lane will parallel the south side running between the lane on the eastern side of the building and the eastern edge of the storage area. The second lane will run parallel to the eastern edge of the storage area in a north to south direction (see Site Plan). There will be a hammerhead "T" at the northern end of the lane to accommodate the turning around of the 2 - 5 ton trucks delivering the forest material. All lanes will be surfaced with either $\frac{1}{2}$ " gravel or with a new composite material consisting of dirt and cement, if the applicator machinery can be secured.

Operations: The operation plan assumes 2-5 trucks in the 2-5 ton range delivering forest material daily. It will arrive chipped or unchipped. In both cases the trucks will unload in piles in the storage area. The chipped material will be further reduced in size by processing through a hammer mill to $\frac{1}{4}$ -inch in diameter. Unchipped material will be run first through a chipper, and then transferred via a front loader or conveyor belt to the hammermill. Once through the hammermill, the material will be transferred to the plant's hopper or stockpiled. It is anticipated that the hopper will be loaded twice a day in early morning and early evening. The biochar will be transferred from the production plant to large sacks and stored on pallets. When five tons of biochar is accumulated, it will be shipped to a soil amendment wholesaler located in the Central Valley.

The plant will operate 24 hours per day, seven days per week except when it is shut down for scheduled maintenance on average one day per week. The operation is highly automated with system safeguards in place to shut the operation down in the event of a malfunction. Consequently, the plan calls for a full-time employee working 5.5 hours per day, seven days a week on a split-shift schedule. The operator will be responsible for chipping feedstock, feeding the hopper, packaging biochar and monitoring the plant's operation. Equipment employed in the storage area includes one front loader, one hammermill, and possibly two conveyor belt units placed between the chipper and the hammermill and the hammermill and the hopper.

Grading: The project's only grading will be to create a level base for setting the building's concrete pad, i.e., 2000 square feet. The first step will be to remove six walnut trees (of which one is a stump) from the pad area. The next step is to address the grade differential. The current differential for the building's proposed siting is on average 2.5' running from a high on the south side to a low on the north side. The elevation running west to east is constant. To create a level base, scraping to a depth of one foot will start on the south side and the material will be moved to the north side. It is anticipated that the cut volume will equal the fill volume, resulting in no import or export of soil. It is estimated that the soil movement will not exceed 45 cubic yards of material.

There are an additional 19 walnut trees (of which 4 are dead or stumps) situated in the proposed storage and lane areas. These trees will be cut down and stumps ground away. Thereafter, the areas will be scraped to remove the weeds grass and bushes in preparation for the respective base material as noted above.

Drainage: Historically, drainage is not an issue within the property. There is a small drainage swale located not less than 100' from the eastern edge of the lane adjacent to the eastern edge of the storage area. This swale functions to infiltrate and dissipate water coming from the southeast section of the property (upslope). Due to high infiltration rates of site soils, it is not anticipated that the project area will add to nor need to use this swale to accommodate the natural runoff that currently occurs within the project footprint. However, there will be two gutters installed on the east-west sides of the building's roof. Each gutter will have a downspout at each end of the building or 4 downspouts. The down spouts will be connected to 4'' diameter underground drainage pipe and the pipe will be extended north to a distance of 20' past the building's adjacent lane and released into the open field. Rocks of various sizes will be placed at the exit point to dissipate the released water and prevent ground erosion.

Construction Duration: The construction phase is estimated to take not more than 8 to 12 weeks. This includes: site grading, forming and completing an egress apron, setting rebar and pouring the plant's pad, installing roof supports and roof, digging drains and connecting downspouts, trenching water line and electrical line, and installing production equipment. The number of workers will include: 2 workers during grading, and 4-6 workers for remaining work. There will be 1 tractor/grader used to grade the site, 1 compactor to compact area for the pad, storage area and new travel lanes, 1 water tanker to suppress dust during grading, approximately 10 truck trips hauling road base at 5 cubic yards per trip, 8 cement truck trips hauling 5 cubic yards in each trip.

Construction Period Storage: Construction vehicles, equipment and materials will be staged either along the south side of the property's existing lane or in the storage area once the trees have been removed.

Greenhouse Gas Emissions:

Construction Phase: Normal emissions from construction vehicles, graders, trenchers, compactors and concrete curing.

Operating Phase: Standard emissions from a diesel powered front end loader operating 6-8 hours per day. Standard emission from a diesel powered wood chipper and hammer mill, although purchase of electric powered versions will be investigated as well. Trace level emissions to below detectable levels from the sealed-system Artis gasifier. The Syngas delivered from the gasifier to a combustion engine electricity generator is primarily Hydrogen and Carbon Monoxide, with less than 10% by volume being Methane and Carbon Dioxide. The electricity generator will meet all EPA and regional air quality board standards with an emission level cleaner than a natural gas generator. Emissions testing will be done as part of project startup and commissioning activities. The Artis 100 systems have zero emissions and the generators we are proposing to use will all meet appropriate EPA and air quality board emission requirements.

Impervious Surfaces: The primary impervious surface from the project is 2,000 square feet in the form of a concrete pad on which the production plant building will be placed. Water diversion from the roof is presented under "Drainage." Secondary areas include the 20' wide lanes surrounding the pad and the additional lanes on two sides of the storage area. The property's soil percolates easily as demonstrated by its history of no soil erosion.

Dust Control: Dust that may occur during land re-leveling or construction will be controlled by the dispersal of water. The water used for this activity will come from the site's existing water line or water tender, whichever is most efficient. Any dust created during the operational phase will be managed with water application, tarping/cover, and good feedstock management practices.

Electricity: There are three electrical needs. The first and foremost is the transmission line between the plant's co-generator and the PG&E pole to the north west of the concrete pad and adjacent to and between the property's boundary line and Red Hills Road. This transmission line will be overhead as required by PG&E. It will connect the co-generator units, set on the west side of the building, to a transformer set towards the top of the pole as installed by PG&E's employees. The second electrical need will be lighting in the plant. This lighting will be LED with lights set above the bottom of the roof line as to prevent glare emanating to surrounding properties. The source of this light will come from the plant itself and only activated when needed to conduct monitoring or maintenance activities. The third electrical need will be light poles placed on the perimeter of the two lanes that parallel the storage area.

Water Supply: The property has its own agriculture well and pump located at the north end of the property. Water is pumped to the south end of the property and stored in (2) 2,000-gallon tanks that are located between the public bathroom and the two existing homes. The tanks serve all three units plus water outlets strategically placed on the property. The well pump, water tanks and distribution system are maintained by SVBPI's Housing staff. An additional ³/₄- to one-inch water line will be added to the production plant to supply the 5-10 gallons of water daily. The water source for this need will be the existing PVC water line that runs north to south between the property's well and water storage tanks. Connection will be made by cutting into and setting a "T" connector at the most logical access point. The water will be transmitted to the northeast corner of the concrete pad via a ³/₄" schedule 40 PVC pipe, and buried to the depth required by code. An eye wash unit will be installed adjacent to the faucet. A standard commercial grade hose will be used to connect and supply water to the production units.

Hazardous Materials: The operation will require diesel fuel to operate the chipper and loading tractor. Diesel will be provided by a fueling service. Cleaning solvents will be held in small quantities, no more than 2-gallon containers each, and all kept in a fireproof storage cabinet secured by lock and key. There are no historical records documenting the dumping or uses of hazardous material on the site; hence, no hazardous materials mitigation efforts needed.

Trash Disposal: The operation and its staff will generate a very limited amount of trash. This trash will be disposed of in standard trash and recycling bins. The bins will be rolled to the edge of the property and placed along side of the current residential bins for a weekly pick-up. The bins will be kept adjacent to the concrete pad in a location that presents no sight line to neighbors nor traffic on Red Hills Road. Thus, no additional trash enclosure is planned nor required.

Fencing: 3' high chain link fencing encompasses the perimeter of the entire 35.58 -acre property. In addition, an 8' high chain link fence will be installed around the perimeter of the lanes surrounding the building. This fencing will have two large locked gate openings. The first will be on the east side of the building and allow access for movement of chipped material from the storage areas to the bioenergy equipment inside the building. The second will be on the south side to allow for access by staff and maintenance vehicles. There will also be placed on the south side a pedestrian gate. There is one main gate or entrance to the property at large, normally kept open but can be locked, if needed.

Lighting: As noted above under "electricity", there are two exterior lighting elements. The first is overhead lighting beneath the roof and above the bioenergy plant. This lighting will be standard LED units, which will be placed to avoid glare emanating beyond the perimeter of the concrete pad. The second element will be street lighting. Up to 4 poles will be placed along the two lanes that border the forest material area. The poles will be of the same style as the existing poles on the main lane through the property. The light will be down casting again as to minimize light impacting the neighboring properties.

Parking: Parking for staff and maintenance personnel will occur on the south and west lanes adjacent to the building. Additional parking exists in the paved parking lot and throughout the property if needed.

Landscaping: The Red Hills property is in an agriculture setting. Accordingly, no formal landscape plan is proposed for the project. Rather the surrounding area will be retained in its current natural state.

Visibility/Aesthetics: The attached photos were taken at various locations on Red Hills Road and Soda Bay Road, with the southernmost place being the entrance of the Beckstoffer vineyard, to the northernmost place being the first rise on Soda Bay Road north of Highway 29, approximately ½ mile in both directions. The photos show a minimum visual impact from these vantage points, primarily because of the existing foliage both on the property and adjacent property.

Odors: The system has no emissions or odors.

Noise: The Level 2 Housed Gen-Set that power the system will be enclosed in full aluminum weather protection and superior sound attenuation for specific low noise application. This includes a critical grade muffler. The generators will be located on the west side of the production plant, over 140 feet from the County Road, over 200 feet from residences on the property, and over 800 feet from the nearest off-site residence. Outdoor chipping operations will take place approximately 2-3 hours per day, 5 days per week, and are also set back from nearby residences. The operation is expected to comply with County noise requirements.

See attached Omni BioEnergy, LLC Artis gasification specifications sheets.

UP 19-05, IS 19-09, Attachment 2, Artis 100 Cut Sheet

Jmni BioEnergy, LLC

Waste To Clean Energy Solutions

www.omnibioenergy.com 415.302.1245

Jmni BioEnergy, LLC

Omni Bioenergy is a Green Energy Solutions company formed to expand and commercialize innovative solutions for renewable energy generation, fuels and storage. Omni provides cutting edge systems. consulting services, engineering, support, procurement and construction services to its development partners and customers. Omni has the capability to validate, commercialize, procure and extend next generation renewable energy and fuel solutions that facilitate 24x7 or "on demand"energy generation opportunities

Our Products - ARTIS Gasification

- Type: Co-Current Fixed Bed VariTemp and Speed /Active feed
- Size: 50kW to 500kW Systems can be combined
- Product: Syngas
- Reactor Conditions: Pressure (atm): 1
- · Operating Cycle: up to 24hrs/330DPY as required
- Utilities Per 100kW system:
- Electricity Consumption: ~30 kW
- Water Consumption: Minimal
- Electrical Connection: 240v / 3 Phase /100amp
- Capable of remote operation and monitoring
- Smart Grid and Micro Grid capable

PROCESS FLOW DIAGRAM



- · Waste to Renewable Power
 - Gasifier produces uniform gas and biochar in a sealed reactor designed to thermally process biomass without open flame or emissions
 - · Biochar is separated for use or sale
 - Internal combustion engine (ICE) generator produces electricity for use on site and or export to the grid
- Typical Syngas composition from untreated wood
- Hydrogen 44.3%
- CO 44.6%
- Carbon dioxide 2.9%
- Methane 5.5%
- C2 Trace BDL
- Oxygen 0%
- Nitrogen Trace BDL
- Chlorine Trace BDL
- Sulfur Trace BDL
- <u>H2O 2.4%</u>
- Total: 100%
- Carbon footprint of biomass power plants is generally neutral as determined by US EPA and DoE
- CARB states, fuels made from diverted organic waste are carbon negative due to methane capture and reduced fossil fuel use
- ALL peripherals used in Omni Bioenergy deployments meet EPA and Regional air quality standards



(ARTIS 50kW system)

- ARTIS Gasifiers are a renewable energy power solution with significant advantages over other available gasification systems. Our modular systems and highly configurable design, operational flexibility and "clean" systems approach makes us a lower cost solution and puts us at the forefront of a rapidly growing market. Some examples of our "best in breed" solution include:
- More efficient and cost effective
- 90% Biomass agnostic
- Fully Programmable
- Carbon Neutral to Negative
- "Hyper Clean" process
- Prime, Backup or on Demand power
- Highly configurable to customer needs
- · Produces high quality, clean energy syngas
- Syngs can be converted to 99.999 hydrogen
- Building block for complete grid independent solution



🕝 mni BioEnergy, LLC

Multiple Income/Savings Opportunities

Omni's approach to waste to green energy projects afford our clients multiple paths to RRol (Rapid Return on Investment) and profitability. The ability to work off grid, leverage utility tariff programs, grants, subsidies, behind the meter and or net metering gives us wide flexibility when looking at project economics. Secondary revenue streams such as Biochar and Hydrogen production serve to not only enhance the overall economic upside of these projects but allow the operator to achieve carbon neutral to negative status.

- Energy sales
- Operating expense reduction
- Elimination of tipping fees
- Biochar sales
- Hydrogen sales



- **Reduce Greenhouse Gas Emissions**
- Qualify for Class I/II Renewable Energy Credits
- Reduce Electricity Demand from the Grid





Projects Focus

Our primary focus is on 3 verticals: Agriculture, forestry and municipal waste processing operations. Having a wide range of scale-able solutions as well as a broad portfolio of peripheral options to select from gives Omni the ability to serve a broad range of clients while delivering the best possible solutions for their needs. Omni will consider ANY carbon based feedstock option for potential projects.

Services

Omni offers a wide array of services including:

- System design and engineering
- Site locations and development
- Pro Forma economic analysis
- Permitting and agency approvals
- Construction planning and execution
- Site operation
- Ongoing product support
- Full life-cycle development



ENERGY FROM WASTE Smart Planet Stewardship

Excellence as a Standard

Omni Bioenergy is not just a business to us. Green Energy is not just a solution. Planet Stewardship is not just a marketing pitch. We believe that you are what you leave behind for the children. Their future is WHY we work as hard as we do to design, build and deploy the best systems we can for each and every customer we work with. Its not just an obligation.

It's a love.



For more information call us at 415.302.1245 or Email us at info@omnibioenergy.com

> Omni Bioenergy LLC 623 Oakdale Avenue Corte Madera, CA 94925

GILLETTE GENERATORS

LIQUID COOLED DIESEL ENGINE GENERATOR SET

Madal		STANDBY	PRIME
wiodel	HZ	130°C RISE	105°C RISE
T4D-1500-60 HERTZ	60	150	150



All generator sets are USA prototype built and thoroughly tested. Production models are USA factory built and 100% load tested.



UL1446, UL508, UL142, UL498



NFPA 110, 99, 70, 37

All generator sets meet NFPA-110 Level 1, when equipped with the necessary accessories and installed per NFPA standards.



NEC 700, 701, 702, 708



ANSI

NEMA ICS10, MG1, ICS6, AB1

ANSI C62.41, 27, 59, 32, 480, 40Q, 81U, 360-05



SCE ASCE 7-05 & 7-10

All generator sets meet 180 MPH rating.





60 HZ MODEL

T4D-1500

"OPEN" GEN-SET

There is no enclosure, so gen-set must be placed within a weather protected area, uninhabited by humans or animals, with proper ventilation. Silencer not supplied, as installation requirements are not known. However, this item is available as optional equipment.



"LEVEL 2" HOUSED GEN-SET

Full aluminum weather protection and superior sound attenuation for specific low noise applications. Critical grade muffler is standard.

GENERATOR	VOLTAGE		РН	HZ	130°C RISE STANDBY RATING		105°C RISE PRIME RATING	
MODEL	L-N	L-L			KW/KVA	AMP	KW/KVA	AMP
T4D-1500-1-1	120	240	1	60	150/150	625	150/150	625
T4D-1500-3-2	120	208	3	60	150/187	521	150/187	521
T4D-1500-3-3	120	240	3	60	150/187	451	150/187	451
T4D-1500-3-4	277	480	3	60	150/187	225	150/187	225
T4D-1500-3-16	346	600	3	60	150/187	180	150/187	180

GENERATOR RATINGS

RATINGS: All three phase gen-sets are 12 lead windings, rated at .8 power factor. 130° C "STANDBY RATINGS" are strictly for gen-sets that are used for back-up emergency power to a failed normal utility power source. This standby rating allows varying loads, with no overload capability, for the entire duration of utility power outage. 105° C "PRIME RATINGS" are strictly for gen-sets that provide the prime source of electric power, where normal utility power is unavailable or unreliable. A 10% overload is allowed for a total of 1 hour, within every 12 hours of operation, on every PRIME RATED systems. All gen-set power ratings are based on temperature rise measured by resistance method as defined by MIL-STD 705C and IEEE STD 115, METHOD 6.4.4. All generators have class H (180°C) insulation system on both rotor and stator windings. All factory tests and KW/KVA charts shown above are based 130°C (standby), and 105°C (prime) R/R winding temperature, within a maximum 40°C ambient condition. Generators operated at standby power ratings must not exceed the temperature rise limitation for class H insulation system, as specified in NEMA MG1-22.40. Specifications & ratings are subject to change without prior notice.

APPLICATION & ENGINEERING DATA FOR MODEL T4D-1500-60 HZ

GENERATOR SPECIFICATIONS

ManufacturerStamford Generators	
Model & Type UCDI274K-311, 4 Pole, 4 Lead, Single Phase	
UCI274G-311, 4 Pole, 12 Lead, Three Phase	
UCI274G-17, 4 Pole, 12 Lead, 600V, Three Phase	
ExciterBrushless, shunt excited	
Voltage RegulatorSolid State, HZ/Volts	
Voltage Regulation ¹ / ₂ %, No load to full load	
FrequencyField convertible, 60 HZ to 50 HZ	
Frequency Regulation $\pm \frac{1}{2}\%$ (1/2 cycle, no load to full load)	
Unbalanced Load Capability100% of standby amps	
One Step Load Acceptance 100% of nameplate rating	
Total Stator and Load InsulationClass H, 180°C	
Temperature Rise	
3 Ø Motor Starting @ 30% Voltage Dip (208-240V)1500 kVA	
3 Ø Motor Starting @ 30% Voltage Dip (480V-600V) 2300 kVA	
Bearing	
CouplingDirect flexible disc.	
Total Harmonic Distortion Max 3½% (MIL-STD705B)	
Telephone Interference Factor Max 50 (NEMA MG1-22)	
Deviation Factor Max 5% (MIL-STD 405B)	
AlternatorSelf ventilating and drip-proof	
Ltd. Warranty Period 24 Months from start-up date or	

GENERATOR FEATURES

- World Renown Stamford Electric Generator having UL-1446 certification.
- Full generator protection with **Deep Sea 7420** controller, having UL-508 certification.
- Automatic voltage regulator with over-excitation, underfrequency compensation, under-speed protection, and EMI filtering. Entire solid-state board is encapsulated for moisture protection.
- Generator power ratings are based on temperature rise, measured by resistance method, as defined in MIL-STD 705C and IEEE STD 115, Method 6.4.4.
- Power ratings will not exceed temperature rise limitation for class H insulation as per NEMA MG1-22.40.
- Insulation resistance to ground, exceeds 1.5 meg-ohm.
- Stator receives 2000 V. hi-potential test on main windings, and rotor windings receive a 1500 V. hi-potential test, as per MIL-STD 705B.
- Full amortisseur windings with UL-1446 certification.
- Complete engine-generator torsional acceptance, confirmed during initial prototype testing.
- Full load testing on all engine-generator sets, before shipping.

ENGINE SPECIFICATIONS AND APPLICATIONS DATA

ENGINE

ManufacturerVOLVO-PENTA
Model and TypeTAD871VE, 4 cycle, liquid Cooled
AspirationTurbo After Cooler, Air to Air
Charged Air Cooled SystemAir to Air
Cylinder Arrangement
Displacement Cu. In. (Liters)
Bore & Stroke in (Cm)4.33 x 5.31 (11.0 x 13.5)
Compression Ratio
Main Bearings Tin Overlay with Babbit Backing
Cylinder HeadCast Iron with overhead Cam
PistonsAluminum Alloy with Graphite Coating
CrankshaftInduction Hardened, Heat Treated Forged
Valves Heat Treated and Hardened Exhaust Valve
GovernorElectronic, EMS 2.2
Frequency Regulation± 1/4%
Air CleanerDry, Replaceable Cartridge
Engine Speed
Max Power, bhp (kwm) Standby
BMEP: psi (MPa) Standby
Ltd. Warranty Period 2 Year or 1000 hrs, first to occur

FUEL SYSTEM

Туре	Diesel Fuel Oil (ASTM No. 2-D)
Combustion System	Direct Injection
Fuel Injection Pump	Electronic, Delphi E3
24 VDC Coolant heaters	Optional Equipment
Fuel Filter	Yes with Water Separator

FUEL CONSUMPTION

GAL/HR (LITER/HR)	STANDBY	PRIME	
100% LOAD	11.5 (43.5)	11.5 (43.5)	
75% LOAD	9.62 (36.5)	9.62 (36.5)	
50% LOAD	6.81 (25.8)	6.81 (25.8)	
DEF Consumption is 6% of fuel consumption			

OIL SYSTEM

Туре	Full Pressure
Oil Pan Cap. W/ filter qt. (L)	
Oil Filter	3, Replaceable Cartridge type

ELECTRICAL SYSTEM

Ignition SystemElectronic Eng. Alternator/Starter: 24 VDC, negative ground, 110 amp/hr.

Recommended battery to $-18^{\circ}C(0^{\circ} \text{ F})$:(2) 12 VDC, BCI# 31, Max. Dimensions: 14"lg x 6 3/4" wi x 10" hi, with standard round posts. Min output 1000 CCA. Battery tray (max. dim. at 15"lg x 7"wi). This model has (2) battery trays, (2) hold down straps, (2) sets of battery cables, and (1) battery charger. Installation of (2) 12VDC starting batteries connected in series for 24VDC output is required, with possible higher AMP/HR rating, as described above, if the normal environment temperature averages $-13^{\circ} \text{ F} (-25^{\circ}\text{C})$ or cooler.

CERTIFICATIONS

All engines are EPA emissions certified. All non-emergency stationary diesel engines are Tier IV Final compliant.

APPLICATION & ENGINEERING DATA FOR MODEL T4D-1500-60 HZ

COOLING SYSTEM

Type of System	Air to Air, Charged Air Cooler
Coolant Pump	Pre-lubricated, self-sealing
Cooling Fan Type	Pusher
Fan Diameter inches (cm)	
Fan drive ratio	
Ambient Capacity of Radiator °F	(°C)131 (55)
Engine Jacket Coolant Capacity g	al. (L)8.70 (33)
Radiator Coolant Capacity gal. (L)
Water Pump Capacity gpm (L/mit	n)122 (462)
Heat Reject Coolant: Btu/min	
Air to Air Heat Reject, BTU/min.	
Heat Radiated to Ambient, BTU/1	min4,253
Low Radiator Coolant Level Shut	downStandard
Note: Coolant temp. shut-down swite	ch setting at 228°F (109°C) with
50/50 (water/antifreeze) mix.	

COOLING AIR REQUIREMENTS

Combustion Air cfm (m ³ /min)	1,646 (46.6)
Max Air Intake Restrictions:	
Clean Air Cleaner, KPA (psi)	5 (1.5)
Radiator Cooling Air, SCFM (m ³ /min)	

EXHAUST SYSTEM

Exhaust Outlet Size	5"
Max. Back Pressure in KPA (in. H2O)	
Exhaust Flow, at rated KW, CFM (m3/min)	886 (25.1)
Exhaust Temp, (Stack) °F (°C)	709 (376)

SOUND LEVELS MEASURED IN dB(A)

	Open	Level 2	
	Set	Encl.	
Level 2, Critical Silencer			
Level 3, Hospital Silencer			

Note: Open sets (no enclosure) have optional silencer system choices due to unknown job-site applications. Level 2 enclosure has installed critical silencer with upgrade to Level 3 hospital silencer. Sound tests are averaged from several test points and taken at 23 ft. (7 m) from source of noise at normal operation.

DERATE GENERATOR FOR ALTITUDE

3% per 1000 ft. (305m) above 3000 ft. (914m) from sea level

DERATE GENERATOR FOR TEMPERATURE

2% per 10°F (5.6°C) above 104°F (40°C)

DIMENSIONS AND WEIGHTS

	Open	Level 2
	Set	Enclosure
Length in (cm)		
Width in (cm)		
Height in (cm)		
Net Weight lbs (kg)		
Ship Weight lbs (kg)		

DEEP SEA 7420 DIGITAL MICROPROCESSOR CONTROLLER



Deep Sea 7420

The "**7420**" controller is an auto start mains (utility) failure module for single gen-set applications. This controller includes a backlit LCD display which <u>continuously</u> displays the status of the engine and generator at all times.

The "**7420**" controller will also monitor speed, frequency, voltage, current, oil pressure, coolant temp., and fuel levels. These modules have been designed to display warning and shut down status. It also includes: (11) configurable inputs • (8) configurable outputs • voltage monitoring • mains (utility) failure detection • (250) event logs • configurable timers • automatic shutdown or warning during fault detection • remote start (on load) • engine preheat • advanced metering capability • hour meter • text LCD displays • protected solid state outputs • test buttons for: stop/reset • manual mode • auto mode • lamp test • start button • power monitoring (kWh, kVAr, kVAh, kVArh)

This controller includes expansion features including RS232, RS484 (using MODBUS-RTU/TCP), direct USB connection with PC, expansion optioned using DSENet for remote annunciation and remote relay interfacing for a distance of up to 3300FT. The controller software is freely downloadable from the internet and allows monitoring with direct USB cable, LAN, or by internet via the built in web interface.



Further expansion is available by adding the optional "WebNet" gateway interface module. This device will allow comprehensive monitoring of the generator via the cloud including identification, location, and status. Some advantages of this module include: reduced site visits and maintenance costs • remote fuel management • fault analysis • asset tracking • automatic system alerts • maximized system up-time.

STANDARD FEATURES FOR MODEL T4D-1500-60 HZ

STANDARD FEATURES

CONTROL PANEL:

Deep Sea 7420 digital microprocessor with logic allows programming in the field. Controller has:

- STOP-MANUAL-AUTO modes and automatic engine shutdowns, signaled by full text LCD indicators:
- Low oil pressure
- Engine fail to start
- High engine temp
- Engine over speedEngine under speed
- Low Radiator Level Three auxiliary alarms
 - alarms Over & under voltage
- Battery fail alarm

Also included is tamper-proof engine hour meter

ENGINE:

Fuel filter • Full flow Oil filter • Air filter • Fuel pump • Oil pump • Solenoid type starter motor • Hi-temp radiator • Jacket water pump • Thermostat • Pusher fan and guard • Exhaust manifold • Electronic Governor • 24 VDC battery charging alternator • Flexible fuel and exhaust connectors • Vibration isolators • Open coolant recovery system with 50/50 water to anti-freeze mixture • flexible oil & radiator hose • Shut-down sensors for low oil pressure, high coolant temp., low coolant level, high ambient temp.

Design & specifications subject to change without prior notice. Dimensions shown are approximate. Contact Gillette for certified drawings. DO NOT USE DIMENSIONS FOR INSTALLATION PURPOSES.

AC GENERATOR SYSTEM:

AC generator • Shunt excited • Brushless design • Circuit Breaker installed and wired to gen-set • Direct connection to engine with flex disc • Class H, 180°C insulation • Self ventilated • Drip proof construction • UL Certified

VOLTAGE REGULATOR:

1% Voltage regulation • EMI filter • Under-speed protection • Over-excitation protection • total encapsulation

DC ELECTRICAL SYSTEM:

Battery trays • Battery cables • Battery hold down straps • 3-stage battery charger with float, absorption, & bulk automatic charge stages

WEATHER / SOUNDPROOF ALUMINUM HOUSING:

Corrosion Resistant Protection consisting of:

- (9) Heated and Agitated Wash Stages
- Zinc Phosphate Etching-Coating Stage
- Final Baked on Enamel Powder Coat
- 18/8 Stainless Steel Hardware









Omni BioEnergy, LLC

Artis 100 Gasifier Fact Sheet – 2019

Gasifier Unit:	Artis 100 kW
Technology:	Co-Current Fixed Bed - VariTemp and Speed / Active feed
Emissions:	Carbon Neutral, Zero Emissions Platform
Process Data:	
Туре:	Co-Current Fixed Bed – VariTemp and Speed / Active feed
Size:	GEP: 330 kW, Net Energy Output 102 kW
Feed Stock:	Untreated Wood
Moisture:	Assumed 9.6%
Product:	Syngas
Feed Stock Rate:	21.2 gms/sec: 1.83 MTPD
Reactor Conditions:	Pressure (atm): 1 - Temperature (C) – 750
Liquid waste flowrate	
(from dryer scrubber):	Dependent on Feed Stock Moisture
Biochar Production:	12.3% - 0.23 MTPD
Ash Content:	~1.34%
Design gas output rate:	(scfm): ~65
Operating gas output rate (Nm3/kg feed):	57.1 scfm (1.271 m^3 / kg feed)
HHV LHV	321 Btu/scf 294 Btu/scf
Gas Exit Temp (oC):	750
Heating value (kJ/m3):	11.96 MJ/m^3
Heavy metals content:	N/A – Varies with feed stock
Particulate content	
(g/Nm3):	MERV 7-8
Tar content (g/Nm3):	N/A - Feedstock and Temp dependent



2

Artis 100 Gasifier Fact Sheet – 2019

Product:	
Hydrogen	44.3%
CO	44.6%
Carbon dioxide	2.9%
Methane	5.5%
C2+	Trace BDL
Oxygen	0%
Nitrogen	Trace BDL
Chlorine	Trace BDL
Sulfur	Trace BDL
<u>H2O</u>	<u>2.4%</u>
Total:	100%
Bi Products:	Syngas, BioChar, H2O
Design gas output rate:	(scfm): ~65
Operating Cycle:	24hrs/350 DPY
Utilities:	
Electricity per 100kW	Energy required: ~30 kW
Water per 100kW	Minimal TBD
Electrical Connection	240v / 3 Phase / 100amp

Attachment B





Photo 1. View from the first rise in Soda Bay Road north of Highway 29 looking south acrossPG&E's substation. In the foreground. The vantage point is between ½ and ¾ mile to the north of the property. Project would not be visible from this vantage point. 10/2/2019.



Photo 2. View to south from Red Hills Road, west side of road, 100 feet from Highway 29. The Project would be barely visible from this vantage point because of the incline of the property. rising north to south and the existing foliage on the property 10/2/2019.



Photo 3. View from Red Hills Road approximately 600 feet from the northwest corner of Project's building. View is looking north to south. Project would barely be visible from this vantage point. The pole in this photo is where the connection of power to PG&E's grid will occur. 10/2/2019.



Photo 4. View to north from Red Hills Road at Beckstoffer Vineyard entrance approximately ½ mile south of the Project Site. Trees parallel to road provide screening from locations south of the property. 10/13/19.



Photo 5. View to northeast from Red Hills Road adjacent to the single-family residence located on the west side of the road. Foliage along the sightline from the residential unit to the Project's building provides a visual barrier, that makes only a very small portion of the building's roof line visible. 10/2/2019.



Photo 6. Windshield view from Red Hills Road to north; Project Site entrance on right. Lack of vegetation makes the structure partially visible from this vantage point. 10/13/19.



Photo 7. Windshield view from Red Hills Road to north-north east. View partially obscured by vegetation. 10/13/2019.



Photo 8. Windshield view from Red Hills Road to north-north east just south of Project Site entrance. This will be the most visible public vantage point. 10/13/2019.

UP 19-05, IS 19-09, Attachment 3, Biological Review

BIOLOGICAL RESOURCE ASSESSMENT WITH BOTANICAL SURVEY and DELINEATION OF WATERS OF THE U.S.

for the

SCOTTS VALLEY BAND OF POMO INDIANS APN 009-021-07 LAKE COUNTY, CALIFORNIA

July 1, 2019

Prepared by Northwest Biosurvey



BIOLOGICAL RESOURCE ASSESSMENT WITH BOTANICAL SURVEY and DELINEATION OF WATERS OF THE U.S. for the SCOTTS VALLEY BAND OF POMO INDIANS APN 009-021-07 LAKE COUNTY, CALIFORNIA

July 1, 2019

36)

Prepared for: Scotts Valley Band of Pomo Indians 1005 Parallel Drive Lakeport, CA 95453 c/o Terre Logsdon terre.logsdon@sv-nsn.gov

Prepared by: Northwest Biosurvey 1905 Westlake Drive Kelseyville, CA 95451 (707) 889-1061

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Scotts Valley Pomo Biological Resource Assessment Report, APN 009-021-07

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APPENDIX B	Regional CWHR Species List

APPENDIX C Aquatic Resources Report

Scotts Valley Pomo Biological Resource Assessment Report, APN 009-021-07

1.0 **PROJECT DESCRIPTION**

1.1 <u>Proposed Project</u>: This biological resource assessment and survey covers a parcel of approximately 34.6 acres which is proposed for additional development, including a solar project. The site lies approximately 6 miles southeast of Kelseyville, California.

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 taxa¹. 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 <u>and</u> 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 conducted as part of the assessment. Due to the fact that delineations are prepared with a standard format for U.S. Army Corps of Engineers review, the delineation is provided in its own section (Appendix C).

1.2 Location: The project site is located at 7130 Red Hills Road, Clearlake Highlands, California, 95451 (APN 009-021-07; T13N R8W Sec. 34, Clearlake Highlands, Calif. 7¹/₂' Topographic Map). A location map is provided in **Figure 1**.

¹ Many 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.


Scotts Valley Pomo Biological Resource Assessment Report, APN 009-021-07

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 sensitive species potentially 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 habitat features such as vernal pools and serpentine soils

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, 2019
- California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (2019 edition)
- 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. 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.).

2.1 <u>Botanical Survey Methods</u>: A full, in-season floristic-level survey was conducted for the project site. The CNDDB report and maps for the Clearlake Highlands quadrangle were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of A Manual of California Vegetation (Sawyer et al. 2009) as modified by the California Native Plant Society (CNPS) and mapped on a 1"=85' aerial photo. Vegetation community names are based on an assessment of dominant cover species.

Plants occurring on the site were identified using The Jepson Manual of Higher Plants of California. Where necessary, species names were updated based on the 6th edition, CNPS Inventory of Rare and Endangered Plants of California. A map of the plant communities is provided in **Figure 2**.

2.2 <u>Delineation Methods</u>: The delineation was conducted 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.

2.3 <u>Survey Dates</u>: Site visits for in-season floristic surveys, mapping, and the delineation were made on April 10 and June 28, 2019.

2.4 <u>Biological Assessment Staff</u>: The assessment, botanical field surveys, plant taxonomy, and the delineation were conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has over 30 years of experience as a biologist in the government and private sectors. He completed his wetland delineation training under Terry Huffman of Huffman & Associates, Inc.

Field surveys, GIS mapping, additional database review, and final report preparation were conducted by Leigh Zalusky. Leigh Zalusky has a Bachelor of Science Degree in Computer Engineering from the University of California, Davis. He has developed extensive skills in plant taxonomy and ecology while managing and assisting in the development of the Seigler Valley Wetland Mitigation Bank and while assisting Northwest Biosurvey staff in field surveys and vegetation mapping over the past four years.

Database review, pre-survey research, and report preparation were conducted by Danielle Zalusky. Ms. Zalusky has 15 years of experience as a planner in local government and the private sector and 16 years as a field biologist. She has a Bachelor of Arts Degree all course work toward an M.A. Degree in Rural and Town Planning from Chico State University. Prior to joining Northwest Biosurvey in 2002, Ms. Zalusky was a senior planner for the Lake County Community Development Department.

3.0 SITE CHARACTERISTICS

3.1 Topography and Drainage: The site is located along the Highway 29 corridor in narrow valley terrain between the northeastern toe of the Mayacamas Mountains and the southern slope of Mount Konocti. This corridor consists of a series of isolated flats and small basins either drained internally or connected to Thurston Creek, which drains to the isolated basin of Thurston Lake. This property is drained along its eastern edge by an excavated ditch which flows north to State Highway 29 and then east to an unnamed tributary to Thurston Creek. The property drops approximately 80 feet in elevation from north to south into Hess Flat at an elevation of 1,880 feet msl (mean sea level).

3.2 <u>Soils:</u> The survey area contains a single soil type, which is weathered from obsidian formations and is described as follows:

Glenview-Arrowhead complex, 5-15% slopes (soil unit 138):

This unit is on volcanic hills. Native vegetation is mainly brush with scattered conifers. The unit contains about 60% Glenview very gravelly loam and 20% Arrowhead extremely gravelly sandy loam. The Glenview soil is very deep and well drained. It formed in material weathered from obsidian. Permeability is moderately slow and runoff is medium. The Arrowhead soil is moderately deep and well drained, and formed in material weathered from obsidian. Permeability is slow and runoff is medium. The hazard of erosion is moderate for both soils.

3.3 <u>Vegetation Types:</u> This site contains two 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 below in **Table 1**. They are described below the table and shown in the vegetation map provided in **Figure 2**.

VEGETATION TYPE	ACRES	PERCENT OF TOTAL
Interior Live Oak Woodland	1.55	4.48
Mixed Chaparral	1.48	4.28
Walnut Orchard	29.80	86.18
Ruderal	1.75	5.06
Total	34.58	100.0%

TABLE 1. AREAS OF VEGETATION TYPES

Interior Live Oak:

This community consists of a remnant stand of interior live oak woodland along an ephemeral drainage on the eastern edge of the property. It is heavily dominated by interior live oak trees (Quercus wislizeni var. wislizeni) to a height of 50 feet. Due to its narrow width, sufficient sunlight penetrates this community to support a dense shrub layer. This consists of both common and Stanford manzanita (Arctostaphylos manzanita ssp. manzanita; A. stanfordiana ssp. stanfordiana) with sub-dominant contributions from scrub oak shrubs (Quercus berberidifolia) and birch-leaf mountain mahogany (Cercocarpus betuloides var. betuloides) in the more open areas. The ground cover is primarily leaf litter with low growing poison oak (Toxicodendron diversilobum).

Mixed Chaparral:

This dense shrub community occupies the southeastern corner of the property. While much of it remains intact along the southern property boundary, the shrub layer has been cleared elsewhere, leaving a scattered upper canopy of knobcone pines (*Pinus attenuata*). The shrub layer is recovering through stump sprouting. The community supports a heterogeneous mix of common manzanita, deerbrush (*Ceanothus integerrimus*), interior live oak shrub² (*Quercus wislizeni var. frutescens*), poison oak, and coyote brush (*Baccharis pilularis*). The community includes a scattered upper canopy of knobcone pine. The ground cover within undisturbed areas consists of leaf litter.

² The distinction between interior live oak trees (Quercus wislizeni var. wislizeni) and shrubs (Q. wislizeni var. frutescens) appears to be subjective, at least in field and lab identifications not involving genetic testing. Differences in plant height appear to be far more dependent on soil depth, soil moisture, aspect, and fire history than on genetic variation. The taxonomic distinction is not used in this report. We base the distinction between shrubland and woodland on community structure.

Walnut Orchard:

The majority of the property (86-percent) is occupied by a fallow walnut orchard. This orchard appears to be regularly disked leaving a substrate of exposed earth.

Ruderal:

This term refers to areas disturbed by human activity including roads and structures. The property is occupied by three residences, a parking lot, and roadways.



4.0 PRE-SURVEY RESEARCH RESULTS

4.1 <u>CNPS Electronic Inventory Analysis</u>: 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 Lake 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 (including vernal pool species, etc.). The CNPS database search does not allow fine-tuning for specific soil types and many specific habitats.

4.2 <u>California Natural Diversity Database</u>: The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the Clearlake Highlands 7½ quadrangle 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 these quadrangles, the table provides a brief description 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.

TABLE 2. CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND ENDANGERED PLANTS Selected CNPS Plants by Scientific Name:

Scientific Name	Name	Family	Lifeform	CRPR	CESA	FESA	Period	Habitat
Antirrhinum virga	twig-like snapdragon	Plantaginaceae	perennial herb	4.3	None	None	Jun-Jul	Chaparral, Lower montane coniferous forest
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
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Ericaceae	perennial evergreen shrub	1B.1	None	None	Feb-Apr	Chaparral, Lower montane coniferous forest (openings)
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	28.3	None	None	Jun-Sep	Marshes and swamps (freshwater)
Calochortus uniflorus	pink star-tulip	Liliaceąe	perennial bulbiferous herb	4.2	None	None	Apr-Jun	Coastal prairie, Coastal scrub, Meadows and seeps, North Coast coniferous forest
Calyptridium quadripetalum	four-petaled pussypaws	Montiaceae	annual herb	4.3	None	None	Apr-Jun	Chaparral, Lower montane coniferous forest
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	Orobanchaceae	annual herb (hemiparasiti c)	4.3	None	None	Jul-Aug	Closed-cone coniferous forest, Chaparral, Cismontane woodland
Eriastrum brandegeeae	Brandegee's eriastrum	Polemoniaceae	annual herb	18.1	None	None	Apr-Aug	Chaparral, Cismontane woodland
Eryngium constancei	Loch Lomond button-celery	Apiaceae	annual / perennial herb	1B.1	CE	FE	Apr-Jun	Vernal pools
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B,2	CE	None	Apr-Aug	Marshes and swamps (lake margins). Vernal pools
Hesperolinon adenophyllum	glandular western flax	Linaceae	annual herb	18.2	None	None	May-Aug	Chaparral, Cismontane woodland, Valley and foothill grassland
Hesperolinon bicarpellatum	two-carpellate western flax	Linaceae	annual herb	18.2	None	None	May-Jul	Chaparral (serpentinite)
Hesperolinon didymocarpum	Lake County western flax	Linaceae	annual herb	18.2	CE	None	May-Jul	Chaparral, Cismontane woodland, Valley and foothill grassland

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Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Horkelia bolanderi	Bolander's horkelia	Rosaceae	perennial herb	18.2	None	None	(May)Jun- Aug	Chaparral, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	2B.1	None	None	Sep-May	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps (often alkali), Riparian scrub
Lasthenia burkei	Burke's goldfields	Asteraceae	annual herb	18.1	CE	FE	Apr-Jun	Meadows and seeps (mesic), Vernal pools
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
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	Limnanthaceae	annual herb	4.2	None	None	Mar- May(Jun)	Chaparral, Cismontane woodland, Valley and foothill grassland, Vernal pools
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	3.1	None	None	Mar-Jun	Valley and foothill grassland, Vernal pools (alkaline)
Navarretia Ieucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	18.1	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Polemoniaceae	annual herb	18.1	СТ	FE	May-Jun	Vernal pools (volcanic ash flow)
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Polemoniaceae	annual herb	1B.2	CE	FE	May-Jun	Vernal pools (volcanic ash flow)
Potamogeton zosteriformis	eel-grass pondweed	Potamogetonaceae	annual herb (aquatic)	28.2	None	None	Jun-Jul	Marshes and swamps (assorted freshwater)
Sedella leiocarpa	Lake County stonecrop	Crassulaceae	annual herb	18.1	CE	FE	Apr-May	Cismontane woodland, Valley and foothill grassland, Vernal pools
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Malvaceae	perennial herb	18.2	None	None	(Jun)Jul- Aug	Meadows and seeps, Riparian forest
Toxicoscordion fontanum	marsh zigadenus	Melanthiaceae	perennial bulbiferous herb	4.2	None	None	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps

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Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	28.3	None	None	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest

Key for Table 2:

CNPS Rare Plant Threat Rank Definitions

- 18.1 = 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
- 18.3 = 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.
- Plants about which we need more information (Review List) 3
- 3.1 = Plants about which we need more information (Review List); seriously threatened in California
- = Plants about which we need more information (Review List); moderately threatened in California 3.2
- 3.3 = Plants about which we need more information (Review List); not very threatened in California
- 4.1 = Plants of limited distribution (watch list); seriously threatened in California
- 4.2 = Plants of limited distribution (watch list); moderately threatened in California
- 4.3 = Plants of limited distribution (watch list); not very threatened in California

State and Federal Status:

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

- SR = State. Rare = State. Threatened ST

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- SE = State Endangered. SD = State Delisted
- FP = FE =CDFW Fully Protected
- Federal Endangered
- SSC = CDFW Species of Special Concern WL = CDFW Watch List = Federal Threatened
- Federal Delisted FD =

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TABLE 3. CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE CLEARLAKE HIGHLANDS, CALIF. 7¹/₂' QUADRANGLE

Habitat Type	Habitat Present
Coastal and Valley Freshwater Marsh	No
Northern Basalt Flow Vernal Pool	No
Northern Volcanic Ash Vernal Pool	No
Clear Lake Drainage Resident Trout Stream	No

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Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS*/NatureServe Status	Blooming Season	Habitat Present
Antirrhinum virga	twig-like snapdragon	Chaparral, lower montane coniferous forest, /rocky, openings, often serpentinite;//4.3	June-July per. herb	Habitat not present
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Chaparral, cismontane woodland, lower montane conif, forest/volcanic;//IB.3	March-May everg. shrub	Habitat not present
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Chaparral, lower montane coniferous forest/rocky, often serpentine:/-/1B.1	FebApril ann. herb	Habitat not present
Brasenia schreberi	watershield	Marshes & swamps/freshwater;//2B.3	June-Sept. rhizom. herb, aquatic	Habitat not present
Calochortus uniflorus	pink star-tulip	Northern Coastal scrub, North Coastal coniferous forest, mixed evergreen forest, redwood forest, closed-cone pine forest/ wetland-riparian;/-/4.2	Apr-June per. herb	Habitat not present
Calyptridium quadripetalum	four-petaled pussypaws	Chaparral, lower montane coniferous forest/sandy or gravelly, usually serpentinite;//4.3	April-June ann. herb	Habitat not present
Cordylanthus tenuis ssp. brunneus	serpentine bird`s-beak	Closed-cone coniferous forest, chaparral, cismontane woodland/usually serpentinite;//4.3	July-Aug. ann. herb	Habitat not present
Eriastrum brandegeeae	Brandegee's eriastrum	Chaparral, cismontane woodland, valley & foothill grassland/barren volcanic soils, often in open areas;/-/1B.1	April-Aug. ann. herb	Habitat not present
Eryngium constancei	Loch Lomond button-celery	Volcanic ash flow vernal pools; FE/SE/1B.1	April-June ann./per. herb	Habitat not present

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Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS*/NatureServe Status	Blooming Season	Habitat Present
Gratiola heterosepala	Doggs Lake hedge-hyssop	Freshwater marsh, marshes & swamps (freshwater), vernal pools, sometimes lake margins/clay;/SE/1B.2	April Aug. ann. herb	Habitat not present
Harmonia hallii	Hall's harmonia	Chaparral/serpentine hills & ridges, open rocky areas;/- -/1B.2	April-June ann. herb	Habitat not present
Hemizonia congesta ssp. calyculata	Mendocino tarplant	Valley and foothill grassland, foothill woodland/often serpentine;//4.3	July-Nov. ann. herb	Habitat not present
Hesperolinon bicarpellatum	two-carpellate western flax	Chaparral/serpentine barrens at edge of chaparral;/ /1B.2	May-July ann. herb	Habitat not present
Horkelia bolanderi	Bolander's horkelia	Lower montane conif. forest, chaparral, meadows & seeps, valley & foothill grassland/grassy margins of vernal pools and meadows;//1B.2	June-Aug. per. herb	Habitat not present
Imperata brevifolia	California satintail	Chaparral, coastal scrub, meadows & seeps (alkali), riparian scrub/mesic or riparian sites;//2B.1	SeptMay rhiz. herb	Habitat not present
Lasthenia burkei	Burke's goldfields	Meadows and seeps, vernal pools, swales; FE/SE/1B.1	April-June ann. herb	Habitat not present
Leptosiphon acicularis	bristly leptisiphon	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland;//4.2	April-July ann. herb	Poor habitat present
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	Chaparral, cismontane woodland, valley & foothill grassland, vernal pools/vernally mesic;//4.2	March-May (June) ann. herb	Habitat not present
Myosurus minimus ssp. apus	little mousetail	Valley foothill grassland, coastal sage scrub, freshwater wetlands, wetland-riparian/vernal pools;//3.1	March-June ann. herb	Habitat not present
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Cismontane woodland, lower montane conif. forest, meadows & seeps, valley & foothill grassland, vernal pools, swales/adobe or alkaline soils;/-/1B.1	May-July ann. herb	Habitat not present
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Volcanic ash flow vernal pools; FE/ST/1B.1	May-June ann. herb	Habitat not present
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Volcanic ash flow vernal pools; FE/SE/1B.2	May-June ann. herb	Habitat not present
Piperia michaeilii	Michael's rein orchid	Foothill woodland, yellow pine forest, northern coastal scrub, coastal sage scrub, closed-cone pine forest.;/ /4.2	April-Aug per. herb	Habitat not present

Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS*/NatureServe Status	Blooming Season	Habitat Present
Potamogeton zosteriformis	eel-grass pondweed	Marshes & swamps, ponds, lakes & streams;//2B.2	June-July ann. herb	Habitat not present
Sedella leiocarpa	Lake County stonecrop	Cismontane woodland, valley & foothill grassland, vernal pools/vernally mesic depressions in volcanic outcrops; FE/SE/IB.1	April-May ann. herb	Habitat not present
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Marshes & seeps, riparian forest/mesic;//1B.2	July-Aug. per. herb	Habitat not present
Toxicoscordion fontanum	marsh zigadenus	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps/vernally mesic, often serpentinite;//4.2	April-July bulb. herb	Habitat not present
Viburnum ellipticum	oval-leaved viburnum	Chaparral, cismontane woodland, lower montane coniferous forest;/-/2B.3	May-June decid. shrub	Poor habitat present

*See CNPS list for key

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		Lightight Requirements		
Wildlife Species	Common Name	Chabitat Requirements,	Season	Brocont
-		Status	Fresent	Present
Pyrgulopsis ventricosa	Clear Lake pyrg (snail)	Freshwater; inhabits springs and small spring-fed streams; G1/S1	year-round	Habitat not present
Dubiraphia brunnescens	brownish dubiraphian riffle beetle	Aquatic; inhabits exposed, wave-washed willow roots in shallow water. Known only from NE shore of Clear Lake; G1/S1	year-round	Habitat not present
Hedychridium milleri	Borax Lake cuckoo wasp	External parasite of wasp and bee larva. Endemic to Central California. Possibly extirpated; G1?/S1?	year-round	Habitat not present
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	Habitat not present
Lavinia symmetricus ssp. 4	Clear Lake – Russian River roach	Closely-related species found either in tributaries to Clear Lake, Lake County, or the Russian River and its tributaries: SSC/G4(T2-Imperiled)/S2S3	year-round	Habitat not present
Archoplites interruptus	Sacramento perch	Warm water: sloughs, slow-moving rivers, ponds; SSC/G2G3/S1	year-round	Habitat not present
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	Habitat not present

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Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
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	Habitat not present
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Densely foliaged riparian thickets of willow and other deciduous trees and shrubs; FT/SE/G5/S1	year-round	Habitat not present
Ardea alba	great egret	Fresh & saline emergent wetlands, swampy woods, tidal estuaries, mangroves, streams, ponds; also fields and meadows; G5/S4	sometimes migratory	Poor habitat present
Ardea herodias	great blue heron	Shallow ponds and estuaries, & salt and fresh emergent wetlands; G5/S4	sometimes migratory	Habitat not present
Corynorhinus townsendii	Townsend's big-eared bat	Roosts in open near relatively mesic sites, mainly montane forest habitats; SSC/G3/S2	year-round	Habitat not present
Myotis lucifugus	little brown bat	Roost in hollow trees, caves (in winter), human made features. Habitats are widely varied and include bogs, forested or herbaceous wetlands, riparian habitats, woodlands, chapartal, grasslands, orchards and fields in more urban areas. They forage over water; G3/S2S3	Migratory; usually hibernate during winter	Habitat not present
Myotis yumanensis	Yuma myotis	Open conifer forests and riparian woodlands with nearby water. Roosts may be found in caves, mines, under bridges, and buildings; G5/S4	year-round	Habitat not present
Antrozous pallidus	pallid bat	Open, dry habitats, forest habitats, in caves, tunnels, buildings, bridges; sensitive to human disturbance; SSC/G5/S3	local migrant	Poor habitat present

<u>Key</u>:

SEVIT SE/ST/SD=State Endangered/Threatened/Delisted SC/SCD=State Candidate for Listing/Delisting SSC=CDFW Species of Special Concern SFP=CDFW Fully Protected WL=CDFW Watch List FE/FT/FD=Federal Endangered/Threatened/Delisted FPE/FFT/FD=Federal Proposed Endangered/Threatened/Delisting

NatureServe Conservation Status:

G1/S1 = Global/State Critically Imperiled G2/S2 = Global/State Imperiled G3/S3 = Global/State Vulnerable G4/S4 = Global/State Apparently Secure G5/S5 = Global/State Secure SNR=Not rated FC=Federal Candidate

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4.3 <u>Wildlife Habitat Analysis Results</u>: The Wildlife Habitat Relationships analysis lists a number of native wildlife species as potentially occurring on the site based on the geographic location and wildlife habitats present. Selected sensitive species are included in the wildlife assessment based on local knowledge and experience. The complete WHR results are presented in **Appendix B**.

4.4 <u>Wildlife Assessment</u>: Based on the pre-survey research conducted for this study, a total of seventeen sensitive wildlife species need to be accounted for within the project area. These consist of the species identified as present within the Clearlake Highlands quadrangles by the CNDDB, along with applicable sensitive species listed as potentially present by the WHR analysis. 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.

Clear Lake Pyrg (Pyrgulopsis ventricosa):

This small snail is found within the Seigler Creek drainage in the south end of the Clear Lake basin. No suitable habitat is present within the survey area.

Brownish dubiraphian riffle beetle (Dubiraphia brunnescens):

Known only from the northeastern shore of Clear Lake, Lake County, this beetle inhabits exposed, wave-washed willow roots. This species is not present within the survey area due to the lack of suitable water resources.

Borax Lake cuckoo wasp (Hedychridium milleri):

The cuckoo wasp is a parasite of wasp and bee larvae, laying its eggs in the nest of the host insect. There is only one account of this subspecies from 1963 from this locality (Borax Lake); it is endemic to Central California and is unlikely to be present within the survey area.

Ricksecker's water scavenger beetle (Hydrochara rickseckeri):

This species is known from accounts in the San Francisco Bay Area. It occupies ponds and shallow waters of streams, lakes, or marshes. This species is listed here because it is identified in an adjacent quadrangle near Boggs Lake in Lake County. There are no suitable water resources present within the survey area to support this species.

- Clear Lake hitch (Lavinia exilicauda chi);
- Clear Lake-Russian River roach (Lavinia symmetricus ssp. 4);
- Sacramento perch (Archoplites interruptus):

All of these fish require access to Clear Lake, which is not provided by the short-term ephemeral channels on the property.

Foothill yellow-legged frog (Rana boylii):

These frogs are relatively common along the shaded banks of perennial headwater streams, and they are heavily dependent on the presence of perennial water and are seldom far from pools where they can seek shelter from predation. The short-term ephemeral channels within the parcel do not meet these requirements.

Western pond turtle (Actinemys marmorata):

These turtles prefer slow or ponded water with sheltering vegetation but will range widely through less suitable habitat in search of these sites. When present, pond turtles are readily observed basking along shorelines or on logs in shallow water. There are no suitable water resources present within the survey area to support this species.

Western yellow-billed cuckoo (Coccyzus americanus occidentalis):

This bird requires deciduous riparian thickets or forests with dense low-level foliage adjacent to water for cover and nesting; willows and cottonwoods are nearly always a component. Their preferred nesting habitat is valley foothill riparian adjacent to larger streams or rivers such as are found in the lowlands of the Central Valley, and around Clear Lake. This species has state endangered status while nesting. The survey area does not contain suitable riparian habitat to support this species.

Great egret (Ardea alba);

Great blue heron (Ardea herodias):

All of these birds require proximity to large bodies of water or wetlands where they have access to fish and amphibians, their main sources of food. All build large stick nests close to water; herons and cormorants in this region are found around Clear Lake in large rookeries. No large stick nests were observed in the project area and the site lacks suitable tall structures for nests.

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 California Fully Protected status of these raptors pertains to nesting pairs with an emphasis on protecting nesting habitat. No suitable nesting habitat occurs within the project area although kites may hunt over the property.

- Townsend's western big-eared bat (Corynorhinus townsendii ssp. townsendii):
- Little brown bat (Myotis lucifugus):
- Yuma myotis (Myotis yumanensis):

All of these bat species prefer cool mesic habitats distant from human activity. Preferred habitat does not occur within the project area.

Pallid bat (Antrozous pallidus);

Optimal habitat for pallid bats consists of open, dry habitats with rocky areas, but they are also found in oak savanna grasslands, and in open forest and woodlands with access to riparian and open water for feeding and drinking in northern California. Foraging occurs over open country. The shrubby oaks on the property provide poor habitat for the bats and they are unlikely to be present.

5.0 FIELD SURVEY RESULTS

5.1 <u>Botanical Field Survey Results</u>: Table 4 presents the results of the floristic-level botanical survey within the survey area. Each of the sensitive plant taxa potentially occurring at the sites and listed in Tables 2 and 3 was specifically searched for during the survey. The survey identified a total of 60 plant taxa on the property, including native and introduced plants.

The relatively small number of species identified is a result of the small survey area, the lack of diversity within the ruderal areas and orchard, and the small palette size of the natural plant communities.

No plants with sensitive status were discovered during the in-season floristic-level botanical surveys.

Habit	Species	Common Name	Family	Origin
forb	Anthriscus caucalis	bur chervil	Apiaceae	A
forb	Torilis arvensis	field hedge parsley	Apiaceae	A
forb	Asclepias californica	California milkweed	Apocynaceae	N
forb	Asclepias fascicularis	narrow-leaved milkweed	Apocynaceae	N
forb	Anaphalis margaritaceae	pearly everlasting	Asteraceae	N
forb	Centaurea melitensis	tocalote, Napa star thistle	Asteraceae	A
forb	Centaurea solstitialis	yellow star thistle	Asteraceae	A
forb	Micropus californicus	cottontop	Asteraceae	N
forb	Brassica nigra	black mustard	Brassicaceae	A
forb	Cardamine breweri	Brewer's bittercress	Brassicaceae	N
forb	Croton setigerus	turkey mullein	Euphorbiaceae	N
forb	Euphorbia oblongata	eggleaf spurge	Euphorbiaceae	A
forb	Vicia villosa ssp. villosa	winter vetch, hairy vetch	Fabaceae	A
forb	Erodium cicutarium	red-stem storksbill	Geraniaceae	A
forb	Hypericum concinnum	gold-wire	Hypericaceae	N
forb	Marrubium vulgare	horehound	Lamiaceae	A
forb	Salvia sonomensis	Sonoma creeping sage	Lamiaceae	N
forb	Chlorogalum pomeridianum	wavyleaf soap plant	Liliaceae	N
forb	Eschscholzia californica	California poppy	Papaveraceae	N
forb	Rumex crispus	curly dock	Polygonaceae	A
forb	Ranunculus muricatus	spiny-fruit buttercup	Ranunculaceae	A
forb	Reseda luteola	Dyer's rocket	Resedaceae	A
forb	Galium porrigens var. porrigens	climbing bedstraw, graceful bedstraw	Rubiaceae	N

TABLE 4. FLORA FOR APN 009-021-07

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Habit	Species	Common Name	Family	Origin
forb	Pedicularis densiflora	warrior's plume, Indian warrior	Scrophulariaceae	N
forb	Verbascum thapsus	woolly mullein	Scrophulariaceae	A
grass	Aira caryophyllea	silver European hairgrass	Poaceae	A
grass	Avena barbata	slender wild oat	Poaceae	A
grass	Bromus hordeaceus	soft chess	Poaceae	A
grass	Bromus madritensis ssp. rubens	red brome	Poaceae	A
grass	Elymus caput-medusae	medusahead	Poaceae	A
grass	Elymus multisetus	big squirreltail	Poaceae	N
grass	Festuca microstachys	desert fescue, small fescue	Poaceae	N
grass	Poa bulbosa	bulbous bluegrass	Poaceae	A
shrub	Sambucus nigra ssp. caerulea	blue elderberry	Adoxacaceae	N
shrub	Rhus trilobata	basket bush, skunkbrush	Anacardiaceae	N
shrub	Toxicodendron diversilobum	poison oak	Anacardiaceae	N
shrub	Baccharis pilularis	coyote brush, chaparral broom	Asteraceae	N
shrub	Arctostaphylos crustacea ssp. crustacea	brittle-leaf manzanita	Ericaceae	N
shrub	Arctostaphylos manzanita ssp. manzanita	common manzanita	Ericaceae	N
shrub	Arctostaphylos stanfordiana ssp. stanfordiana	Stanford manzanita	Ericaceae	N
shrub	Cytisus multiflorus	Spanish broom	Fabaceae	A
shrub	Cytisus scoparius	Scotch broom	Fabaceae	A
shrub	Quercus berberidifolia	California scrub oak	Fagaceae	N
shrub	Quercus wislizeni var. frutescens	interior live oak	Fagaceae	N
shrub	Eriodictyon californicum	California yerba santa	Hydrophyllaceae	N
shrub	Ceanothus cuneatus var. cuneatus	buckbrush	Rhamnaceae	N
shrub	Ceanothus integerrimus	deerbrush, blue blossom	Rhamnaceae	N

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Habit	Species	Common Name	Family	Origin
shrub	Ceanothus integerrimus	deerbrush	Rhamnaceae	N
shrub	Frangula californica ssp. californica	California coffeeberry	Rhamnaceae	N
shrub	Adenostoma fasciculatum	chamise	Rosaceae	N
shrub	Cercocarpus betuloides var. betuloides	birch-leaf mountain mahogany	Rosaceae	N
shrub	Heteromeles arbutifolia	toyon	Rosaceae	N
shrub	Rubus armeniacus	Himalayan blackberry	Rosaceae	A
tree	Quercus lobata	California valley oak	Fagaceae	N
tree	Quercus wislizeni var. wislizeni	interior live oak	Fagaceae	N
tree	Juglans regia	English walnut	Juglandaceae	A
tree	Oleo europaea	European olive	Oleaceae	A
tree	Pinus attenuata	knobcone pine	Pinaceae	N
tree	Pinus ponderosa	ponderosa pine	Pinaceae	N
vine	Marah fabaceus	California manroot	Cucurbitaceae	N

A=Alien, N=Native

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6.0 DELINEATION OF WATERS OF THE U.S.

6.1 The discussion of waters of the U.S. and Aquatic Resources in discussed in Appendix C, along with a map of possible aquatic resources.

7.0 SUMMARY AND RECOMMENDATIONS

7.1 <u>Summary</u>: 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 Wildlife Habitat Relationships System
- Vegetation mapping
- Delineation of waters of the U.S.

Sensitive Plants: A total of 60 native and introduced plant taxa were identified on the property during the in-season, floristic-level botanical surveys. No sensitive taxa were identified. 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.

The relatively small number of species identified is a product of the lack of diversity within the ruderal areas and the orchard, and the small pallet size of the natural plant communities.

Sensitive Wildlife: A total of seventeen sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the Clearlake Highlands quadrangle and the WHR database. The species listed include insects, isopods, aquatic reptiles and amphibians, raptors, and small mammals. The site does not contain perennial streams or ponded water of any type, making it unsuitable for any of the listed aquatic species. The lack of roosting structures makes it poor habitat for nesting raptors and roosting bats.

Possible Waters of the U.S.: Two short-term ephemeral drainages were mapped on the parcel. This is discussed in Appendix C, Aquatic Resources Report.

7.2 <u>Recommendations</u>:

1. Sensitive Plants and Wildlife:

Potential Impacts: No plants with sensitive regulatory status were found on this parcel during the in-season, florisitic-level botanical survey conducted for this project. Due to the current agricultural and ruderal (developed) nature of this property, the potential for wildlife with sensitive regulatory status to occur there is very low. Consequently, the proposed project does not have a significant potential to adversely impact plants or wildlife with sensitive regulatory status. Additionally, the use of this property by local wildlife would be minimal and the proposed project is unlikely to cause adverse impacts to them.

2. Waters of the U.S.

Potential Impact: The survey area contains approximately 0.1357 acre of stream channels. Placement of fill within any possible waters of the U.S. mapped in Appendix C, Figure 1 would be regulated under the Clean Water Act.

Proposed Mitigation for Impacts to Waters of the U.S. 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.

3. Erosion Control:

Potential Impacts: Vegetation clearing and grading activities have a potential to result in sediment runoff into waterways.

<u>Proposed Mitigation</u>: All work should incorporate extensive erosion control measures consistent with Lake County Grading Regulations. 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

CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES

WITHIN THE

SURROUNDING CALIF. 71/2' QUADS.

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Surrounding 9-Quad List: Clearlake Highlands Quadrangles

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Benmore Canyon	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	5
Benmore Canyon	Haliaeetus leucocephalus	bald eagle	Delisted	End	FP	-
Benmore Canyon	Emys marmorata	western pond turtle	None	None	SSC	2
Benmore Canyon	Asclepias solanoana	serpentine milkweed	None	None		4.2
Benmore Canyon	Harmonia hallii	Hall's harmonia	None	None	28	1B.2
Benmore Canyon	Layia septentrionalis	Colusa layia	None	None	12	1B.2
Benmore Canyon	Amsinckia lunaris	bent-flowered fiddleneck	None	None	27	1B.2
Benmore Canyon	Astragalus clevelandii	Cleveland's milk-vetch	None	None	20	4.3
Benmore Canyon	Fritillaria purdyi	Purdy's fritillary	None	None		4.3
Benmore Canyon	Malacothamnus helleri	Heller's bush-mallow	None	None	38	3.3
Benmore Canyon	Clarkia gracilis ssp. tracyi	Tracy's clarkia	None	None	34	4.2
Benmore Canyon	Collomia diversifolia	serpentine collomia	None	None	3. C	4.3
Benmore Canyon	Leptosiphon acicularis	bristly leptosiphon	None	None	28	4.2
Benmore Canyon	Eriogonum tripodum	tripod buckwheat	None	None		4.2
Benmore Canyon	Potamogeton zosteriformis	eel-grass pondweed	None	None	3 2	2B.2
Benmore Canyon	'Horkelia bolanderi	Bolander's horkelia	None	None	2.3	1B.2
Clk Highlands	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	
Clk Highlands	Rana draytonii	California red-legged frog	Threat	None	SSC	÷
Clk Highlands	Haliaeetus leucocephalus	baid eagle	Delisted	End	FP	3
Clk Highlands	Ardea alba	great egret	None	None	-	*
Clk Highlands	Ardea herodias	great blue heron	None	None	-	<u>s</u>
Clk Highlands	Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threat	End	-	
Clk Highlands	Strix occidentalis caurina	northern spotted owl	Threat	Threat	-	×
Clk Highlands	Archoplites interruptus	Sacramento perch	None	None	SSC	14 A
Clk Highlands	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	-	
Clk Highlands	Lavinia symmetricus ssp. 4	Clear Lake - Russian River roach	None	None	SSC	× .
Clk Highlands	Hedychridium milleri	Borax Lake cuckoo wasp	None	None	-	8
Clk Highlands	Dubiraphia brunnescens	brownish dubiraphian riffle beetle	None	None	-	
Clk Highlands	Antrozous pallidus	pallid bat	None	None	SSC	
Clk Highlands	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	8
Clk Highlands	Myotis lucifugus	little brown bat	None	None		2
Clk Highlands	Myotis yumanensis	Yuma myotis	None	None		
Clk Highlands	Pyrgulopsis ventricosa	Clear Lake pyrg	None	None	30	3

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Citk Highlands Emry marmorata western pond turlle None None S2C - Cik Highlands Clear Lake Drainage Resident Trout Stm Clear Lake Drainage Resident Trout Stm None None None - - Cik Highlands Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh None None None None - - Cik Highlands Northern Basat Flow Vernal Pool None Non	QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Citk HighlandsClear Lake Drainage Resident Trout StmNoneNoneCik HighlandsCoastal and Valley Freshwater MarshCoastal and Valley Freshwater MarshNoneNoneCik HighlandsNorthern Basalt Flow Vernal PoolNorthern Basalt Flow Vernal PoolNoneNoneCik HighlandsNorthern Volcanic Ash Vernal PoolNorthern Volcanic Ash Vernal PoolNorthern Volcanic Ash Vernal PoolNoneNoneCik HighlandsErryngium constancelLoch Lomond button-celrayEndEnd-18.1Cik HighlandsHarmonia halliiHalf's harmoniaNoneNone-4.3Cik HighlandsLasthenia burkeiBurke's goldfieldsEndEnd-18.1Cik HighlandsSedella leiocarpaLake County stonecropEndEnd-18.1Cik HighlandsSedella leiocarpaLake County stonecropEndEnd-18.1Cik HighlandsSedella leiocarpaRahce's mananitaNoneNone-4.2Cik HighlandsCalcchortus unifloruspink star-tulipNoneNone-18.1Cik HighlandsLimmanthes floacosa sp. floacosawoolly meadowfoarnNoneNone-18.2Cik HighlandsSaladea oregana sp. hydrophilamarsh checkerbloornNoneNone-4.2Cik HighlandsCalyptridium quadripetalumtwo-carpellate wertern flaxNoneNone-4.2Cik	Clk Highlands	Emys marmorata	western pond turtle	None	None	SSC	-
Citk HighlandsCoastal and Valley Frestwater MarchCoastal and Valley Frestwater MarchNoneNoneICik HighlandsNorthern Basalt Flow Vernal PoolNorthern Volcanic Ath Vernal PoolNoneNoneNoneICik HighlandsEnryngium constanceiLoch Lomond button-celeryEndEndIB.2Cik HighlandsHarmonia halliiHarthsermoniaNoneNoneNoneIB.2Cik HighlandsHarmonia halliiHarthsermoniaNoneNoneNoneIB.2Cik HighlandsIsthenia burkeiBurke's golffieldsEndEndIB.1Cik HighlandsBrasenia schrebertiwatershieldNoneNoneNone28.3Cik HighlandsViburnum ellipticumoval-leaved viburnumNoneNoneNone18.1Cik HighlandsArctostaphylos snarznita sp. elegantKoncti manzanitaNoneNone18.1Cik HighlandsLimanthes floccosa sp. foccosawoolly meadowfoamNoneNone18.2Cik HighlandsLimanthes floccosa sp. foccosawoolly meadowfoamNoneNone18.2Cik HighlandsCaloptortus uniflorusmarsh zigadenusNoneNone18.2Cik HighlandsStadtecoregana sp. hydrophilamarsh zigadenusNoneNone18.2Cik HighlandsCaloptortus uniflorusmarsh zigadenusNoneNone18.2Cik HighlandsCaloptortus uniflorusmarsh zigadenusNoneNone18.2Cik Highlands	Clk Highlands	Clear Lake Drainage Resident Trout Stm	Clear Lake Drainage Resident Trout Stm	None	None	-	-
CIK Highlands Northern Basalt Flow Vernal Pool Northern Volcanic Ash Vernal Pool None None None - CIK Highlands Erynglum constancel Loch Lomond button-celery End End End 1.8.1 CIK Highlands Harmonia hallii Hall's harmonia None None None 4.8.1 CIK Highlands Harmonia congesta sp. calyculata Mendocino tarplant None None 4.8.3 CIK Highlands Lasthenia burkei Burke's goldfields End End End 1.8.1 CIK Highlands Brasenia schreberi watershield None None None 2.8.3 CIK Highlands Stedella lelocarpa Lake County stonecrop End End 1.8.1 CIK Highlands Arctostaphylos manzanita sp. elegans Konoctit manzanita None None 1.8.1 CIK Highlands Lake County stonecrop End End 1.8.1 1.8.1 CIK Highlands Calcohortus unilorus pink star-tulip None None None 4.2 CIK Highlands Lake ounty stonecroplalit marsh checkerbloom	Clk Highlands	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	None	None	-	-
CIK. HighlandsNorthern Volcanic Ash Vernal PoolNorthern Volcanic Ash Vernal PoolNoneNoneNone-CIK. HighlandsHarmonia halliiLoch Lomond button-celeryEndEndIB.1CIK. HighlandsHarmonia halliiHall's harmoniaNoneNoneNone4.3CIK. HighlandsLasthenia burkeiBurke's goldfeldsEndEnd1B.1CIK. HighlandsBrasenia schreberiwatershieldNoneNoneNone2B.3CIK. HighlandsBrasenia schreberioval-leaved viburnumNoneNoneNone2B.3CIK. HighlandsSeddel eleoarpaLake County stonecropEndEnd1B.1CIK. HighlandsArctostaphylos stanfordiane sp. reichelRaiche's manzanitaNoneNoneNone1B.3CIK. HighlandsCalcohortus unifforuspik star-tuilpNoneNoneNone1B.3CIK. HighlandsLimnanthes floccosa sp. floccosawoolly meadowfoarnNoneNoneNone1B.2CIK. HighlandsLimnanthes floccosa sp. floccosawoolly meadowfoarnNoneNoneNone1B.2CIK. HighlandsGalyptridium quadripetalumfour-petaled pusypawsNoneNone1B.2CIK. HighlandsCalyptridium quadripetalumfour-petaled pusypawsNoneNone4.2CIK. HighlandsCalyptridium quadripetalumfour-petaled pusypawsNoneNone4.3CIK. HighlandsCalyptridium quadripetalumfour-petaled pusypaws <td< td=""><td>Clk Highlands</td><td>Northern Basalt Flow Vernal Pool</td><td>Northern Basalt Flow Vernal Pool</td><td>None</td><td>None</td><td>-</td><td>-</td></td<>	Clk Highlands	Northern Basalt Flow Vernal Pool	Northern Basalt Flow Vernal Pool	None	None	-	-
CIC. HighlandsEndEndEnd-1B.1CIK. HighlandsHarmonia halliiHall's harmoniaNoneNoneNone.1B.2CIK. HighlandsHarmonia tocnogesta spp. calyculataMendocino tarplantNoneNoneNone <td>Clk Highlands</td> <td>Northern Volcanic Ash Vernal Pool</td> <td>Northern Volcanic Ash Vernal Pool</td> <td>None</td> <td>None</td> <td>-</td> <td>-</td>	Clk Highlands	Northern Volcanic Ash Vernal Pool	Northern Volcanic Ash Vernal Pool	None	None	-	-
Clk HighlandsHarmonia halliiHall's harmoniaNoneNoneIB.2Clk HighlandsHemizonia congesta ssp. calyculataMendocino tarplantNoneNoneA.3Clk HighlandsLasthenia burkeiBurke's goldfieldsEndEndEndIB.1Clk HighlandsBrasenia schreberiwatershieldNoneNoneNone28.3Clk HighlandsSedella lelocarpaLake County stonecropEndEnd-18.1Clk HighlandsArctostaphylos manzanita ssp. elegansKonocti manzanitaNoneNone-4.2Clk HighlandsCalochortus unifloruspink star-tuilpNoneNone-4.2Clk HighlandsCalochortus unifloruswoolsy meadowfoamNoneNone-4.2Clk HighlandsLimnanthes floccosa sp. floccosawoolly meadowfoamNoneNone-18.2Clk HighlandsSidaleea oregana sp. hydrophilamarsh checkerbloomNoneNone-4.2Clk HighlandsSidaleea oregana sp. hydrophilamarsh checkerbloomNoneNone-4.2Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNone-4.3Clk HighlandsCalyptridium quadripetalumMichael's rein orchidNoneNone-4.2Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneNone-4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNone<	Clk Highlands	Eryngium constancei	Loch Lomond button-celery	End	End	-	1B.1
Cik HighlandsHemizonia congesta ssp. calyculataMendocino tarplantNoneNone<4.3Cik HighlandsLasthenia burkeiBurke's goldfieldsEndEndEnd1B.1Cik HighlandsBrasnis schreberiwatershieldNoneNone2B.3Cik HighlandsViburnum ellipticumoval-leaved viburnumNoneNone-1B.1Cik HighlandsSedella lelocarpaLake County stonecropEndEnd-1B.1Cik HighlandsArctostaphylos stanfordiana ssp. reicheiRaiche's manzanitaNoneNoneNone-4.2Cik HighlandsCianchortus unifloruspink star-tulipNoneNoneNone-4.2Cik HighlandsLinanthes floccosa sp. floccosawoolly madowfoarnNoneNoneNone-1B.2Cik HighlandsHesperolinon bicarpellatumtwo-carpellate western flaxNoneNoneNone-1B.2Cik HighlandsSidaleca oregana ssp. hydrophilamarsh zigadenusNoneNoneNone-4.2Cik HighlandsCalyptridium quadripetalumfour-petaled pusypawsNoneNoneNone-4.3Cik HighlandsCalyptridium quadripetalumfour-petaled pusypawsNoneNone-4.3Cik HighlandsCarlyptridium quadripetalumfour-petaled pusypawsNoneNone-4.3Cik HighlandsCarlyptridium quadripetalumfour-petaled pusypawsNoneNone- <t< td=""><td>Clk Highlands</td><td>Harmonia hallii</td><td>Hall's harmonia</td><td>None</td><td>None</td><td>-</td><td>1B.2</td></t<>	Clk Highlands	Harmonia hallii	Hall's harmonia	None	None	-	1B.2
Cik HighlandsLasthenia burkeiBurke's goldfieldsEndEndI.B.1Cik HighlandsBrasenia schreberiwatershieldNoneNone-2.B.3Cik HighlandsViburunum ellipticumoval-leaved viburnumNoneNone-2.B.3Cik HighlandsSedella leiocarpaLake County stonecropEndEnd-1.B.1Cik HighlandsArctostaphylos manzanita sp. elegansKonocti manzanitaNoneNone-1.B.1Cik HighlandsCalcchortus unifloruspink star-tulipNoneNoneNone-4.2Cik HighlandsCalcchortus unifloruspink star-tulipNoneNoneNone-4.2Cik HighlandsGalechortus unifloruspink star-tulipNoneNoneNone-1.B.2Cik HighlandsIdaleea oregana sp. hydrophilamarsh checkebloomNoneNoneNone-1.B.2Cik HighlandsToxicoscordion fontanummarsh zigadenusNoneNoneNone-4.2Cik HighlandsCordylanthus tenuis sp. brunneusserpentine bird's-beakNoneNone-4.3Cik HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneNone-4.3Cik HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-4.2Cik HighlandsLeptosiphon acicularisBaker's navaretiaNoneNone-4.3Cik HighlandsLeptosiphon acicular	Clk Highlands	Hemizonia congesta ssp. calyculata	Mendocino tarplant	None	None	-	4.3
Clk HighlandsBrasenia schreberiwatershieldNoneNone28.3Clk HighlandsViburnum ellipticumoval-leaved viburnumNoneNoneNone28.3Clk HighlandsSedella lelocarpaLake County stonecropEndEnd-18.1Clk HighlandsArctostaphylos manzanita ssp. elegansKonocti manzanitaNoneNoneNone-4.2Clk HighlandsCalcotrus uniforuspink star-tulipNoneNone-4.2Clk HighlandsLimnanthes floccosa sp. floccosawoolly meadowfoamNoneNone-4.2Clk HighlandsLimnanthes floccosa sp. floccosawoolly meadowfoamNoneNone-18.2Clk HighlandsLimnanthes floccosa sp. floccosawoolly meadowfoamNoneNone-18.2Clk HighlandsSidalcea oregana sp. hydrophilamarsh chckerbloomNoneNone-4.2Clk HighlandsCalvptridum quadripetalumfour-petaled pusyspwavsNoneNone-4.3Clk HighlandsCardylanthus tenuis sp. brunneusserpentine bird's-beakNoneNone-4.3Clk HighlandsCardola heterosepalaBoggs Lak hedge-hyssopNoneNone-4.3Clk HighlandsCardola heterosepalaBoggs Lak hedge-hyssopNoneNone-4.3Clk HighlandsEriatrum brandegeeaeBrandegee's eriatrumNoneNone-4.2Clk HighlandsLaterosephala sp. paciflora	Clk Highlands	Lasthenia burkei	Burke's goldfields	End	End	-	1B.1
Cik HighlandsViburnum ellipticumoval-leaved viburnumNoneNone-2B.3Cik HighlandsSedella leiocarpaLake County stonecropEndEnd-1B.1Cik HighlandsArctostaphylors tanfordiana ssp. reicheiRaiche's manzanitaNoneNone-1B.3Cik HighlandsArctostaphylors tanfordiana ssp. reicheiRaiche's manzanitaNoneNoneNone-4.2Cik HighlandsLimnanthes floccosa ssp. floccosawoolly meadowfoamNoneNoneNone-4.2Cik HighlandsSidalcea oregana ssp. hydrophilamarsh checkerbloomNoneNoneNone-4.2Cik HighlandsSidalcea oregana ssp. hydrophilamarsh checkerbloomNoneNone-4.2Cik HighlandsCalvptridium quadripetalumfour-petaled pussypawsNoneNone-4.2Cik HighlandsCardylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone-4.2Cik HighlandsCardylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone-4.3Cik HighlandsGratiola heterosepalaBoggs Lake hedge-hysopNoneEnd-1B.2Cik HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Cik HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Cik HighlandsGratiola heterosepalaBoggs Lake hedge-hysopNoneEnd <td< td=""><td>Clk Highlands</td><td>Brasenia schreberi</td><td>watershield</td><td>None</td><td>None</td><td>-</td><td>2B.3</td></td<>	Clk Highlands	Brasenia schreberi	watershield	None	None	-	2B.3
Clk HighlandsSedella leiocarpaLake County stonecropEndEndEndIB.1Clk HighlandsArctostaphylos manzanita ssp. elegansKonocti manzanitaNoneNoneNoneIB.1Clk HighlandsArctostaphylos stanfordiana ssp. raicheiRaiche's manzanitaNoneNoneNoneIB.1Clk HighlandsCalochortus unifloruspink star-tulipNoneNoneNone-4.2Clk HighlandsLimnanthes floccosa ssp. floccosawoolly meadowfoamNoneNoneNone-1B.2Clk HighlandsHesperolinon bicarpellatumtwo-carpellate western flaxNoneNoneNone-1B.2Clk HighlandsToxicoscordin fontanummarsh zigadenusNoneNoneNone-4.2Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone-4.3Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone-4.3Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone-4.3Clk HighlandsCardyplathus tenuis ssp. bruneusserpentine bird's-beakNoneNoneNone-4.3Clk HighlandsImperata brevifollaCalifornia satintailNoneNoneNone-4.3Clk HighlandsImperata brevifollaCalifornia satintailNoneNone-4.2Clk HighlandsImperata brevifol	Clk Highlands	Viburnum ellipticum	oval-leaved viburnum	None	None	-	2B.3
Clk HighlandsArctostaphylos manzanita ssp. elegansKonocti manzanitaNoneNoneIB.3Clk HighlandsArctostaphylos stanfordiana ssp. reicheiRaiche's manzanitaNoneNoneIB.1Clk HighlandsCalochortus unifloruspink star-tulipNoneNoneA.2Clk HighlandsLimnanthes floccosa sp. floccosawoolly meadowfoamNoneNoneNone4.2Clk HighlandsSidalcea oregana ssp. hydrophilamarsh checkenonNoneNoneNone18.2Clk HighlandsSidalcea oregana ssp. hydrophilamarsh checkenonNoneNoneNone4.2Clk HighlandsCalyptridium quadripetalummarsh checkenonNoneNoneNone4.2Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone4.2Clk HighlandsPiperia michaelliMichael's rein orchidNoneNoneNone4.3Clk HighlandsCardylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd4.3Clk HighlandsImperato hervifoliaCalifornia strintilNoneNone-4.3Clk HighlandsImperato hervifoliaCalifornia strintilNoneNone-4.3Clk HighlandsImperato hervifoliaCalifornia strintilNoneNone-4.3Clk HighlandsImperato hervifoliaCalifornia strintil </td <td>Clk Highlands</td> <td>Sedella leiocarpa</td> <td>Lake County stonecrop</td> <td>End</td> <td>End</td> <td>-</td> <td>1B.1</td>	Clk Highlands	Sedella leiocarpa	Lake County stonecrop	End	End	-	1B.1
Clk HighlandsAntrostaphylos stanfordiana ssp. raicheiRaiche's manzanitaNoneNoneNone18.1Clk HighlandsCalochortus unifloruspink star-tulipNoneNoneNone-4.2Clk HighlandsLimnanthes floccosa ssp. floccosawoolly meadowfoamNoneNoneNone-4.2Clk HighlandsHesperolinon bicarpellatumtwo-carpellate western flaxNoneNoneNone-18.2Clk HighlandsSidalcea oregana ssp. hydrophilamarsh checkerbloomNoneNoneNone-4.2Clk HighlandsCalyptridium quadripetalummarsh zigadenusNoneNoneNone-4.2Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone-4.3Clk HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone-4.3Clk HighlandsGartiola heterosepalaBoggs Lak hedge-hysopNoneEnd-18.1Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.2Clk HighlandsLeptosiphon acicularisBrandegee's eriastrumNoneNone-4.3Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-4.2Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretia	Clk Highlands	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	-	1B.3
Cik HighlandsCalochortus unifloruspink star-tulipNoneNoneNone4.2Cik HighlandsLimnanthes floccosa ssp. floccosawoolly meadowfoamNoneNone4.2Cik HighlandsHesperolinon bicarpellatumtwo-carpellate western flaxNoneNoneNone1B.2Cik HighlandsSidalčea oregana ssp. hydrophilamarsh checkerbloomNoneNoneNone-4.2Cik HighlandsToxicoscordion fontanummarsh checkerbloomNoneNoneNone-4.2Cik HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone-4.3Cik HighlandsCardylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNoneNone-4.3Cik HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone-4.3Cik HighlandsCaridola heterosepalaBoggs Lake hedge-hyssopNoneEnd-1B.2Cik HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Cik HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Cik HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Cik HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-4.3Cik HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-	Clk Highlands	Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None		1B.1
Clk HighlandsLimnanthes floccosa ssp. floccosawoolly meadowfoamNoneNoneNone4.2Clk HighlandsHesperolinon bicarpellatumtwo-carpellate western flaxNoneNoneNone1B.2Clk HighlandsSidalcea oregana ssp. hydrophilamarsh checkerbloomNoneNoneNone1B.2Clk HighlandsToxicoscordion fontanummarsh zigadenusNoneNoneNone4.2Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone4.3Clk HighlandsPiperia michaelliMichael's rein orchidNoneNoneNone4.2Clk HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone-4.3Clk HighlandsCordylanthus tenuis sp. brunneusserpentine bird's-beakNoneNone-4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd-1B.2Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.2Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndFndThreat1B.1Clk HighlandsNavarretia leucocephala ssp. paucifloraeel-grass pondweedNoneN	Clk Highlands	Calochortus uniflorus	pink star-tulip	None	None	-	4.2
Clk HighlandsHesperolinon bicarpellatumtwo-carpellate western flaxNoneNoneNoneIB.2Clk HighlandsSidalcea oregana ssp. hydrophilamarsh checkerbloomNoneNoneNone1B.2Clk HighlandsToxicoscordion fontanummarsh checkerbloomNoneNoneNone4.2Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone4.3Clk HighlandsDeriva michaelliMichael's rein orchidNoneNone-4.3Clk HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone-4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd-1B.2Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Clk HighlandsInperata brevifoliaCalifornia satintailNoneNone-4.3Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone-4.3Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-1B.1Clk Highlands	Clk Highlands	Limnanthes floccosa ssp. floccosa	woolly meadowfoam	None	None	-	4.2
Clk HighlandsSidalæa oregana ssp. hydrophilamarsh checkerbloomNoneNoneNoneIB.2Clk HighlandsToxicoscordion fontanummarsh zigadenusNoneNoneA.2Clk HighlandsCalyptirdium quadripetalumfour-petaled pussypawsNoneNoneA.3Clk HighlandsPiperia michaelliMichael's rein orchidNoneNoneNone4.2Clk HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone-4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd-18.2Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone-4.3Clk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNone-4.3Clk HighlandsLeptosiphon acicularisBaker's navarretiaNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. paucifloraeel-grass pondweedNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndEnd-18.1Clk HighlandsNavarretia leucocephala ssp. paucifloraeel-grass pondweedNoneNone-28.2C	Clk Highlands	Hesperolinon bicarpellatum	two-carpellate western flax	None	None	-	1B.2
Clk HighlandsToxicoscordion fontanummarsh zigadenusNoneNone4.2Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNone4.3Clk HighlandsPiperia michaelliMichael's rein orchidNoneNone4.2Clk HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone4.3Clk HighlandsCardylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone4.3Clk HighlandsAntirrhinum virgatwig-like snapdragonNoneNone4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd18.2Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone28.1Clk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNone18.1Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone4.2Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone18.1Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd18.2Clk HighlandsMavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd18.2Clk HighlandsMavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd18.2Clk HighlandsMavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd18.2<	Clk Highlands	Sidalcea oregana ssp. hydrophila	' marsh checkerbloom	None	None	- `	1B.2
Clk HighlandsCalyptridium quadripetalumfour-petaled pussypawsNoneNoneNone4.3Clk HighlandsPiperia michaeliiMichael's rein orchidNoneNone4.2Clk HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone4.3Clk HighlandsAntirrhinum virgatwig-like snapdragonNoneNone4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd-4.3Clk HighlandsImperata brevifoliaCalifornia satintailNoneNoneNone1B.2Clk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNoneNone2B.1Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNoneNone1B.1Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone1B.1Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndEnd1B.1Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd1B.2Clk HighlandsMyosurus minimus sp. apuslittle mousetailNoneNone2B.2Clk HighlandsMyosurus minimus sp. apuslittle mousetailNoneNone3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone3.1Clk HighlandsHalaeetus leucocephalusbald eagleDelistedEndFP <td>Clk Highlands</td> <td>Toxicoscordion fontanum</td> <td>marsh zigadenus</td> <td>None</td> <td>None</td> <td>-</td> <td>4.2</td>	Clk Highlands	Toxicoscordion fontanum	marsh zigadenus	None	None	-	4.2
Clk HighlandsPiperia michaeliiMichael's rein orchidNoneNoneNone4.2Clk HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNone4.3Clk HighlandsAntirrhinum virgatwig-like snapdragonNoneNone4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd-4.3Clk HighlandsImperata brevifoliaCalifornia satintailNoneNoneNone8.2Clk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNoneNone1B.1Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone04.2Clk HighlandsNavaretia leucocephala ssp. bakeriBaker's navarretiaNoneNone1B.1Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndFnd1B.1Clk HighlandsNavarretia leucocephala ssp. pleienthamany-flowered navarretiaEndFnd1B.1Clk HighlandsNavarretia leucocephala ssp. pleienthamany-flowered navarretiaEndFnd1B.2Clk HighlandsMyosurus minimus sp. apuslittle mousetailNoneNone3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone1B.2Clk HighlandsHalaeetus leucocephalusbald eagleDelistedEndFP<	Clk Highlands	Calyptridium quadripetalum	four-petaled pussypaws	None	None	-	4.3
Clk HighlandsCordylanthus tenuis ssp. brunneusserpentine bird's-beakNoneNoneNone4.3Clk HighlandsAntirrhinum virgatwig-like snapdragonNoneNoneNone4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd-18.2Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone-28.1Clk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNone-4.3Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-28.1Clk HighlandsNavaretia leucocephala ssp. bakeriBaker's navarretiaNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-18.1Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndFnd-28.2Clk HighlandsMyosurus minimus sp. apuslittle mousetailNoneNoneNone28.2Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone-3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone-18.2Clk HighlandsHaliaeetus leucocephalusbald eagleDelistedEndFP-Clk HighlandsPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Piperia michaelii	Michael's rein orchid	None	None	-	4.2
Clk HighlandsAntirrhinum virgatwig-like snapdragonNoneNoneNone4.3Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd-18.2Clk HighlandsImperata brevifoliaCalifornia satintailNoneNoneEnd-28.1Clk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNone-4.3Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-28.1Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-18.1Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd-28.2Clk HighlandsMyosurus minimus sp. apuslittle mousetailNoneNone-28.2Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone-18.2Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone-28.2Clk HighlandsHaiaeetus leucocephalusBola eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
Clk HighlandsGratiola heterosepalaBoggs Lake hedge-hyssopNoneEnd-1B.2Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone2B.1Clk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNone-2B.1Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone-1B.1Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-1B.1Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd1B.2Clk HighlandsPotamogeton zosteriformiseel-grass pondweedNoneNoneNone2B.1Clk HighlandsMyosurus minimus ssp. apuslittle mousetailNoneNone2B.2Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone2B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Antirrhinum virga	twig-like snapdragon	None	None	-	4.3
Clk HighlandsImperata brevifoliaCalifornia satintailNoneNone2 B.TClk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNone1 B.1Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone-4.2Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaEndThreat-1 B.1Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-1 B.1Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd1 B.2Clk HighlandsPotamogeton zosteriformiseel-grass pondweedNoneNone2 B.2Clk HighlandsMyosurus minimus ssp. apuslittle mousetailNoneNone2 B.2Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone1 B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Gratiola heterosepala	Boggs Lake hedge-hyssop	None	End	-	18.2
Clk HighlandsEriastrum brandegeeaeBrandegee's eriastrumNoneNoneNone1B.1Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone4.2Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone1B.1Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone1B.1Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat1B.2Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd1B.2Clk HighlandsPotamogeton zosteriformiseel-grass pondweedNoneNone2B.2Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone1B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Imperata brevifolia	California satintail	None	None	-	2B.1
Clk HighlandsLeptosiphon acicularisbristly leptosiphonNoneNone4.2Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone18.1Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-18.1Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndEnd18.2Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd18.2Clk HighlandsPotamogeton zosteriformiseel-grass pondweedNoneNone28.2Clk HighlandsMyosurus minimus ssp. apuslittle mousetailNoneNone81.2Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone81.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Eriastrum brandegeeae	Brandegee's eriastrum	None	None	-	1B.1
Clk HighlandsNavarretia leucocephala ssp. bakeriBaker's navarretiaNoneNone1B.1Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-1B.1Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEnd-1B.2Clk HighlandsPotamogeton zosteriformiseel-grass pondweedNoneNone-2B.2Clk HighlandsMyosurus minimus ssp. apuslittle mousetailNoneNone-3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone-1B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Clk HighlandsNavarretia leucocephala ssp. pauciflorafew-flowered navarretiaEndThreat-1B.1Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEndIB.2Clk HighlandsPotamogeton zosteriformiseel-grass pondweedNoneNone-2B.2Clk HighlandsMyosurus minimus ssp. apuslittle mousetailNoneNone-3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone-1B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	-	1B.1
Clk HighlandsNavarretia leucocephala ssp. plieanthamany-flowered navarretiaEndEndIB.2Clk HighlandsPotamogeton zosteriformiseel-grass pondweedNoneNone2B.2Clk HighlandsMyosurus minimus ssp. apuslittle mousetailNoneNone3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone1B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	End	Threat	-	18.1
Clk HighlandsPotamogeton zosteriformiseel-grass pondweedNoneNone2 B.2Clk HighlandsMyosurus minimus ssp. apuslittle mousetailNoneNone3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone1 B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Navarretia leucocephala ssp. plieantha	many-flowered navarretia	End	End	-	1B.2
Clk HighlandsMyosurus minimus ssp. apuslittle mousetailNoneNone3.1Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone1B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Potamogeton zosteriformis	eel-grass pondweed	None	None	-	2B.2
Clk HighlandsHorkelia bolanderiBolander's horkeliaNoneNone1B.2Clearlake OaksHaliaeetus leucocephalusbald eagleDelistedEndFP-Clearlake OaksPandion haliaetusospreyNoneNoneWL-	Clk Highlands	Myosurus minimus ssp. apus	little mousetail	None	None	-	3.1
Clearlake Oaks Haliaeetus leucocephalus bald eagle Delisted End FP - Clearlake Oaks Pandion haliaetus osprey None None WL -	Clk Highlands	Horkelia bolanderi	Bolander's horkelia	None	None	-	1B.2
Clearlake Oaks Pandion haliaetus osprey None None WL -	Clearlake Oaks	Haliaeetus leucocephalus	bald eagle	Delisted	End	FP	-
	Clearlake Oaks	Pandion haliaetus	osprey	None	None	WL	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Clearlake Oaks	Archoplites interruptus	Sacramento perch	None	None	SSC	-
Clearlake Oaks	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	-	-
Clearlake Oaks	Dubiraphia brunnescens	brownish dubiraphian riffle beetle	None	None	-	-
Clearlake Oaks	Pekania pennanti	fisher - West Coast DPS	None	Threat	SSC	-
Clearlake Oaks	Antrozous pallidus	pallid bat	None	None	SSC	-
Clearlake Oaks	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	-
Clearlake Oaks	Myotis yumanensis	Yuma myotis	None	None	-	-
Clearlake Oaks	Gonidea angulata	western ridged mussel	None	None	-	-
Clearlake Oaks	Emys marmorata	western pond turtle	None	None	SSC	-
Clearlake Oaks	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	None	None	-	-
Clearlake Oaks	Hemizonia congesta ssp. calyculata	Mendocino tarplant	None	None	-	4.3
Clearlake Oaks	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Clearlake Oaks	Brasenia schreberi	watershield	None	None	-	2B.3
Clearlake Oaks	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	-	1B.3
Clearlake Oaks	Erythronium helenae	St. Helena fawn lily	None	None	-	4.2
Clearlake Oaks	Calyptridium quadripetalum	four-petaled pussypaws	None	None	-	4.3
Clearlake Oaks	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Clearlake Oaks	Potamogeton zosteriformis	eel-grass pondweed	None	None	-	28.2
Kelseyville	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	-
Kelseyville	Taricha rivularis	red-bellied newt	None	None	SSC	-
Kelseyville	Progne subis	purple martin	None	None	SSC	-
Kelseyville	Pandion haliaetus	osprey	None	None	WL	-
Kelseyville	Calasellus californicus	An isopod	None	None	-	-
Kelseyville	Linderiella occidentalis	California linderiella	None	None	-	-
Kelseyville	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	-	-
Kelseyville	Lavinia symmetricus ssp. 4	Clear Lake - Russian River roach	None	None	SSC	-
Kelseyville	Bombus caliginosus	obscure bumble bee	None	None	-	-
Kelseyville	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	None	None	-	-
Kelseyville	Erethizon dorsatum	North American porcupine	None	None	-	-
Kelseyville	Emys marmorata	western pond turtle	None	None	SSC	-
Kelseyville	Clear Lake Drainage Cyprinid/Catostomid Stm	Clear Lake Drainage Cyprinid/Catostomid Stm	None	None	-	-
Kelseyville	Clear Lake Drainage Resident Trout Stm	Clear Lake Drainage Resident Trout Stm	None	None	-	-
Kelseyville	Clear Lake Drainage Seasonal Lakefish Spawn Stm	Clear Lake Drainage Seasonal Lakefish Spawn Stm	None	None	-	-
Kelseyville	Northern Volcanic Ash Vernal Pool	Northern Volcanic Ash Vernal Pool	None	None	-	-
Kelseyville	Harmonia hallii	Hall's harmonia	None	None	-	1B.2

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QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Kelseyville	Lasthenia burkei	Burke's goldfields	End	End	*	1B.1
Kelseyville	Layia septentrionalis	Colusa layia	None	None	8	18.2
Kelseyville	Micropus amphibolus	Mt. Diablo cottonweed	None	None		3.2
Kelseyville	Azolla microphylla	Mexican mosquito fern	None	None	÷	4.2
Kelseyville	Amsinckia lunaris	bent-flowered fiddleneck	None	None		1B.2
Kelseyville	Streptanthus barbiger	bearded jewelflower	None	None	-	4.2
Kelseyville	Brasenia schreberi	watershield	None	None		2B.3
Kelseyville	Legenere limosa	legenere	None	None		18.1
Kelseyville	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	÷	IB.3
Kelseyville	Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None	-	1B.1
Kelseyville	Astragalus breweri	Brewer's milk-vetch	None	None		4.2
Kelseyville	Monardella viridis	green monardella	None	None	<u>د</u>	4.3
Kelseyville	Trichostema ruygtii	Napa bluecurls	None	None		1B.2
Kelseyville	Limnanthes floccosa ssp. floccosa	woolly meadowfoam	None	None	× .	4.2
Kelseyville	Hesperolinon adenophyllum	glandular western flax	None	None	2	1B.2
Kelseyville	Sidalcea oregana ssp. hydrophila	marsh checkerbloom	None	None	*	1B.2
Kelseyville	Calyptridium quadripetalum	four-petaled pussypaws	None	None	3	4.3
Kelseyville	Clarkia gracilis ssp. tracyi	Tracy's clarkia	None `	None	a	4.2
Kelseyville	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	*	4.3
Kelseyville	Gratiola heterosepala	Boggs Lake hedge-hyssop	None	End	<u> </u>	1B.2
Kelseyville	Orcuttia tenuis	slender Orcutt grass	Threat	End	12	1B.1
Kelseyville	Eriastrum brandegeeae	Brandegee's eriastrum	None	None		1B.1
Kelseyville	Leptosiphon acicularis	bristly leptosiphon	None	None		4.2
Kelseyville	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	End	Threat		1B.1
Kelseyville	Navarretia leucocephala ssp. plieantha	many-flowered navarretia	End	End	74	1B,2
Kelseyville	Potamogeton zosteriformis	eel-grass pondweed	None	None		2B.2
Kelseyville	Horkelia bolanderi	Bolander's horkelia	None	None	3 .	1B.2
Lower Lake	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	-
Lower Lake	Taricha rivularis	red-bellied newt	None	None	SSC	-
Lower Lake	Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Lower Lake	Haliaeetus leucocephalus	bald eagle	Delisted	End	FP	-
Lower Lake	Ardea herodias	great blue heron	None	None	2	38
Lower Lake	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	12 C	4
Lower Lake	Lavinia symmetricus ssp. 4	Clear Lake - Russian River roach	None	None	SSC	25
Lower Lake	Saldula usingeri	Wilbur Springs shorebug	None	None	(#)	(#

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Lower Lake	Antrozous pallidus	pallid bat	None	None	SSC	
Lower Lake	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	
Lower Lake	Myotis lucifugus	little brown bat	None	None	-	÷.
Lower Lake	Myotis yumanensis	Yuma myotis	None	None	-	i i
Lower Lake	Emys marmorata	western pond turtle	None	None	SSC	-
Lower Lake	Lomatium hooveri	Hoover's lomatium	None	None		4.3
Lower Lake	Harmonia hallii	Hall's harmonia	None	None		1B.2
Lower Lake	Lasthenia burkei	Burke's goldfields	End	End		1B.1
Lower Lake	Layia septentrionalis	Colusa layia	None	None	2	1B.2
Lower Lake	Amsinckia lunaris	bent-flowered fiddleneck	None	None		1B.2
Lower Lake	Astragalus rattanii var: jepsonianus	Jepson's milk-vetch	None	None	54 C	1B.2
Lower Lake	Fritillaria pluriflora	adobe-lily	None	None	-	1B.2
Lower Lake	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None		1B.2
Lower Lake	Malacothamnus helleri	Heller's bush-mallow	None	None	12 C	3.3
Lower Lake	Leptosiphon acicularis	bristly leptosiphon	None	None	1.1	4.2
Lower Lake	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	a	1B.1
Lower Lake	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	End	Threat		1B.1
Lower Lake	Potamogeton zosteriformis	eel-grass pondweed	None	None		2B.2
Lower Lake	Delphinium uliginosum	swamp larkspur	None	None	1	4.2
Lucerne	Rana draytonii	California red-legged frog	Threat	None	SSC	-
Lucerne	Taricha rivularis	red-bellied newt	None	None	SSC	
Lucerne	Haliaeetus leucocephalus	bald eagle	Delisted	End	FP	
Lucerne	Branta hutchinsii leucopareia	cackling (=Aleutian Canada) goose	Delisted	None	WL	
Lucerne	Ardea herodias	great blue heron	None	None	-	÷.
Lucerne	Falco mexicanus	prairie falcon	None	None	WL	2
Lucerne	Pandion haliaetus	osprey	None	None	WL	
Lucerne	Phalacrocorax auritus	double-crested cormorant	None	None	WL	
Lucerne	Archoplites interruptus	Sacramento perch	None	None	SSC	
Lucerne	Lavinia exilicauda chi	Clear Lake hitch	None	Threat	-	3 4
Lucerne	Dubiraphia brunnescens	brownish dubiraphian riffle beetle	None	None	-	27
Lucerne	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	
Lucerne	Lasionycteris noctivagans	silver-haired bat	None	None	100	2
Lucerne	Margaritifera falcata	western pearlshell	None	None	12	
Lucerne	Anodonta oregonensis	Oregon floater	None	None	3 6 (
Lucerne	Gonidea angulata	western ridged mussel	None	None		

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QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Lucerne	Emys marmorata	western pond turtle	None	None	SSC	
Lucerne	Clear Lake Drainage Cyprinid/Catostomid Stm	Clear Lake Drainage Cyprinid/Catostomid Stm	None	None		2
Lucerne	Clear Lake Drainage Seasonal Lakefish Spawn Stm	Clear Lake Drainage Seasonal Lakefish Spawn Stm	None	None		81
Lucerne	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	None	None	<u>ii</u>	22
Lucerne	Layia septentrionalis	Colusa layia	None	None	2	1B.2
Lucerne	Amsinckia lunaris	bent-flowered fiddleneck	None	None		1B.2
Lucerne	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	2	1B.3
Lucerne	Lupinus antoninus	Anthony Peak lupine	None	None	13	1B.2
Lucerne	Hesperolinon adenophyllum	glandular western flax	None	None		1B.2
Lucerne	Hesperolinon bicarpellatum	two-carpellate western flax	None	None		IB.2
Lucerne	Leptosiphon acicularis	bristly leptosiphon	None	None	(e	4.2
Lucerne	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	8	4.3
Lucerne	Potamogeton zosteriformis	eel-grass pondweed	None	None	5 0	2B.2
Middletown	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	× .
Middletown	Haliaeetus leucocephalus	bald eagle	Delisted	End	F₽	8
Middletown	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	
Middletown	Lasionycteris noctivagans	silver-haired bat	None	None	-	*
Middletown	Lasiurus cinereus	hoary bat	None	None `	-	
Middletown	Myotis yumanensis	Yuma myotis	None	None	-	*
Middletown	Emys marmorata	western pond turtle	None	None	SSC	
Middletown	Northern Basalt Flow Vernal Pool	Northern Basalt Flow Vernal Pool	None	None	2 1	
Middletown	Lomatium repostum	Napa Iomatium	None	None	5	4.3
Middletown	Erigeron greenei	Greene's narrow-leaved daisy	None	None	121	1B.2
Middletown	Harmonia hallii	Hall's harmonia	None	None	100	1B.2
Middletown	Helianthus exilis	serpentine sunflower	None	None		4.2
Middletown	Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	None	None	100	18.2
Middletown	Lasthenia burkei	Burke's goldfields	End	End	56	1B.1
Middletown	Amsinckia lunaris	bent-flowered fiddleneck	None	None		1B.2
Middletown	Streptanthus hesperidis	green jewelflower	None	None	30	1B.2
Middletown	Legenere limosa	legenere	None	None	241	1B.1
Middletown	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	None	None	17 0	4.2
Middletown	Sedella leiocarpa	Lake County stonecrop	End	End	1.0	1B.1
Middletown	Astragalus breweri	Brewer's milk-vetch	None	None	୍ର କ	4.2
Middletown	Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	None	None	353	1B.2
Middletown	Trifolium hydrophilum	saline clover	None	None	522	1B.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Middletown	Calochortus uniflorus	pink star-tulip	None	None	19	4.2
Middletown	Erythronium helenae	St. Helena fawn lily	None	None	28	4.2
Middletown	Hesperolinon bicarpellatum	two-carpellate western flax	None	None	12	1B.2
Middletown	Hesperolinon didymocarpum	Lake County western flax	None	End	2	1B.2
Middletown	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None	2#	1B.2
Middletown	Castilleja rubicundula var. rubicundula	pink creamsacs	None	None		1B.2
Middletown	Erythranthe nudata	bare monkeyflower	None	None		4.3
Middletown	Gratiola heterosepala	Boggs Lake hedge-hyssop	None	End	54 - C	1B.2
Middletown	Calamagrostis ophitidis	serpentine reed grass	None	None	25	4.3
Middletown	Orcuttia tenuis	slender Orcutt grass	Threat	End	34	1B.1
Middletown	Collomia diversifolia	serpentine collomia	None	None	<u>i</u>	4.3
Middletown	Leptosiphon acicularis	bristly leptosiphon	None	None	se.	4.2
Middletown	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	a	1B.2
Middletown	Leptosiphon latisectus	broad-lobed leptosiphon	None	None		4.3
Middletown	Navarretia cotulifolia	cotula navarretia	None	None		4.2
Middletown	Navarretia jepsonii	Jepson's navarretia	None	None	14	4.3
Middletown	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None		1B.1
Middletown	Navarretia leucocephala ssp. plieantha 👘	many-flowered navarretia	End	End	201 4	1B.2
Middletown	Navarretia paradoxinota	Porter's navarretia	None	None		1B.3
Middletown	Delphinium uliginosum	swamp larkspur	None	None		4.2
The Geysers	Dicamptodon ensatus	California giant salamander	None	None	SSC	<u>ت</u>
The Geysers	Rana boylii	foothill yellow-legged frog	None	Cand Threat	SSC	*
The Geysers	Taricha rivularis	red-bellied newt	None	None	SSC	÷.
The Geysers	Progne subis	purple martin	None	None	SSC	
The Geysers	Lavinia symmetricus ssp. 4	Clear Lake - Russian River roach	None	None	SSC	*
The Geysers	Hysterocarpus traskii pomo	Russian River tule perch	None	None	SSC	Q
The Geysers	Entosphenus tridentatus	Pacific lamprey	None	None	SSC	
The Geysers	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threat	None	34	×
The Geysers	Bombus occidentalis	western bumble bee	None	None	2	÷
The Geysers	Emys marmorata	western pond turtle	None	None	SSC	*
The Geysers	Clear Lake Drainage Resident Trout Stm	Clear Lake Drainage Resident Trout Stm	None	None	34	
The Geysers	Asclepias solanoana	serpentine milkweed	None	None		4.2
The Geysers	Harmonia hallii	Hall's harmonia	None	None		1B.2
The Geysers	Layia septentrionalis	Colusa layia	None	None	<u>64</u>	1B.2
The Geysers	Cryptantha dissita	serpentine cryptantha	None	None		1B.2

OUAD NAME	SCIENTIFIC NAME	COMMON NAME		FED.	CAL.	CDFG	CNPS
The Geysers	Streptanthus barbiger	bearded jewelflower		None	None		4.2
The Geysers	Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower		None	None		1B.2
The Geysers	Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewelflower		None	None	\odot	1B.3
The Geysers	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory		None	None	-	4.2
The Geysers	Calystegia collina ssp. tridactylosa	three-fingered morning-glory		None	None		1B.2
The Geysers	Arctostaphylos manzanita ssp. elegans	Konocti manzanita		None	None	2	1B.3
The Geysers	Astragalus breweri	Brewer's milk-vetch		None	None	8	4.2
The Geysers	Astragalus clevelandii	Cleveland's milk-vetch		None	None	*	4.3
The Geysers	Lupinus sericatus	Cobb Mountain lupine		None	None	÷	1B.2
The Geysers	Erythronium helenae	St. Helena fawn lily		None	None	3	4.2
The Geysers	Fritillaria purdyi	Purdy's fritillary		None	None	3	4.3
The Geysers	Hesperolinon adenophyllum	glandular western flax		None	None	3	1B.2
The Geysers	Sidalcea oregana ssp. hydrophila	marsh checkerbloom		None	None		1B.2
The Geysers	Calyptridium quadripetalum	four-petaled pussypaws		None	None	S	4.3
The Geysers	Clarkia gracilis ssp. tracyi	Tracy's clarkia		None	None	÷	4.2
The Geysers	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak		None	None		4.3
The Geysers	Antirrhinum virga	twig-like snapdragon		None	None	3	4.3
The Geysers	Calamagrostis ophitidis	serpentine reed grass	÷.	None	None	3	4.3
The Geysers	Panicum acuminatum var. thermale	Geysers panicum		None	End	3 4	1B.2
The Geysers	Collomia diversifolia	serpentine collomia		None	None		4.3
The Geysers	Eriastrum brandegeeae	Brandegee's eriastrum		None	None	(#	1B.1
The Geysers	Leptosiphon acicularis	bristly leptosiphon		None	None	1	4.2
The Geysers	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia		End	Threat		1B.1
The Geysers	Ceanothus confusus	Rincon Ridge ceanothus		None	None	3 1	1B.1
The Geysers	Ceanothus divergens	Calistoga ceanothus		None	None		18.2
Whispering Pines	Dicamptodon ensatus	California giant salamander		None	None	SSC	
Whispering Pines	Rana boylii	foothill yellow-legged frog		None	Cand Threat	SSC	
Whispering Pines	Rana draytonii	California red-legged frog		Threat	None	SSC	÷
Whispering Pines	Taricha rivularis	red-bellied newt		None	None	SSC	
Whispering Pines	Progne subis	purple martin		None	None	SSC	÷.
Whispering Pines	Bombus occidentalis	western bumble bee		None	None	-	3
Whispering Pines	Antrozous pallidus	pallid bat		None	None	SSC	18
Whispering Pines	Corynorhinus townsendii	Townsend's big-eared bat		None	None	SSC	
Whispering Pines	Lasiurus blossevillii	western red bat		None	None	SSC	25
Whispering Pines	Lasiurus cinereus	hoary bat		None	None	5 a 5	÷.

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
Whispering Pines	Myotis evotis	long-eared myotis	None	None	-	-
Whispering Pines	Myotis thysanodes	fringed myotis	None	None	-	-
Whispering Pines	Emys marmorata	western pond turtle	None	None	SSC	-
Whispering Pines	Central Valley Drng Rainbow Trout/Cyprinid Stm	Central Valley Drng Rainbow Trout/Cyprinid Stm	None	None	-	-
Whispering Pines	Clear Lake Drainage Resident Trout Stm	Clear Lake Drainage Resident Trout Stm	None	None	-	-
Whispering Pines	Grimmia torenii	Toren's grimmia	None	None	-	1B.3
Whispering Pines	Mielichhoferia elongata	elongate copper moss	None	None	-	4.3
Whispering Pines	Chlorogalum pomeridianum var, minus	dwarf soaproot	None	None	-	1B.2
Whispering Pines	Eryngium constancei	Loch Lomond button-celery	End	End	-	1B.1
Whispering Pines	Asclepias solanoana	serpentine milkweed	None	None	-	4.2
Whispering Pines	Erigeron greenei	Greene's narrow-leaved daisy	None	None	-	1B.2
Whispering Pines	Helianthus exilis	serpentine sunflower	None	None	-	4.2
Whispering Pines	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Whispering Pines	Amsinckia lunaris	bent-flowered fiddleneck	None	None	-	1B.2
Whispering Pines	Cryptantha dissita	serpentine cryptantha	None	None	-	1B.2
Whispering Pines	Arabis blepharophylla	coast rockcress	None	None	-	4.3
Whispering Pines	Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower	None	None	-	1B.2
Whispering Pines	Streptanthus brachiatus ssp. hoffmanii	Freed's jewelflower	None	None	-	1B.2
Whispering Pines	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
Whispering Pines	Downingia willamettensis	Cascade downingia	None	None	-	28.2
Whispering Pines	Legenere limosa	legenere	None	None	-	1B.I
Whispering Pines	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	None	None	-	4.2
Whispering Pines	Sedella leiocarpa	Lake County stonecrop	End	End	-	18.1
Whispering Pines	Carex praticola	northern meadow sedge	None	None	-	2B.2
Whispering Pines	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	-	1B.3
Whispering Pines	Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None	-	1B.1
Whispering Pines	Astragalus breweri	Brewer's milk-vetch	None	None	-	4.2
Whispering Pines	Astragalus clevelandii	Cleveland's milk-vetch	None	None	1.	4.3
Whispering Pines	Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	None	None	-	1B.2
Whispering Pines	Lupinus sericatus	Cobb Mountain lupine	None	None	-	1B.2
Whispering Pines	Erythronium helenae	St. Helena fawn lily	None	None	-	4.2
Whispering Pines	Fritillaria purdyi	Purdy's fritillary	None	None	-	4.3
Whispering Pines	Hesperolinon adenophyllum	glandular western flax	None	None	-	1B.2
Whispering Pines	Hesperolinon bicarpellatum	two-carpellate western flax	None	None	-	1B.2

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QUAD NAME SCIENTIFIC NAME		COMMON NAME	FED.	CAL.	CDFG	CNPS
Whispering Pines	Sidalcea oregana ssp. hydrophila	marsh checkerbloom	None	None	-	1B.2
Whispering Pines	Calyptridium quadripetalum	four-petaled pussypaws	None	None	-	4.3
Whispering Pines	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
Whispering Pines	Cordylanthus tenuis ssp. capillaris	Pennell's bird's-beak	End	Rare	-	1B.2
Whispering Pines	Erythranthe nudata	bare monkeyflower	None	None	-	4.3
Whispering Pines	Antirrhinum subcordatum	dimorphic snapdragon	None	None	-	4.3
Whispering Pines	Antirrhinum virga	twig-like snapdragon	None	None	-	4.3
Whispering Pines	Penstemon newberryi var. sonomensis	Sonoma beardtongue	None	None	-	1B.3
Whispering Pines	Calamagrostis ophitidis	serpentine reed grass	None	None	-	4.3
Whispering Pines	Imperata brevifolia	California satintail	None	None	-	2B.1
Whispering Pines	Panicum acuminatum var. thermale	Geysers panicum	None	End	-	1B.2
Whispering Pines	Collomia diversifolia	serpentine collomia	None	None	-	4.3
Whispering Pines	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Whispering Pines	Leptosiphon grandifiorus	large-flowered leptosiphon	None	None	-	4.2
Whispering Pines	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Whispering Pines	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	-	1B.1
Whispering Pines	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	End	Threat	-	1B.1
Whispering Pines	Navarretia leucocephala ssp. plieantha	many-flowered navarretia	End `	End	-	1B.2
Whispering Pines	Eriogonum nervulosum	Snow Mountain buckwheat	None	None	-	18.2
Whispering Pines	Delphinium uliginosum	swamp larkspur	None	None	-	4.2
Whispering Pines	Ceanothus confusus	Rincon Ridge ceanothus	None	None	-	18.1
Whispering Pines	Ceanothus divergens	Calistoga ceanothus	None	None	-	1B.2
Whispering Pines	Horkelia bolanderi	Bolander's horkelia	None	None	-	1B.2

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Key for Table:

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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; fairly 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; fairly threatened in Calif.

2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif. 3 = Plants about which we need more information (Review List)

3.1 = Plants about which we need more information (Review List); seriously threatened in California 3.2 = Plants about which we need more information (Review List); fairly threatened in California

3.3 = Plants about which we need more information (Review List); not very threatened in California

4.1 = Plants of limited distribution (watch list); seriously threatened in California

4.2 = Plants of limited distribution (watch list); fairly threatened in California

4.3 = Plants of limited distribution (watch list); not very threatened in California

CDFW / State and Federal Status:

SE/ST/SD = State Endangered/Threatened/Delisted SC/SCD = State Candidate for Listing/Delisting SSC = CDFW Species of Special Concern SFP = State Fully Protected WL = CDFW Watch List FE/FT/FD = Federal Endangered/Threatened/Delisted FPE/FPT/FPD/FP = Federal Proposed Endangered/Threatened/Delisting FC = Federal Candidate

State and Federal Status:

Threat = Threatened End = Endangered Prop = ProposedCand = Candidate Cand End/Threat = State Candidate for Endangered/Threatened

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APPENDIX B

REGIONAL WHR DATABASE 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 PT = Federally-Proposed Threatened FC = Federal Candidate CD = CDF Sensitive HA = Harvest

CE = California Endangered SC = California Species of Special ConcernBL = BLM Sensitive

CF = California Fully Protected

CP = California Protected

CT = California Threatened PE = Federally-Proposed Endangered FS = USFS Sensitive

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		Nati	Native/Introduced	
B251	BAND-TAILED PIGEON			НА	NATIVE	
B277	COMMON POORWILL				NATIVE	
B317	HAMMOND'S FLYCATCHER				NATIVE	
B337	HORNED LARK				NATIVE	
B348	WESTERN SCRUB-JAY	*			NATIVE	
B391	WRENTIT				NATIVE	
B425	ORANGE-CROWNED WARBLER				NATIVE	
B437	TOWNSEND'S WARBLER				NATIVE	
B495	LARK SPARROW				NATIVE	
B499	SAVANNAH SPARROW	CE	SC		NATIVE	
B543	LESSER GOLDFINCH				NATIVE	
B798	WHITE-THROATED SPARROW				NATIVE	
B799	HARRIS'S SPARROW				NATIVE	
M006	ORNATE SHREW	FE	SC		NATIVE	
M034	HOARY BAT				NATIVE	
M037	TOWNSEND'S BIG-EARED BAT		SC	BL FS	NATIVE	
M055	YELLOW-PINE CHIPMUNK				NATIVE	
M059	SONOMA CHIPMUNK				NATIVE	
M075	GOLDEN-MANTLED GROUND SQUIRREL				NATIVE	
M117	DEER MOUSE		SC		NATIVE	

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M119	BRUSH MOUSE					NATIVE
M120	PINYON MOUSE					NATIVE
M134	CALIFORNIA VOLE	: FE	CE	SC	BL	NATIVE
R071	DESERT NIGHTSNAKE					NATIVE

Total Number of Species: 24

Query Parameters

Included Locations

Lake Co

Included Location Seasons

Migrant, Summer, Winter, Yearlong

Included Habitats & (Stages)

Deciduous Orchard, Mixed Chaparral, Valley Oak Woodland

Habitat Suitability Threshold

Reproduction - Low, Cover - Low, Feeding - Low

Included Habitat Seasons

Migrant, Summer, Winter, Yearlong

Excluded Elements

Algae, Amphibians, Aquatics - Emergent, Aquatics - Submerged, Bank, Barren, Birds - Large, Bogs, Brush Pile, Burrow, Campground, Carrion, Cave, Cliff, Duff, Dump, Fern, Fish, Fungi, Grain, Grass/water, Invertebrates - Aquatic, Jetty, Kelp, Lakes, Lithic, Litter, Log - Large (hollow), Log - Large (rotten), Log - Large (sound), Log - Medium (hollow), Log -Medium (rotten), Log - Medium (sound), Mine, Mud Flats, Nest Box, Nest Island, Nest Platform, Pack Stations, Ponds, Riparian Inclusion, Rivers, Rock, Salt Ponds, Sand Dune, Shrub/grass, Shrub/water, Slash - Large (hollow), Slash - Large (rotten), Slash - Large (sound), Slash - Small, Snag - Large (rotten), Snag - Large (sound), Snag - Medium (rotten), Snag - Medium (sound), Snag - Small (rotten), Snag - Small (sound), Soil - Friable, Soil - Gravelly, Soil - Organic, Soil - Saline, Soil - Sandy, Springs, Springs - Hot, Springs - Mineral, Steep Slope, Streams - Intermittent, Streams - Permanent, Stump (rotten), Stump (sound), Talus, Tidepools, Tree - Broken Top Live, Tree - With Cavities, Tree - With Loose Bark, Tree/grass, Tree/shrub, Tree/water, Trees - Fir, Vernal Pools, Water, Water - Created Body, Water - Fast, Water -Slow, Water/agriculture, Wharf

Included Species All Species Included

Included Special Statuses Native

APPENDIX C

AQUATIC RESOURCES/DELINEATION REPORT

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DELINEATION OF WATERS OF THE U.S.

1.0 <u>Methodology</u>

1.1 <u>Purpose of Delineation:</u> This delineation has been conducted at the request of the local permitting agency in order to determine the extent of possible waters of the U.S. on the project.

1.2 Delineation Procedure: This delineation has been conducted as prescribed in the Corps of Engineers Wetlands Delineation Manual, January 1987, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, 2008. 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; however, all nomenclature and wetland indicator status have been checked with the U.S. Army Corps of Engineers. 2016. National Wetland Plant Lists: Arid West and California.

The survey included use of Google satellite images, 7.5' USGS quadrangle maps, and LIDAR mapped overlays along with an extensive foot survey.

1.3 Delineation Date: Delineation fieldwork was completed on April 10, 2019.

1.4 <u>Delineation Staff</u>: The delineation was conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has more than 35 years of experience as a biologist in the government and private sectors. He completed his wetland delineation training under Terry Huffman of Huffman & Associates, Inc.

Fieldwork, mapping, and report preparation were also conducted by Leigh Zalusky. Leigh Zalusky has a Bachelor of Science Degree in Computer Engineering from the University of California, Davis. Leigh also received formal delineation training under Terry Huffman of Huffman & Associates, Inc.

2.0 Existing Conditions

2.1 <u>Location</u>: The project site is located at 7130 Red Hills Road, Clearlake Highlands, California, 95451(APN 009-021-07; T13N R8W Sec. 34, Kelseyville, Calif. $7\frac{1}{2}$ ' Topographic Map). A location map is provided in **Figure 1**.

2.2 <u>Site Topography and Drainage</u>: The site is located along the Highway 29 corridor in narrow, valley terrain between the northeastern toe of the Mayacamas Mountains and the southern slope of Mount Konocti. This corridor consists of a series of isolated flats and small basins either drained interiorly or connected to Thurston Creek, which drains to the isolated basin of Thurston Lake. This property is drained along its eastern edge by an excavated ditch which flows north to State Highway 29 and then east to an unnamed tributary to Thurston Creek. The property drops approximately 80 feet in elevation from north to south into Hess Flat at an elevation of 1,880 feet msl (mean sea level).

3.2 <u>Soils:</u> Based on the Soil Survey of Lake County, California prepared by the U.S. Resource Conservation Service, the survey area contains the following soil types:

Glenview-Arrowhead complex, 5-15% slopes (soil unit 138):

This unit is on volcanic hills. Native vegetation is mainly brush with scattered conifers. The unit contains about 60% Glenview very gravelly loam and 20% Arrowhead extremely gravelly sandy loam. The Glenview soil is very deep and well drained. It formed in material weathered from obsidian. Permeability is moderately slow and runoff is medium. The Arrowhead soil is moderately deep and well drained, and formed in material weathered from obsidian. Permeability is slow and runoff is medium. The hazard of erosion is moderate for both soils.

3.0 Aquatic Resources Results

3.1 Waters of the U.S: The results of the delineation are shown on the aerial photo base map provided in **Appendix C**, **Figure 1**. Waters of the U.S. within the property consist of intermittent stream channels and ephemeral drainages. <u>No potential wetland resources were found</u>.

The total area of all delineated aquatic resources is 0.136<u>acre</u>. The delineation results are shown in **Table 1**.

Name	Cowardin Code	HGM Code	Waters Type	Latitude	Longitude	Length (ft)	Width (ft)	Area (acres)
Stream Segments								
ES1	R6		Isolate	38.927037°	-122.738945°	1689	3.5	0.1357
Total Stream Segments:								0.1357
Total Possible Waters of U.S. Within Survey Area							0.1357	

TABLE 1. POSSIBLE AQUATIC RESOURCES WITHIN THE SURVEY AREA

4.0 **RECOMMENDATIONS**

Any work proposed within the possible waters of the U.S. will require permits from the following:

- U.S. Army Corps of Engineers (Nationwide Permit)
- Regional Water Quality Control Board (Water Quality Certification 401 permit)
- California Department of Fish and Wildlife (1602 Stream Alteration Agreement)

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