



INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

CENTIMUDI WATER STORAGE TANK

NOVEMBER 2023

PREPARED FOR:

City of Shasta Lake
4477 Main Street
Shasta Lake, CA 96019

PREPARED BY:

Montrose Environmental
1801 7th Street, Suite 100
Sacramento, CA 95811
(916) 447-3479
www.analyticalcorp.com



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Appendix D. Cultural Resources Study
Appendix E. Mitigation Monitoring and Reporting Program

1 INTRODUCTION

1.1 PROJECT SUMMARY / ENVIRONMENTAL CHECKLIST FORM

Project Title:	Centimudi Water Storage Tank Project (project)
Lead Agency Name and Address:	City of Shasta Lake (City) 4477 Main Street Shasta Lake, CA 96019
Contact Person and Phone Number:	Shelby Millingar, P.E., Associate Civil Engineer (530) 275-7469
Project Location:	The project site is located in Shasta County on Assessor's Parcel Number 065-500-001 at the corner of Kennett Road and Lake Boulevard on federally owned property managed by the U.S. Department of Agriculture Forest Service (USFS). The project site is located approximately 0.2 miles north of the City of Shasta Lake city limits.
General Plan Designation:	Public Land (PUB)
Zoning:	National Recreation Area (NRA-S)
Description of the Proposed Project:	The City of Shasta Lake is proposing to construct a new 2.45-million-gallon treated water storage tank to replace two existing finished water tanks located on the north side of the Fisherman's Point Water Treatment Plant. Because the project site is located on National Forest System lands in the Whiskeytown-Shasta-Trinity National Recreation Area at Lake Shasta, the proposed project also requires the issuance of a Special Use Permit from the USFS and thus requires compliance with the National Environmental Policy Act. A detailed description of the proposed project is provided in Section 2.4.
Existing and Surrounding Land Uses:	The approximately 3.91-acre project site encompasses an undeveloped area at the corner of Kennett Road and Lake Boulevard, as well as the length of Kennett Road. The construction area is within the project site and is approximately 0.66 acres. Centimudi Boat Launch and Lake Shasta are located directly north of the project site. The project site is located on land managed by the USFS and is surrounded by forestland.

<p>Other Public Agencies Whose Approval may be Required:</p>	<p>U.S. Department of Agriculture Forest Service</p> <p>Central Valley Regional Water Quality Control Board</p> <p>State Historic Preservation Office</p> <p>Shasta County</p>
<p>Consultation with California Native American Tribes:</p>	<p>On June 3, 2022, the City sent letters to the tribes providing detailed information on the proposed project and describing the Assembly Bill 52 consultation process. The letter requested that the tribes notify the City within 30 days if they would like to engage in formal consultation regarding possible significant effects that the proposed project may have on tribal cultural resources. See discussion under section 3.6 and 3.19 for consultation results.</p>

1.2 PURPOSE OF STUDY

The City of Shasta Lake (City; Lead Agency) has prepared this Initial Study (IS) for the Centimudi Water Storage Tank Project (project) in accordance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified in California Public Resources Code (PRC) § 21000 *et seq.*, and the CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3. Pursuant to these regulations, this IS is intended to inform City decision-makers, responsible agencies, interested parties, and the general public of the proposed project and its potential environmental effects. This IS is also intended to provide the CEQA-required environmental documentation for all city, local, and State approvals or permits that might be required to implement the proposed project. This IS supports a Mitigated Negative Declaration (MND) as defined under CEQA Guidelines § 15070.

Additionally, because the proposed project is located on National Forest System lands in the Whiskeytown-Shasta-Trinity National Recreation Area at Lake Shasta, the proposed project requires the issuance of a Special Use Permit from the U.S. Department of Agriculture Forest Service (USFS), triggering the need for compliance with the National Environmental Policy Act (NEPA). Accordingly, this IS has been prepared to address certain federal environmental regulations, including regulations guiding the General Conformity Rule for the Clean Air Act (CAA), the federal Endangered Species Act (FESA), and the National Historic Preservation Act (NHPA). These additional federal regulatory components are addressed in Sections 3.3. Agriculture/Forestry Resources; 3.4. Air Quality; 3.5. Biological Resources; 3.6. Cultural Resources; 3.9. Greenhouse Gas Emissions; 3.11. Hydrology and Water Quality; 3.14. Noise; and 3.15. Population and Housing (and Environmental Justice).

1.3 ORGANIZATION OF THE INITIAL STUDY

This document is organized into the following sections:

Section 1.0. Introduction: Describes the purpose, contents, and organization of the document and provides a project summary. Includes the significance determination, which identifies the determination of whether impacts associated with development of the proposed project are significant, and what, if any, additional environmental documentation that may be required.

Section 2.0. Project Description: Includes a detailed description of the proposed project.

Section 3.0. Environmental Impact Analysis: Contains the Environmental Checklist from CEQA *Guidelines* Appendix G with a discussion of potential environmental effects associated with the proposed project. Mitigation measures, if necessary, are noted following each impact discussion.

Section 4.0. List of Preparers

Section 5.0. References

Appendices: Contains information to supplement sections within the IS/MND.

1.4 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the proposed project if they involve at least one impact requiring mitigation to bring the impact to a less-than-significant level. Impacts to these resources are evaluated using the checklist included in Section 3.0. The proposed project was determined to have a less-than-significant impact or no impact without mitigation on unchecked resource areas.

<input checked="" type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture/Forestry Resources	<input type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Energy
<input type="checkbox"/> Geology/Soils	<input type="checkbox"/> Greenhouse Gas Emissions	<input checked="" type="checkbox"/> Hazards and Hazardous Materials
<input checked="" type="checkbox"/> Hydrology/Water Quality	<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/> Mineral Resources
<input type="checkbox"/> Noise	<input type="checkbox"/> Population and Housing (and Environmental Justice)	<input checked="" type="checkbox"/> Public Services
<input type="checkbox"/> Recreation	<input checked="" type="checkbox"/> Transportation	<input checked="" type="checkbox"/> Tribal Cultural Resources
<input type="checkbox"/> Utilities/Service Systems	<input checked="" type="checkbox"/> Wildfire	<input checked="" type="checkbox"/> Mandatory Findings of Significance

1.5 CEQA DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Jessaca Lugo,
City Manager

Date

2 PROJECT DESCRIPTION

2.1 INTRODUCTION

The City of Shasta Lake is proposing to construct a new 2.45-million-gallon treated water storage tank located on Assessor's Parcel Number (APN) 065-500-001 at the corner of Kennett Road and Lake Boulevard to replace two existing finished water tanks located on the northeast side of Fisherman's Point Water Treatment Plant (WTP) (proposed project). Both of the existing finished water tanks at the WTP have reached and/or exceeded their useful lives and were recommended for demolition and replacement as part of the City's 2016-2026 Water Master Plan (City, 2016). Demolition of the old tanks is not planned as part of the proposed project and thus is not evaluated in this IS. Because the project site is located on National Forest System lands in the Whiskeytown-Shasta-Trinity National Recreation Area at Lake Shasta, the proposed project requires the issuance of a Special Use Permit from the USFS, which requires compliance with NEPA. Accordingly, this IS has been prepared to address certain federal environmental regulations.

2.2 PROJECT LOCATION

As noted above, the project site is located at the corner of Kennett Road and Lake Boulevard in Shasta County (County), California. The project site is located approximately 0.2 miles north of the City of Shasta Lake city limits (Figures 2-1 and 2-2). The approximately 3.91-acre project site boundary is depicted on Figure 2-3 and includes a 0.66-acre construction site with the remainder of the area being utilized for staging of project related equipment and materials. Earthwork, infrastructure improvements, and tank construction would be limited to the construction site only. The Centimudi Boat Launch is located directly north of the project site, which provides access to Lake Shasta. Regional access to the project site is provided by Interstate 5 (I-5). Vehicular access to the project site is provided via Lake Boulevard and Kennett Road.

2.3 PROJECT BACKGROUND

2.3.1 EXISTING WATER TREATMENT OPERATIONS

Located approximately 0.35 miles west of the project site, the WTP was completed in 1989 and serves approximately 10,000 people within the City. The WTP supplies potable water to a gravity water distribution system with approximately 3,800 connections. The WTP's maximum output is approximately 6.7 million gallons per day. Raw water from Lake Shasta is sourced from several intakes inside Shasta Dam and pumped to the WTP via a pump station located at the base of the dam. The WTP site contains a 150,000-gallon raw water storage tank, a 220,000-gallon treated water storage tank, and a 330,000-gallon treated water storage tank (City, 2022).

Section 6.2 of the City's 2016-2026 Water Master Plan describes existing, near-term (2036), and build-out water system deficiencies pertaining to treated and raw water storage capacity. The Water Master Plan indicates that the City currently has a 0.68-million-gallon City-wide water storage deficit. In addition, it recommended that the City increase its raw water storage. Both treated water tanks at the WTP have exceeded their useful lives. To correct the WTP's storage deficit, the Water Master Plan recommends the

construction of a new raw water storage tank at the WTP, as well as the construction of a new finished water storage tank offsite near the intersection of Lake Boulevard and Kennett Road, as there is not adequate space at the WTP to construct both. This IS analyzes the construction of a new water storage tank at the intersection of Lake Boulevard and Kennett Road; it does not analyze demolition of existing tanks for a new raw water storage tank at the WTP.

Firefighting efforts near the City related to the 2018 Carr Fire exhausted the system's storage; correcting its current storage deficit would provide additional storage capacity for fire protection in the future. The proposed project would not lead to an increase in water consumption; it would only allow the water system to utilize additional storage to meet peak hour and maximum day demands, fire flow storage, and emergency storage needs.

A Technical Memorandum prepared by Pace Engineering dated December 4, 2018 (Appendix A) evaluated multiple tank location options. Option 1 of the report, a tank located at Lake Boulevard and Kennett Road (project site), was chosen as the best alternative due to the site having ground elevations within a few feet of the existing treated water storage tanks, which would ensure that current system pressures are maintained, and because Option 1 would require minimal grading. In a letter dated December 21, 2021, the USFS indicated that they agreed to evaluate Option 1. The construction area is a flat, cleared area that has historically been used for storage and disposal of driftwood removed from the Centimudi Boat Launch.

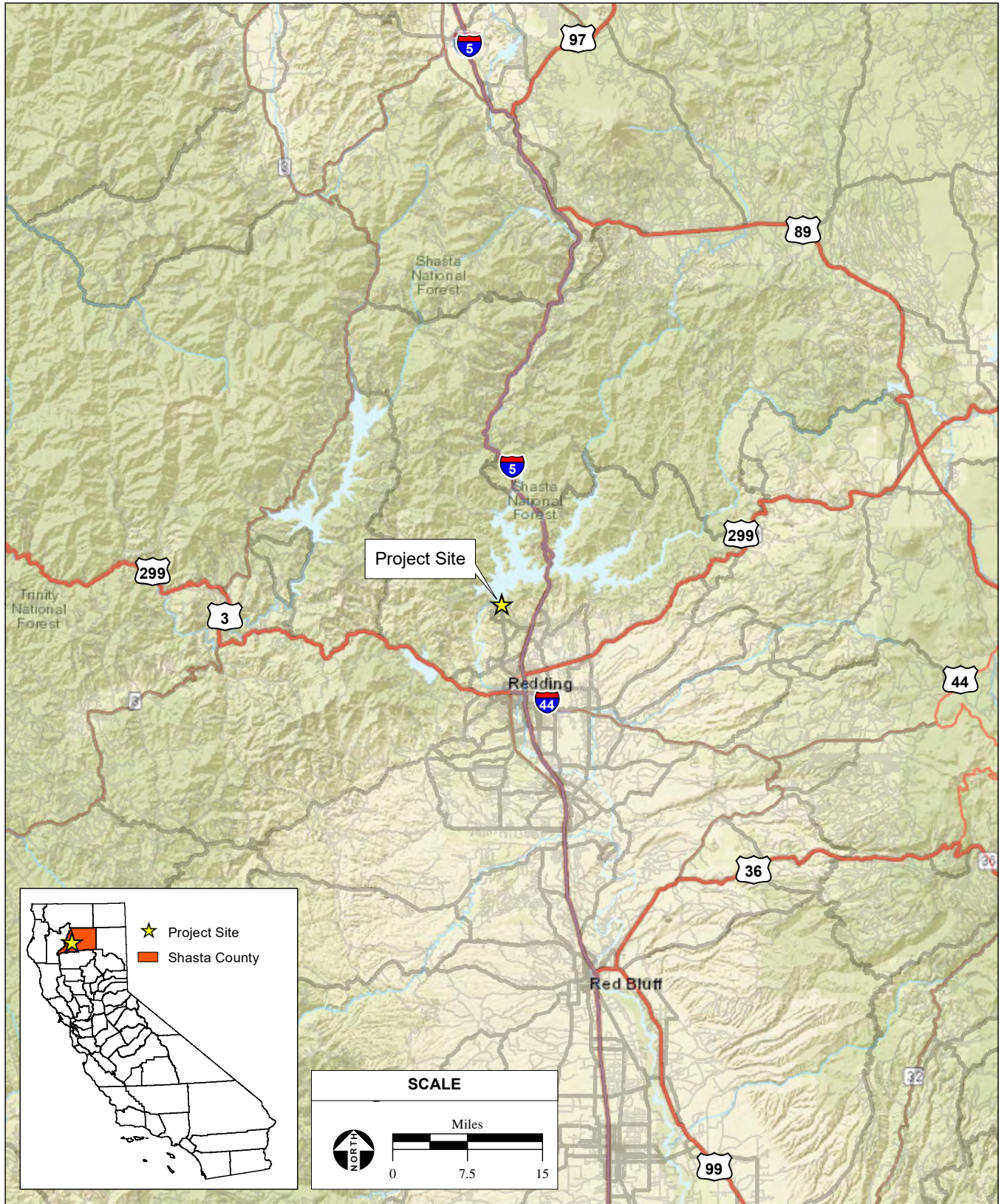
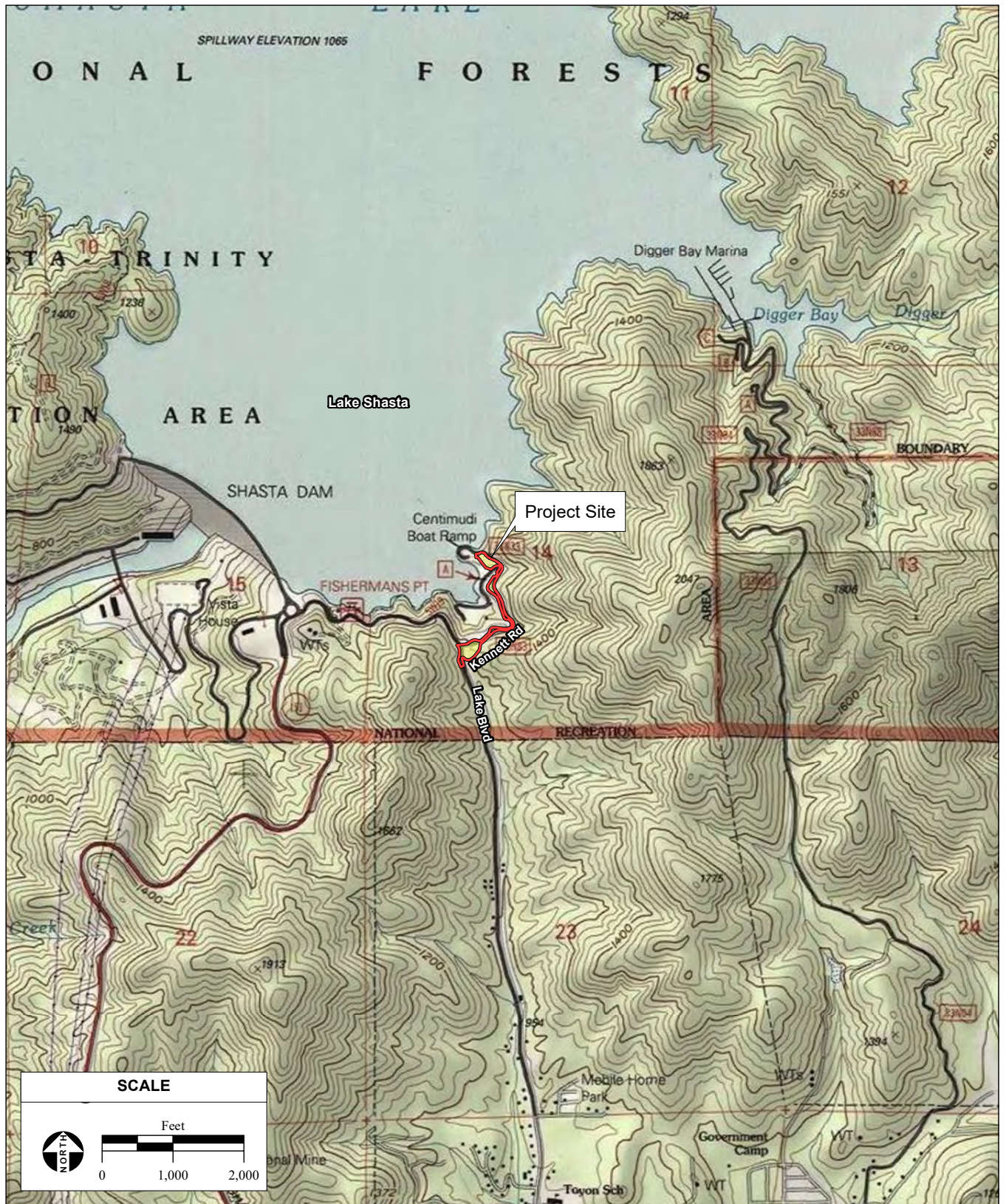


Figure 2-1
Regional Location



SOURCE: "Shasta Dam, CA" USGS 7.5 Minute Topographic Quadrangle, T33N R5W, Section 14, Mt. Diablo Baseline & Meridian; ESRI 2022; AES-Montrose, 6/2/2022

City of Shasta Lake Centimudi Water Storage Tank Initial Study / 222509 ■

Figure 2-2
Site and Vicinity



SOURCE: City of Redding aerial photograph, 5/27/2020; USDA NAIP aerial photograph, 7/13/2020; City of Shasta Lake, 10/6/2022; ESRI, 2023; AES-Montrose, 4/24/2023

City of Shasta Lake Centimudi Water Storage Tank Initial Study / 222509 ■

Figure 2-3
Project Site

2.4 PROJECT DESCRIPTION

2.4.1 TANK DESIGN

The proposed tank would measure 120 feet in diameter and 32 feet in height. The tank would be constructed of either welded steel or reinforced prestressed concrete and would include a concrete footing foundation and a concrete v-gutter around the tank to allow drainage. Refer to Figure 1 of Appendix A for graphics of the preliminary design of the tank. As the tank would be visible from Lake Shasta, the proposed project includes the construction of a visual barrier developed in consultation with a USFS Landscape Architecture staff. To fill the tank, water would be pumped from the clear well at the WTP via an existing 16-inch water transmission main located on Lake Boulevard directly west of the project site.

2.4.2 CONSTRUCTION ACTIVITIES

As the project site has been used to store driftwood and branches removed from Lake Shasta via the Centimudi Boat Launch, the future tank pad area has previously been levelled and extraneous dirt has built up in a berm around the northern edge. The central portion of the project site is open, with a line of five trees to the south, a steeply sloping hillside to the east, the berm to the north, and Lake Boulevard to the west. Minimal grading and earthwork would be required to prepare the site for construction of the proposed project, as the project site is relatively flat. It is estimated that approximately 207 cubic yards are expected to be disturbed associated with earthwork and grading; cut and fill quantities would be designed to balance, with no net difference. Construction activities would include grubbing/clearing, grading, excavation, trenching, underground utility installation, and minor road paving. It is anticipated that all work associated with initial site work, installation of utilities, construction of the tank, and minor paving, would be conducted using conventional construction equipment (e.g., excavators, scrapers, graders, dozers, backhoes, forklifts, cranes, paving equipment, etc.). Construction of the tank would occur using conventional construction methods. Staging for construction equipment and materials would occur within the project site. Approximately 112 cubic yards of concrete would be poured to create the foundation, including below-tank piping. Aggregate base or similar material would be placed around the tank to accommodate vehicular access. Constructed in compliance with City of Shasta Lake Construction Standards, 70 feet of trenching and pipe installation would be required to connect the existing 16-inch water transmission main within Lake Boulevard to the proposed water tank. The existing water transmission main is located approximately 70 feet west of the proposed tank location; approximately 70 feet of water line would be installed from the transmission main to the proposed tank. Trenching to install this water line would result in no more than 7 feet of vertical disturbance and 40 inches of horizontal disturbance. Valves would also be installed at the existing water transmission main for future shutoffs.

The project site includes several turnouts on Lake Boulevard and Kennett Road and an overflow parking lot adjacent to the Centimudi Boat Launch. These improved areas would be utilized for construction-related activities such as the staging of vehicles and materials. The portion of Kennett Road between the overflow parking lot and the tank pad would be used for transportation, but no modifications of the road would be required. All construction, including earthwork, infrastructure improvements, and tank construction would take place on the construction site only.

Electrical components would be installed for the supervisory control and data acquisition system controls, water tank mixers, and exterior security lighting. The proposed project would tie into existing City of Shasta

Lake electric facilities adjacent to the proposed water tank. Generators used during construction are anticipated to run no more than eight hours per day during the construction window. A temporary 6-foot tall chain-link security fence would be installed around the perimeter of the construction area. Construction of the proposed project would require the removal of one gray pine and the trimming of a sycamore tree.

Project components would be designed and constructed in accordance with applicable codes and industry recognized standards, including provisions of the California Code of Regulations (CCR), Title 24, and the International Building Code (IBC). Construction of the proposed project is anticipated to begin in April 2024 and occur over the course of six months. Construction activities would take place Monday through Friday between the hours of 7:00 A.M. and 7:00 P.M. and Saturdays from 8:00 A.M. to 5:00 P.M. No construction would take place on Sundays or on federal and local holidays. In addition, construction of the proposed project would not require nighttime work; therefore, no construction lighting would be required. It is anticipated that, with the exception of the grading phase, no more than 10 construction workers and 5 construction worker vehicles would be onsite. Construction of the proposed project would require the temporary closure of one lane of Lake Boulevard and one-way traffic control.

Construction Equipment

Energy efficient construction equipment would be utilized to the extent feasible. Construction of the proposed project would require the use of the conventional construction equipment:

- Dozer
- Crane
- Concrete and dump trucks
- Trencher/Excavator
- Backhoe/Loader
- Welding truck
- Generator
- Flatbed delivery truck

2.4.3 OPERATION AND MAINTENANCE ACTIVITIES

The proposed project would require periodic maintenance of the water storage tank during operation. Piping, valves, and accessory components would be regularly inspected, maintained, and replaced as necessary by City staff. It is anticipated that the proposed project would not require additional staff.

2.5 REGULATORY REQUIREMENTS, PERMITS, AND APPROVALS

Permits and approvals that would be necessary for construction and operation of the proposed project are identified below.

2.5.1 CITY OF SHASTA LAKE

- Adoption of this IS/MND under the requirements of CEQA.
- Adoption of a Mitigation Monitoring and Reporting Plan that incorporates the mitigation measures identified in this document.
- Grading Permit
- Building Permit

2.5.2 COUNTY OF SHASTA

- Encroachment Permit

2.5.3 U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE

- Issuance of a special use authorization for use and occupancy of National Forest System lands. The authorization process requires compliance with Forest Service NEPA procedures,
- Approval of a Water Quality Management Plan and best management practices (BMP).

2.5.4 STATE HISTORIC PRESERVATION OFFICE

- Consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA) (joint consultation with Indian tribes) regarding potential impacts to cultural resources resulting from the proposed project is addressed through the Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Sections 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region, revised 2018, Also known as the R5 PA, or “Programmatic Agreement.”

3 ENVIRONMENTAL ANALYSIS (CHECKLIST)

3.1 EVALUATION OF ENVIRONMENTAL IMPACTS

Pursuant to CEQA Guidelines § 15063, a Lead Agency must conduct an IS to determine if a project may have a significant effect on the environment. The CEQA Guidelines state that an IS may identify environmental impacts by use of a checklist, matrix, or other method, provided that conclusions are briefly explained and supported by relevant evidence.

If it is determined that a particular physical impact to the environment could occur, then the checklist must indicate whether the impact is Potentially Significant, Less Than Significant with Mitigation, or Less Than Significant. Findings of No Impact for issues that can be demonstrated not to apply to a project do not require further discussion.

3.1.1 CEQA/NEPA APPROACH, TERMINOLOGY, AND IMPACT ANALYSIS METHODOLOGY

The approach taken in this IS/MND complies with CEQA. This IS/MND will also be used to support the NEPA determination made by the USFS. For convenience and clarity, this document includes both CEQA and NEPA terminology as well as a discussion of environmental justice. A further discussion of impact terminology is provided below.

The purpose of this document is to determine whether an Environmental Impact Report (EIR) or a Negative Declaration should be prepared for the proposed project. If a significant impact could occur that cannot be reduced to a less-than-significant level, an EIR must be prepared.

Pursuant to CEQA, this IS/MND evaluates potential impacts with respect to the series of checklist items for each environmental factor identified in Appendix G of the CEQA Guidelines. This IS/MND uses the following terminology to describe environmental effects of the proposed project.

A finding of no impact is made when the analysis concludes that the proposed project would not affect the particular environmental resource or issue.

- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation would be needed.
- An impact is considered *significant* if it results in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by using specific significance criteria as a basis of evaluation. Mitigation measures and/or alternatives are identified to reduce the potential effects on the environment.

- This IS/MND identifies particular mitigation measures that are intended to lessen project impacts. The CEQA Guidelines (14 CCR 15370) define mitigation as:
 - Avoiding the impact altogether by not taking a certain action or parts of an action;
 - Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
 - Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; and
 - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

This IS/MND also discusses potential effects in terms of context and intensity and defines direct and indirect effects (40 Code of Federal Regulations [CFR] 1508.8, 40 CFR 1508.27). The purpose of including this discussion is to provide clarity when referenced within subsequent NEPA documentation. This discussion is not intended to satisfy the federal requirement for environmental analysis pursuant to NEPA. The following terms are applied as appropriate to the impact discussion presented in this IS/MND.

- Context Terminology
 - *Short term*: Effects that occur during construction.
 - *Long term*: Effects caused during either construction and/or operations that remain after construction is completed.
 - *Localized*: Effect remains at the construction site, within the proposed project area, or in proximity to the proposed project area.
 - *Widespread*: Effect extends well beyond the proposed project area and may impact a regional area.
- Intensity Terminology
 - *Adverse*: A negative effect on a particular resource or resource use.
 - *Beneficial*: A positive effect on a particular resource or resource use.
 - *None/Negligible*: No change/no measurable change in current conditions.
 - *Minor*: Effect is slight but detectable; there would be a small change.
 - *Moderate*: Effect is readily apparent and measurable.
 - *Major*: Effect is large; there would be a highly noticeable and easily measurable change. This intensity level equates to the term “significant impact” in the Council on Environmental Quality (CEQ) regulations.
- Additional Terminology
 - *Direct*: Caused by the proposed project and occurs at the same time and place.
 - *Indirect*: Caused by the proposed project but later in time or farther removed in distance although still reasonably foreseeable. Indirect or secondary effects may include growth-

inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

- *Cumulative*: Impact on the environment that results from the incremental impact of the proposed project when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts are discussed in Section 3.22.

Impact determinations under CEQA are made throughout this IS/MND under the appropriate resource discussions. Final CEQA impact determinations and unofficial NEPA discussions are made in the following format:

Impacts would be considered [**CEQA determination**]; [**NEPA terminology**].

All determinations with respect to NEPA will be made by the USFS under separate cover.

3.1.2 FEDERAL CROSS CUTTERS

The Lead Agency is seeking to develop the proposed project on USFS lands. Accordingly, the USFS is required to assess the proposed use of the property under NEPA. Additional policies must be considered by federal agencies in order to comply with NEPA and other federal environmental regulations, including but not limited to FESA, the NHPA, and the General Conformity Rule for the CAA. The following analysis includes a discussion of federal regulations that apply to the proposed project due to the location on USFS lands and a discussion of the consistency with these regulations.

3.2 AESTHETICS

3.2.1 ENVIRONMENTAL CHECKLIST

<u>AESTHETICS</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Except as provided in Public Resources Code § 21099, would the proposed project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the proposed project is in an urbanized area, would the proposed project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.2.2 SETTING

Regulatory Context

Federal

Federal Highway Administration

The Federal Highway Administration (FHWA) designates scenic byways and provides mapping of Featured Byways, America’s Byways, and other byways. The National Scenic Byways Program seeks to identify, preserve, and improve scenic roadways. These roads are designated based upon one or more archeological, cultural, historic, natural, recreational, and scenic qualities.

36 Code of Federal Regulations § 292.13(c)(1) – Standards; Protection of Roadside

This section applies to the Shasta Unit where the proposed project is located. The regulation states, “Provisions to protect natural scenic qualities and maintain screening along public travel routes will include: 1) Prohibition of new structural improvements or visible utility lines within a strip of land extending back not less than 150 feet from both sides of the centerline of any public road or roadway except roads within

subdivisions or commercial areas. In addition to buildings, this prohibition pertains to aboveground power and telephone lines, borrow pits, gravel, or earth extraction areas, and quarries." The USFS reviewed applicable regulations and conferred with the USDA Office of the General Counsel. As a result, the USFS approved the project site and has allowed further environmental review.¹

Public Law 89-336, An Act To establish the Whiskeytown-Shasta-Trinity National Recreation Area.

This Law states that the NRA was created to provide for the public outdoor recreation use and enjoyment of the Whiskeytown, Shasta, Clair Engle, and Lewiston reservoirs and surrounding lands in the State of California by present and future generations and the conservation of scenic, scientific, historic, and other values contributing to public enjoyment of such lands and waters.

Shasta-Trinity National Forest Land and Resource Management Plan (Forest Plan)

This includes required Visual Quality Objectives for areas on the National Forest. Pg. 4-27 states "manage activities and projects to meet adopted Visual Quality Objectives (VQOs)." The project area is in an area with a management prescription of "Roaded Recreation" and in this prescription "management activities that are seen from developed recreation sites will meet a VQO of retention in the foreground" (pg. 4-65). The Plan also specifies for areas in this prescription, "Resource activities and modifications are evident, but are in harmony with the natural environment." Also, the Plan specifies, on page 4-112, regarding Management Area 8-National Recreation Area that "management activities maintain visual quality at level which provides for a landscape in which human activities are subordinate to natural landscape."

State

California Scenic Highway Program

The California Scenic Highway Program, administered by the California Department of Transportation (Caltrans), intends to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to scenic highways. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been designated. Cities and counties can nominate eligible scenic highways for official designation by identifying and defining the scenic corridor of the highway. The municipality must also adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist.

Local

Shasta County General Plan

Shasta County's General Plan includes the following objectives and policies that apply to the proposed project:

OBJECTIVE SH-1 Protection of the natural scenery along the official scenic highways of Shasta County from new development which would diminish the aesthetic value of the scenic corridor.

POLICY SH-a To protect the value of the natural and scenic character of the official scenic highway corridors and the County gateways dominated by the natural environment, the following provisions, along with the County development standards, shall govern new development:

¹ USDS Forest Service, Approval Letter from Shasta-Trinity National Forest Supervisor's Office

- setback requirements
- regulations of building form, material, and color
- landscaping with native vegetation, where possible
- minimizing grading and cut and fill activities
- requiring use of adequate erosion and sediment control programs
- siting of new structures to minimize visual impacts from highway
- regulation of the type, size, and location of advertising signs
- utility lines shall be underground wherever possible; where undergrounding is not practical, lines should be sited in a manner which minimizes their visual intrusion.

City of Shasta Lake General Plan

The City of Shasta Lake's General Plan (City of Shasta Lake, 2023) includes the following aesthetics objectives and policies that apply to the proposed project.

Land Use Element

POLICY-LU-4.2 Ensure that adequate public service facilities/uses (e.g., schools, parks, fire stations, etc.) and public utilities (e.g., substations, pump stations, transmission lines, etc.) are in place in a timely fashion to protect public safety. Accomplish this through regular, comprehensive, and advanced infrastructure master planning efforts. Appropriate zoning for such facilities will be determined in response to the identified need as it occurs.

Environmental Setting

The project site is located on an approximately 3.9-acre site adjacent to the City of Shasta Lake within Shasta County on land owned by the USFS. The project site is located within the Shasta Unit of the Whiskeytown-Shasta-Trinity National Recreation Area, southeast of the Lake Boulevard and Kennett Road intersection, south of Lake Shasta. The topography of the project site is relatively flat, with an elevation approximately 1,200 feet above mean sea level (amsl).

The visual characteristics of the project site consist of the existing, flat area surrounded by steep vegetated hills and portions of Lake Shasta. The construction site itself consists of a gravel lot with sparse vegetation. The area surrounding the project site consists generally of forestland and Lake Shasta itself. The Centimudi Boat Launching Facility is located within the project's vicinity, as well as other developed portions of the Shasta Dam. The proposed project would be visible from Lake Shasta. The closest structures to the project site include several residences approximately 2,930 feet (0.55 miles) south of the project site and the Shasta Dam Visitor Center, which is approximately 3,100 feet (0.58 miles) to the west.

Scenic Resources

There are no federally designated scenic byways within the project site (FHWA, 2022). The project site is located within the Whiskeytown-Shasta-Trinity National Recreation Area, which would be considered a scenic resource. State Route (SR)-151 is a designated scenic highway located 0.5 miles from the site. I-5, is located 3.5 miles from the project site and is eligible to be designated as a Scenic Highway by the State of California (Caltrans, 2022). However, SR-151 and I-5 are both separated from the project site by variations in topography and are not visible from the proposed project.

There is a County-designated scenic highway located within the vicinity of the project site: Lake Boulevard/County Road A-18 (Caltrans, 2023).

There is no comprehensive list of specific features that automatically qualify as scenic resources; however, certain characteristics can be identified which contribute to the determination. The following is a partial list of visual qualities and conditions that, if present, may indicate the presence of a scenic resource:

- A tree that displays outstanding features of form or age,
- A landmark tree or a group of distinctive trees accented in a setting as a focus of attention,
- An unusual planting that has historical value,
- A unique, massive rock formation,
- A historic building that is a rare example of its period, style, or design, or which has special architectural features and details of importance,
- A feature specifically identified in applicable planning documents as having a special scenic value,
- A unique focus or a feature integrated with its surroundings or overlapping other scenic elements to form a panorama, or
- A vegetative or structural feature that has local, regional, or Statewide importance.

3.2.3 DISCUSSION OF IMPACTS

Question A

A scenic vista is generally considered a view of an area that has remarkable scenery or a natural or cultural resource that is indigenous to the area. Scenic views of Shasta Lake and the Whiskeytown-Shasta-Trinity National Recreation Area in the project vicinity can be seen from Lake Boulevard. Views of the project site can be seen intermittently from Shasta Lake via the Centimudi Boat Launching Facility parking lot. Views from Fishermen's Point Day Use Area would be obstructed due to the forested nature and elevational changes in the area. There are no officially designated scenic viewpoints adjacent to the project site. The proposed project would construct a new 120 feet wide by 32 feet tall water tank that would be constructed of either welded steel or reinforced prestressed concrete. The majority of the project site consists of the existing road which would provide access and construction staging; however, construction of the water tank would result in a new visual change compared to existing conditions.

During construction, as mentioned above, the project site would be visible from Lake Boulevard as well as recreational users on Shasta Lake. Recreational users on Shasta Lake would observe construction equipment within the Centimudi Boat Launching Facility parking lot in the foreground and the new water tank in the midground. The background of forested land and changes in elevation would remain unchanged. The height of construction equipment within the parking lot staging area would result in a change in the viewshed due to the lack of trees or structures. Construction equipment and material staging at the staging area would result in a temporary visual change during the duration of construction for motorists and recreational users. However, the impacts would be temporary and the proposed project would not substantially degrade the visual character of the project site or its surroundings in such a way that a permanent degradation of character or quality would occur.

The project site would be graded to provide a flat surface for the water tank and would include a permanent 32-foot tall and 120-foot wide water tank. Following construction, the water tank may be visible from Lake Shasta; however, the Centimudi Boat Launching Facility parking lot would be between the project site and Shasta Lake and the project site is adjacent to tall vegetation; both the vehicles in the parking lot and the dense vegetation would help shield the view of the water tank from recreational users. In addition, there are existing structures adjacent to the parking lot as well as aboveground utilities; the construction of the water tank would not result in a stark change in the viewshed of the area due to the existing development. Furthermore, the water tank would be painted a neutral color following the Bureau of Land Management's (BLM) Standard Environmental Color Chart. Following grading and construction activities, revegetation of the disturbed areas would consist of natural colonization/recruitment. Revegetation would ensure that the land disturbed adjacent to the newly constructed water tank would be returned to a similar pre-construction condition. Through implementation of Mitigation Measures AES-1 and AES-2, which require vegetation screening and neutral paint as determined by the USFWS Landscape Architect, the proposed project would not substantially alter the visual character of the Site nor would the proposed project substantially damage scenic resources. Therefore, impacts to these scenic resources would be less than significant with mitigation; *localized and minor effect*.

Question B

No officially designated State scenic highways are located adjacent to the project site. The closest eligible State scenic highway is SR-151, located approximately 0.5 miles from the project site. Due to distance and the variations in topography, the project site is not visible from SR-151. Further, the proposed project would not require the removal of scenic resources like rock outcroppings or historic buildings. It is anticipated that one gray pine (*Pinus sabiniana*) would need to be removed to accommodate the tank. The remaining trees located along the project site would be protected to maintain the visual barrier between the storage tank and surrounding forestland. The project site is located along Lake Boulevard/A-18, which is a County-designated scenic highway. Construction of a 32-foot tall and 120-foot wide water tank at the intersection of Lake Boulevard and Kennett Road could result in a significant visual change from existing, undeveloped conditions. However, implementation of Mitigation Measures AES-1 and AES-2, which require vegetation screening and neutral paint, would reduce this impact to a less-than-significant level. Furthermore, implementation of Mitigation Measures AES-1 and AES-2 would ensure that the proposed project is compliant with County Policy SH-a, which also requires landscaping with native vegetation and regulations in the form and color of construction along a County-designated scenic highway in order to minimize visual intrusion. Thus, impacts to the visual character and quality of the project site and vicinity would be considered less than significant with mitigation; *localized and minor effect*.

Question C

While the project site is located near the urbanized City, the project area is located within the Whiskeytown-Shasta-Trinity National Recreation Area, which is a congressionally-designated area with special status per Public Law 89-336. As such, the project site is not in an urbanized area and is within a recreational area on USFS land. For the same reasons described in Questions A and B above and implementation of Mitigation Measures AES-1 and AES-2, the proposed project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. Therefore, impacts to the visual character and quality of the project site and vicinity would be considered less than significant with mitigation; *localized and minor effect*.

Question D

Construction work would generally occur between 7:00 A.M. and 7:00 P.M., Monday through Friday and 8:00 A.M. and 5:00 P.M. on Saturday, which would be consistent with City of Shasta Lake ordinances. Nighttime construction lighting would not be required. The proposed project would involve installation of permanent security lighting, which would introduce a new source of lighting to the project area. Pole-mounted light fixtures would serve as task lights to allow staff to work on the treatment equipment or for access to local control boxes. As per § 130.2(c) of the California Energy Code (California Energy Code, 2022), all outdoor lighting for new non-residential uses must be controlled with an astronomical time-switch control, or other control capable of shutting off the outdoor lighting when daylight is available. These light fixtures would be on at dusk and off at dawn. However, consistent with the City's Ordinance 17.84.050, any new interior and exterior lighting would be designed to confine lighting to the premises. Additionally, the Centimudi Boat Launching Facility parking lot, which is adjacent to the proposed location of the water tank, is minimally illuminated for safety and security. Therefore, the downward-facing security lighting constructed as part of the proposed project would not result in a substantially new introduction of lighting to the project area. The proposed water storage tank would be primarily constructed out of either welded steel or reinforced prestressed concrete; these building materials are not considered reflective and thus would not produce substantial glare. Therefore, potential impacts to day and nighttime views associated with lighting on the project site would be considered less than significant; *localized and minor effect*.

3.2.4 MITIGATION MEASURES

The following mitigation measures shall be implemented to avoid or minimize adverse visual impacts to the proposed project.

AES-1: Provide Vegetation Screening

The project proponent shall preserve sufficient vegetation within, at the edge of, or adjacent to construction area to screen views from public trails, parks, recreation areas, and roadways. In addition, the project proponent shall ensure that the project site is vegetated with trees or other plant species and vegetation will be maintained to the same screening level for as long as the tank is present on the site; quantity and size shall be in keeping with any adopted Scenic Corridor Guidelines, Landscape Manual, and the vegetative character of the project site to the extent that the species are compatible with existing vegetation. Planting shall be sufficient to provide screening from the ground up when mature. Verification of the adequacy of the proposed plantings will occur through City and USFS review and approval of the proposed project's landscape plan.

AES-2: Standard Environmental Color

The project proponent shall match the water tank and perimeter fencing to the dominant surrounding color of the project site to the satisfaction of USFS Landscape Architect. If required, the water tank will be repainted using same color or a color to the satisfaction of USFS Landscape Architect. Implementation of this measure will reduce the starkness of contrast between the new water tank and surrounding forested land.

3.3 AGRICULTURE/FORESTRY RESOURCES

3.3.1 ENVIRONMENTAL CHECKLIST

<u>AGRICULTURE/FORESTRY RESOURCES</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<p>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 Department 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. Would the proposed project:</p>				
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC § 12220(g)), timberland (as defined by PRC§ 4526), or timberland zoned Timberland Production (as defined by Government Code § 51104(g))?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>d) Result in the loss of forest land or conversion of forest land to non-forest use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.2 SETTING

Regulatory Context

Federal

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that federal programs are administered in a manner that is compatible with state and local units of government, and private programs and policies to protect farmland (7 United States Code [USC] § 4201).

The Natural Resources Conservation Service (NRCS), responsible for the implementation of the FPPA, categorizes farmland in a number of ways. These categories include: prime farmland, farmland of Statewide importance, and unique farmland. Prime farmland is considered to have the best possible features to sustain long-term productivity.

Farmland of Statewide importance includes farmland similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique farmland is characterized by inferior soils and generally needs irrigation depending on climate. The Land Evaluation and Site Assessment is a numeric rating system used by the NRCS to evaluate the relative agricultural importance of farmlands.

National Forest Management Act of 1976 (U.S.C. Title 16 § 1600)

The National Forest Management Act of 1976 was designed to counter damage to natural ecosystems on national forest system lands. The Act put in place a system for forest management following several debates over the legality of clear-cutting forests. In an effort to protect national forests from excessive and destructive logging, Congress instructed the USFS to develop regulations that limit the size of clear-cuts, protect streams from logging, restrict the annual rate of cutting, and ensure prompt reforestation (16 USC 1600).

Multiple Use and Sustained Act of 1960

Passed by Congress in 1960, the Multiple Use and Sustained Act of 1960 authorizes and directs the Secretary of Agriculture to develop and administer the renewable resources of timber, range, water, recreation, and wildlife on the national forests for multiple use and sustained yield of the products and services. This is the first law to have the five major uses of national forests contained in one law equally, with no use greater than any other.

Federal Land Policy and Management Act of 1976

The Federal Land Policy Management Act makes it law that “public lands be retained in federal ownership.” This law is primarily responsible for protecting the quality of the scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values of certain public lands, including USFS lands. Where appropriate, this law also protects and preserves public lands in their natural condition so these lands can provide food and habitat for fish and wildlife and domestic animals and provide for outdoor recreation and human occupancy and use.

Local

Shasta County General Plan

The County's General Plan includes the following objectives and policies that apply to the proposed project.

POLICY T-2 Protection of timberlands from incompatible adjacent land uses which adversely impact forest management activities.

City of Shasta Lake General Plan

There are no City General Plan objectives and policies that apply to the proposed project.

Environmental Setting

The project site is located entirely within the Whiskeytown-Shasta-Trinity National Recreation Area within the Shasta-Trinity National Forest. The project site has a land use designation of National Recreation Area (NRA-S), which does not preclude the construction of a water tank. The California Department of Conservation's (DOC) California Important Farmland Finder does not delineate farmland on federal lands, and because the project site is within a National Forest, no farmland has been identified on or in the vicinity of the project site (DOC, 2022a).

A NRCS Custom Soils Report was prepared for the project site (NRCS, 2022). Soils on the project site are a mixture of Goulding-Holland families association, Boomer very stony clay loam, and Goulding very rocky loam, further described in Section 3.8. These soils are not considered to be prime farmland or farmland of importance (NRCS, 2022).

3.3.3 DISCUSSION OF IMPACTS

Questions A and B

There is no prime farmland, unique farmland, or farmland of Statewide importance on or in the vicinity of the project site. There are no agricultural resources present on the project site, and as the land is within federal land, the land cannot be placed under a Williamson Act Contract. There are no federally protected farmlands on or within the project site. Therefore, there would be no impacts; *no effects*.

Question C

The project site is designated as Public Land and zoned as National Recreation Area (NRA-S). Additionally, the project site is located within a National Recreation Area and is designated as forest land. Under this zoning and land use designation, a water tank is an allowable land use with issuance of a Special Use Permit. Thus, consistent with the project site zoning and land use designations, a Special Use Permit from the USFS would be acquired prior to construction of the proposed project. With acquisition of the Special Use Permit, there would be no zoning or land use conflict, and a re-zone or land use amendment would not be necessary. Therefore, the impact would be less than significant; *localized and minor effect*.

Question D

The project site is currently zoned National Recreation Area (NRA-S) and is designated as Public Land (PUB). Construction and operation of the proposed project would be consistent with the existing zoning and land use designation and would not conflict with zoning for agricultural, forest, or timberland use. Although

the proposed project would require the removal of trees during construction, it is anticipated only one grey pine would require removal and, therefore, would not result in significant loss of forest land. Thus, the impact would be less than significant; *localized and minor effect*.

Question E

As discussed above, there are no agricultural resources on or near the project site. There would be no conversion of farmland to non-agricultural uses. Therefore, there would be no impact; *no effect*.

3.3.4 MITIGATION MEASURES

None required.

3.4 AIR QUALITY

3.4.1 ENVIRONMENTAL CHECKLIST

<u>AIR QUALITY</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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. Would the proposed project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.4.2 SETTING

Air quality is monitored, evaluated, and regulated by federal, State, regional, and local regulatory agencies and jurisdictions, including the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and the Shasta County Air Quality Management District (SCAQMD). The EPA, CARB, and the SCAQMD develop rules and/or regulations to attain the goals or directives imposed by legislation. Both State and regional regulations may be more, but not less, stringent than federal regulations.

Regulatory Context

Federal

Clean Air Act

The federal CAA was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. Basic components of the CAA and its amendments include National Ambient Air Quality Standards (NAAQS) for major air pollutants and state

implementation plans (SIP). The EPA is the federal agency responsible for identifying criteria air pollutants (CAP), establishing NAAQS, and approving and overseeing state air programs as they relate to the CAA.

Section 176 of the CAA requires that any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP required under Section 110 (a) of the CAA (42 USC § 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact conform to the applicable SIP before the action is taken.

The EPA has identified six CAPs, including ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), oxides of nitrogen (NO_x), particulate matter less than 10 microns in diameter (PM₁₀), particulate matter less than 2.5 microns in diameter (PM_{2.5}), and lead (Pb), that are used as indicators of regional air quality. California enacted the California Clean Air Act (CCAA), which has identified four additional CAPs, sulfates, hydrogen sulfide, vinyl chloride, and visible reducing particles. The six national CAPS and the four State CAPs identified under the CCAA comprise the California Ambient Air Quality Standards (CAAQS). Regulation of air pollution is achieved through both the NAAQS and CAAQS and emission limits for individual sources of air pollutants. For some of the pollutants, the EPA and the State have identified air quality standards expressed in more than one averaging time in order to address the typical exposures found in the environment. For example, ozone is expressed as an eight-hour standard under the NAAQS and an eight- and one-hour averaging time under the CAAQS. The NAAQS for the CAPs are presented in Table AIR-1.

**Table AIR-1
National Ambient Air Quality Standards**

Pollutants		Primary		Secondary		Violation Criteria
		ppm	µg/m ³	ppm	µg/m ³	
Ozone	8 hours	0.75	157	0.075	157	The 3-year average of the annual 4 th highest daily 8-hour maximum is not to be above 0.075 µg/m ³ .
Carbon Monoxide	8 hours	9	10,000	-	-	If exceeded on more than 1 day per year
	1 hour	35	40,000	-	-	If exceeded on more than 1 day per year
Nitrogen Dioxide	Annual average	0.053	-	0.053	-	Not to be above 0.053 ppm in a calendar year
	1 hour	0.100	-	-	-	The 3-year average of the 98 th percentile of the daily maximum 1-hour average at each monitor is not above 0.100 ppm.
Sulfur Dioxide	Annual average	0.03	-	-	-	Not to be above 0.03 ppm in a calendar year
	24 hours	0.14	-	-	-	If exceeded on more than 1 day per year

3 Environmental Analysis (Checklist)

PM ₁₀	24 hours	-	150	-	150	Not to be above 150 µg/m ³ on more than three days over three years with daily sampling
PM _{2.5}	Annual arithmetic mean	N-	15	-	15	The 3-year average from a community-oriented monitor is not above 15 µg/m ³ .
	24 hours	-	35	-	35	The 3-year average of the 98 th percentile for each population-oriented monitor within an area is not above 35 µg/m ³ .
Lead	Rolling – Month Average	-	0.15	-	0.15	Not to be above 0.15 µg/m ³ .
	Quarterly Average	-	1.5	-	1.5	-

Note: 1-hour NO₂ standard was implemented in January 2011.

Acronyms: PM₁₀ = particulate matter 10 microns in size or smaller; PM_{2.5} = particulate matter 2.5 microns in size or smaller; ppm = parts per million; µg/m³ = micrograms per cubic meter

Source: EPA, 2013.

Federal General Conformity

Under the General Conformity Rule of the CAA, updated in 2010, the lead agency with respect to a federal action is required to demonstrate that a proposed federal action conforms to the applicable SIP(s) before the action is taken. There are two phases to a demonstration of general conformity:

- 1) the Conformity Review process, which entails an initial review of the federal action to assess whether a full conformity determination is necessary, and
- 2) the Conformity Determination process, which requires that a proposed federal action be demonstrated to conform to the applicable SIP(s).

The Conformity Review requires the lead agency to compare estimated emissions attributable to the federal action to the applicable general conformity *de minimis* threshold(s) for all CAPs for which the applicable air basin or region is in nonattainment for the applicable NAAQS. If the emission estimate(s) from step one is below the applicable *de minimis* threshold(s), then a General Conformity Determination is not required under the CAA (40 CFR Part 93). If emission estimates are greater than *de minimis* levels, the lead agency must conduct a Conformity Determination. The federal CAA was enacted for the purposes of protecting and enhancing the quality.

Federal Class I Areas

Title 1, Part C of the CAA was established, in part, to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value. The CAA designates all international parks, national wilderness areas, and memorial parks larger than 5,000 acres and national parks larger than 6,000 acres as “Class I areas.” The CAA prevents significant deterioration of air quality in

Class I areas under the Prevention of Significant Deterioration (PSD) Program. The PSD Program protects Class I areas by allowing only a small increment of air quality deterioration in these areas by requiring assessment of potential impacts on air quality-related values of Class I areas.

Any major source of emissions within 100 kilometers (62.1 miles) from a federal Class I area is required to conduct a pre-construction review of air quality impacts on the area(s). A “major source” for the PSD Program is defined as a facility that will emit (from direct stationary sources) 250 tons per year (tpy) of regulated pollutant. For certain industries, these requirements apply to facilities that emit (through direct stationary sources) 100 tpy or more of a regulated pollutant. Mobile sources (i.e., vehicle emissions) are by definition not stationary sources and are therefore not subject to the PSD Program.

Federal Hazardous Air Pollutant Program

Title III of the CAA requires the EPA to promulgate National Emissions Standards for Hazardous Air Pollutants (NESHAP). The NESHAPs may differ between regional sources and area sources of hazardous air pollutants (HAP). Major sources are defined as stationary sources with potential to emit more than 10 tpy of any HAP or more than 25 tpy of any combination of HAPs (all other non-major sources are considered area sources under the NESHAP Program). The emissions standards were promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable for major sources. For area sources, the standards were based on generally available control technology. In the second phase (2001–2008), the EPA promulgated health risk-based emissions standards necessary to address risks remaining after implementation of the technology-based NESHAP standards.

In addition to standards for stationary sources of HAPs, the CAA also requires the EPA to promulgate vehicle or fuel standards to include reasonable controls for toxic emissions, addressing at a minimum benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 of the CAA requires the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions. NESHAP regulations are also commonly used to ensure the emission of HAPs (such as asbestos) are reduced or eliminated during construction through a permitting process.

State

The EPA and CARB, the agency which has jurisdiction over air quality in California, identifies areas throughout California that meet the NAAQS and/or CAAQS, these areas are labeled either attainment or unclassifiable. Areas that do not meet the NAAQS and/or CAAQS are labeled either “nonattainment” or “maintenance.”

The EPA and CARB further classify nonattainment areas according to the level of pollution in each. There are five classes of nonattainment areas: maintenance (recently became compliant with the NAAQS or CAAQS), marginal (relatively easy to obtain levels below the NAAQS or CAAQS), serious, severe, and extreme (will be difficult to reach levels below NAAQS or CAAQS). The EPA and CARB use these classifications to design clean-up requirements appropriate for the severity of the pollution and set realistic deadlines for reaching those cleanup goals.

The EPA identifies areas throughout California that meet the NAAQS; these areas are labeled either attainment or unclassifiable. Areas that do not meet the NAAQS are labeled either “nonattainment” or “maintenance.” Attainment and nonattainment areas are identified through monitoring. Unclassifiable areas are those for which air monitoring has not been conducted but are assumed to be in attainment under the NAAQS. The EPA further classifies nonattainment areas according to the level of pollution in each. There are five classes of nonattainment areas: maintenance (recently became compliant with the NAAQS), marginal (relatively easy to obtain levels below the NAAQS), serious, severe, and extreme (will be difficult to reach levels below NAAQS). The EPA uses these classifications to design cleanup requirements appropriate for the severity of the pollution and set realistic deadlines for reaching those cleanup goals.

Local

Shasta County General Plan

The County’s General Plan includes the following objectives and policies that apply to the proposed project.

- POLICY AQ-1e The County shall require new air pollution point sources such as, but not limited to, industrial, manufacturing, and processing facilities to be located an adequate distance from residential areas and other sensitive receptors.

- POLICY AQ-2f Shasta County shall require appropriate Standard Mitigation Measures and Best Available Mitigation Measures on all discretionary land use applications as recommended by the air quality management district in order to mitigate both direct and indirect emissions of nonattainment pollutants.

- POLICY AQ-2g Significance thresholds as proposed by the air quality management district for emissions shall be utilized when appropriate for: (1) reactive organic gases (ROG) and NOx, both of which are precursors of ozone, and (2) inhalable particulate matter (PM₁₀) in determining mitigation of air quality impacts.

- POLICY AQ-2j The County shall work toward measures to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.

City of Shasta Lake General Plan

The City’s General Plan Public Safety and Community Element includes the following air quality objectives and policies that apply to the proposed project.

Public Safety & Community Health Element

- GOAL HS-9 Protect the community from low air quality.

- POLICY-HS-9.14 The City will support the air quality management district's efforts to reduce and track emissions through appropriate analysis of project level air quality impacts during the CEQA process.

Environmental Setting

Air Pollutants of Concern

Air quality in the County is influenced by vehicle emissions on regional roadways, agricultural activities, building maintenance and landscaping equipment, and stationary sources such as residential woodstoves. Air pollutants that are transported from Tehama, Glenn, and Butte counties also influence the air quality in Shasta County.

To protect human health and the environment, the EPA has set “primary” and “secondary” maximum ambient limits for each of the CAPs. Primary standards were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent damage to animals, crops, vegetation, and buildings. Ozone and nitrogen dioxide are considered regional pollutants because of the effects they and their precursors have on regional air quality. Pollutants such as carbon monoxide, sulfur oxides, and lead are considered local pollutants due to their tendency to accumulate in the air locally. Particulate matter (PM) is both a local and regional pollutant.

The primary pollutants of concern in Shasta County are ozone (the precursors of which include nitrogen oxides and ROGs), carbon monoxide, and PM.

Toxic Air Contaminants

In addition to CAPs, another group of airborne substances referred to as toxic air contaminants (TAC) are known to be highly hazardous to health, even in small quantities. TACs are airborne substances capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects (i.e., injury or illness). TACs can be emitted from a variety of common sources, including fuel stations, automobiles, dry cleaners, industrial operations, and painting operations; nearly 200 compounds have been designated as TACs in California. The 10 TACs posing the greatest known health risk in California, based primarily on ambient air quality data, are acetaldehyde; benzene; 1,3-butadiene; carbon tetrachloride; hexavalent chromium; para-dichlorobenzene; formaldehyde; methylene chloride; perchloroethylene; and diesel PM (CARB, 2023).

Regional Air Quality Conditions

Shasta County Air Quality Management District

The SCAQMD is responsible for enforcing federal and State air quality regulations in Shasta County. The SCAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs and also regulates agricultural burning. All projects in Shasta County are subject to applicable SCAQMD rules and regulations in effect at the time of construction. Descriptions of specific rules applicable to the proposed project may include, but are not limited to the following.

- SCAQMD Rule 3-2, Specific Air Contaminants, states that no person shall discharge contaminants from any single source into the atmosphere above the amounts designated in the Rule.
- Cutback and emulsified asphalt application shall be conducted in accordance with SCAQMD Rule 3-15, Cutback and Emulsified Asphalt.

- SCAQMD Rule 3-16, Fugitive, Indirect, or Non-Traditional Sources, controls the emission of fugitive dust during earth-moving, construction, demolition, bulk storage, and conditions resulting in wind erosion.
- Architectural coatings and solvents shall be compliant with SCAQMD Rule 3-31, Architectural Coatings.

Air pollutant concentrations are monitored at sites throughout the State. If a pollutant concentration is lower than the State or federal standard, the area is classified as being in attainment for that pollutant. If a pollutant violates the standard, the area is considered to be in nonattainment. If data is insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. As shown in Table AIR-2, Shasta County is designated as nonattainment for State ozone standards. Shasta County is designated as an attainment or unclassified area for all other federal and State ambient air quality standards (CARB, 2017).

Shasta County has been previously designated as nonattainment for California PM₁₀ standards; however, as of September 24, 2018, Shasta County was in attainment. The SCAQMD, along with other air districts in the Northern Sacramento Valley Air Basin (NSVAB), jointly prepared an Air Quality Attainment Plan (AQAP) for the purpose of achieving and maintaining healthy air quality throughout the air basin. The Northern Sacramento Valley Planning Area (NSVPA) 2018 Triennial AQAP constitutes the region's SIP. The NSVPA 2018 AQAP, adopted by the SCAQMD Board on May 7, 2019, includes updated control measures for the three-year period of 2019 through 2021. Shasta County has determined that its primary emphasis in implementing the 2018 AQAP is to reduce emissions from mobile sources through public education and grant programs.

**Table AIR-2
Air Quality Attainment Status for Shasta County**

Pollutant	Attainment Status	
	California Standard	Federal Standard
Ozone	Nonattainment	Unclassified/Attainment
Carbon Monoxide	Unclassified	Unclassified/Attainment
Nitrogen Oxides	Attainment	Unclassified/Attainment
Sulfur Oxides	Attainment	Unclassified/Attainment
PM ₁₀	Attainment	Unclassified
PM _{2.5}	Attainment	Unclassified/Attainment
Lead	Attainment	Unclassified/Attainment
Acronyms: PM ₁₀ = particulate matter 10 microns in size or smaller; PM _{2.5} = particulate matter 2.5 microns in size or smaller Source: CARB, 2017.		

As shown in Table AIR-3, the County has adopted air quality thresholds for emissions of ROG, NO_x, and PM₁₀ to determine the level of significance for projects subject to CEQA review.

Table AIR-3
Thresholds of Significance for Criteria Air Pollutants

Level	ROG	NO_x	PM₁₀
Level A: Indirect Sources	25 lbs/day	25 lbs/day	80 lbs/day
Level B: Indirect Sources	137 lbs/day	137 lbs/day	137 lbs/day
Direct Sources	25 tons/year	25 tons/year	25 tons/year
Acronyms: lbs/day = pounds per day Source: Shasta County, 2004.			

All discretionary projects in Shasta County are required to implement Standard Mitigation Measures (SMM) to achieve the highest feasible reduction in emissions and contribute to a reduction in cumulative impacts. Projects that generate unmitigated emissions above Level A must implement Best Available Mitigation Measures in addition to the SMMs. If a project is unable to reduce emissions below the Level B threshold, emissions offsets are required. If the project emissions continue to exceed the Level B threshold after applying the emissions offsets, an EIR is required to be prepared.

Local Air Quality Conditions

Local emission sources in the vicinity of the project site include area sources, such as space and water heating, landscape maintenance equipment from lawnmowers and leaf blowers, consumer products, and mobile sources (primarily automobile traffic). Motor vehicles are the dominant source of pollutants in the vicinity of the project site.

Sensitive Land Uses

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive to poor air quality than the general public because the population groups associated with these uses have increased susceptibility to respiratory distress. In addition, residential uses are considered more sensitive to air quality conditions than commercial and industrial uses because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. The closest sensitive land use is existing single-family residential use located approximately 2,900 feet south of the project site.

3.4.3 DISCUSSION OF IMPACTS

Methodology

The California Emissions Estimator Model (CalEEMod) was used to estimate emissions from all construction-related sources.

CalEEMod provides default values when site-specific inputs are not available. The default values are provided in Appendix B. The following project site-specific inputs and assumptions were used for the purposes of air quality modeling:

- Emissions from construction were calculated based on all construction-related activities, including but not limited to grading, use of construction equipment, material hauling, building, trenching, and site preparation.
- Construction would occur over a period of six months, starting in April 2024 and October 2024.
- It is estimated that 10 haul trips would occur during the grading phase.
- It is conservatively estimated that five worker vehicle trips per day would occur during the site preparation, grading, and building phase of construction.

The results of the CalEEMod modeling are discussed below and output files are provided in Appendix B. Resulting emission estimates are compared to applicable SCAQMD thresholds and federal general conformity *de minimis* levels to evaluate the effects of construction activities on regional air quality.

Questions A and B

For areas within the State that have not attained air quality standards, CARB works with local air districts to develop and implement attainment plans to obtain compliance with both federal and State air quality standards. The NSVAB 2018 AQAP serves as the air quality plan for the region (Sacramento Valley Air Quality Engineering and Enforcement Professionals, 2018).

Construction and operational emissions from the proposed project were estimated using the CalEEMod Version 2020.4.0 air modeling program. Construction and operation are considered not to overlap and are therefore analyzed separately. It was assumed that construction would last approximately six months. The first full year of operation is assumed to occur in 2025.

To estimate criteria emissions from construction equipment, CalEEMod default construction equipment was used in this analysis. The proposed project would result in the temporary generation of ROG, NO_x, PM₁₀, and other regulated pollutants during construction. ROG and NO_x emissions are associated with employee vehicle trips, delivery of materials, and construction equipment exhaust. PM₁₀ is generated during site preparation, excavation, road paving, and from exhausts associated with construction equipment.

Operational emissions would result from electricity use and mobile emissions from vehicles traveling to and from the project site for weekly maintenance. Weekly maintenance trip rate assumptions were provided by the City and were used to determine the mobile emissions resulting from the proposed project. All CalEEMod data tables, including input values, assumptions used, and output values, are detailed in Appendix B.

Construction

Construction of the proposed project would generate CAPs from construction equipment (primarily diesel operated), construction worker automobiles (primarily gasoline operated), and physical land disturbance. Construction emissions are summarized in Table AIR-4, and CalEEMod output files are provided in Appendix B.

**Table AIR-4
Construction Emissions**

Category	ROG	NOx	CO	SOx	PM ₁₀	PM _{2.5}
	lbs/day					
Maximum Emissions	1.93	16.14	19.79	0.0328	5.90	3.00
SCAQMD Level A Thresholds	25	25	NA	NA	80	NA
Above Thresholds?	No	No	No	No	No	No
Acronyms: CO = carbon monoxide; lbs/day = lbs per day; NOx = nitrogen oxides; PM ₁₀ = particulate matter 10 microns in size or smaller; PM _{2.5} = particulate matter 2.5 microns in size or smaller; ROG = reactive organic gas, SCAQMD = Shasta County Air Quality Management District; SOx = sulfur oxides Source: Appendix B.						

Although construction emissions from the proposed project would not exceed SCAQMD thresholds, construction dust and diesel emissions could disturb neighbors for short periods of time, which could be a potentially significant impact. The proposed project would be required to conform to the City’s Standard Conditions of Approval, which would protect neighbors by minimizing dust generation and reducing construction emissions. With the adherence to the requirements in the Standard Conditions of Approval , construction activities would not result in significant levels of air quality emissions. The impact during construction would be less than significant; *short term/localized and minor effect*.

Operation

Operation of the proposed project would result in emissions from area, energy, and mobile sources generated by weekly maintenance. The primary operational emissions associated with new development projects include CO, PM₁₀, and ozone precursors (ROG and NOx) that are emitted as vehicle exhaust. All operational emissions are summarized in Table AIR-5 and output files are provided in Appendix B.

Shasta County has been previously designated as nonattainment for California PM₁₀ standards; however, as of September 24, 2018, Shasta County is in attainment. The SCAQMD, along with other air districts in the NSVAB, jointly prepared an AQAP for the purpose of achieving and maintaining healthy air quality throughout the air basin. The NSVPA 2018 Triennial AQAP constitutes the region’s SIP. The NSVPA 2018 AQAP, adopted by the SCAQMD Board on May 7, 2019, includes updated control measures for the three-year period of 2019 through 2021. Shasta County has determined that its primary emphasis in implementing the 2018 AQAP is to reduce emissions from mobile sources through public education and grant programs.

**Table AIR-5
Operational Emissions**

Emission Sources	ROG	NOx	CO	SOx	PM ₁₀	PM _{2.5}
	lbs/day					
Area	0.07	0.00	0.01	0.00	0.00	0.00
Energy	0.00	0.01	0.00	0.00	0.00	0.00
Mobile	0.01	0.01	0.04	0.02	0.01	0.00
Total Emissions	0.08	0.02	0.05	0.02	0.01	0.00
SCAQMD Level A Thresholds	25	25	NA	NA	80	NA
Above Thresholds?	No	No	No	No	No	No
Acronyms: CO = carbon monoxide; lbs/day = lbs per day; NOx = nitrogen oxides; PM ₁₀ = particulate matter 10 microns in size or smaller; PM _{2.5} = particulate matter 2.5 microns in size or smaller; ROG = reactive organic gas, SCAQMD = Shasta County Air Quality Management District; SOx = sulfur oxides Source: Appendix B.						

Operational emissions from the proposed project would not exceed SCAQMD thresholds and would, therefore, not result in violating air quality emission standards. The impact during operations would be less than significant; *short term/localized and minor effect*.

As discussed above, the proposed project would not exceed the *de minimis* thresholds; therefore, no conformity determination is required for the proposed project. Due to the limited duration of construction activities, the infrequent use of heavy equipment, and no significant increase in long-term operational activities, the proposed project would not emit a significant amount of CAPs or hazardous air pollutants. As such, the proposed project would not constitute a major source of CAP emissions. Because the proposed project would not be a major source of CAP emissions, project emissions would not impact federal Class I areas. The proposed project would not exceed the EPA's general conformity *de minimis* threshold or hinder the attainment of air quality objectives in the local air basin. The proposed project would comply with all federal regulations relating to air quality, including the CAA. The impact would be less than significant; *short term/localized and minor effect*.

Question C

Refer to the discussion under Questions A and B. Sensitive receptors are individuals or groups of people that are more affected by air pollution than others, including young children, the elderly, and individuals weakened by disease or illness. Locations that may contain high concentrations of sensitive receptors include residential areas, schools, playgrounds, childcare centers, hospitals, convalescent homes, and retirement homes. As stated above, the proposed project does not contain any components that would result in long-term stationary emissions.

As discussed earlier, the proposed project would generate PM₁₀ and other pollutants during construction. Although these emissions would cease with completion of construction work, sensitive uses adjacent to the construction area could be exposed to elevated dust levels and other pollutants. Compliance with federal, State, and local regulations, and adherence to the requirements of the City's Standard Conditions of

Approval would ensure impacts would remain at non-significant levels. The impact would be less than significant; *short term/localized and minor effect*.

Question D

The proposed project does not include any components that would result in the generation of long-term odors or similar emissions adversely affecting a substantial number of people. Construction activities that have the potential to emit odors and similar emissions include operation of diesel equipment, generation of fugitive dust, and paving (asphalt). Odors and similar emissions from construction are intermittent and temporary, and generally would not extend beyond the construction area. Due to the temporary and intermittent nature of construction odors, construction would not result in significant odor emissions. The impact would be less than significant; *short term/localized and minor effect*.

3.4.4 MITIGATION MEASURES

None required.

3.5 BIOLOGICAL RESOURCES

Information in this section is summarized from the Biological Technical Memorandum, dated July 2022. (Appendix C).

3.5.1 ENVIRONMENTAL CHECKLIST

<u>BIOLOGICAL RESOURCES</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed 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 Wildlife or U.S. Fish & Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish & Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.5.2 SETTING

Regulatory Context

Federal

Federal Endangered Species Act

Under the FESA, the Secretary of the Interior and the Secretary of Commerce have the joint authority to list a species as threatened or endangered (16 USC 1533c). The purpose of FESA is to provide a means to conserve the ecosystems that endangered and threatened species depend on and to provide a program for conservation and recovery of the species with the intent of removing the species from a listed, protected status. Regulatory protection is given to any species listed as endangered or threatened.

The U.S. Fish & Wildlife Service (USFWS) and the National Marine Fisheries Service are the federal agencies that enforce the FESA. Pursuant to the requirements of the FESA, an agency reviewing a project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the project area and determine whether the project would have an impact on such species. Under FESA, habitat loss is considered to be an impact to the species. In addition, under Section 7 of the FESA, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed for listing under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536).

Critical Habitat

Critical habitat is defined under the FESA as specific geographic areas within a listed species range that contain features considered essential for the conservation of the listed species. Designated critical habitat for a given species supports habitat deemed by USFWS to be important for the recovery of the species. Under FESA, habitat loss is considered to be an impact to the species.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, capture, kill, or possess or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union. Under MBTA, it is unlawful to cause direct mortality to migratory birds, their nests, and nest contents. Nesting birds and the contents of nests within the construction area are therefore protected by the MBTA. The MBTA authorizes the USFWS to issue permits for incidental take. Migratory birds and their nests are regulated by the MBTA (16 USC § 703-711), which makes it unlawful to "...pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess or any part, nest, or egg of any such bird..." (50 CFR § 10).

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act was originally enacted in 1940 to protect bald eagles and was later amended to include golden eagles (16 USC §§ 668-668d). This Act prohibits take, possession, and commerce of bald and golden eagles and associated parts, feathers, nests, or eggs with limited exceptions. The definition of take is the same as the definition under the FESA. The USFWS established five recovery programs in the mid-1970s based on geographical distribution of the species, with California located in the Pacific Recovery Region. Habitat conservation efforts in the Pacific Recovery Region, including laws and management practices at federal, state, and community levels, have helped facilitate bald eagle population

increases. Critical habitat for bald and golden eagles was not designated as part of the Pacific Recovery Plan created under FESA. Likewise, critical habitat was not designated by regulation under FESA. In 1995, the USFWS reclassified the bald eagle from endangered to threatened under FESA in the contiguous 48 states, excluding Michigan, Minnesota, Wisconsin, Oregon, and Washington where it had already been listed as threatened. In 2007, the bald eagle was federally delisted under FESA. However, the provisions of the Act remain in place for protection of bald eagles and golden eagles.

Clean Water Act (Sections 401 and 404)

The Clean Water Act (CWA) (33 USC § 1251) establishes the basic structure for regulating discharges of pollutants (including dredged or fill material) into waters of the U.S., including wetlands, and for regulating quality standards for surface waters. The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

CWA Section 404 prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a permit from the U.S. Army Corps of Engineers (USACE). Section 401 of the CWA requires that an applicant for a federal license or permit that allows activities with the potential to result in a discharge to waters of the U.S., including wetlands, obtain a CWA Section 401 Water Quality Certification.

Northwest Forest Plan

The Northwest Forest Plan (NWFP) provides a landscape approach to federal land management that is designed to protect threatened and endangered species as well as contribute to social and economic sustainability within 24.5 million acres of federally-managed lands in western Oregon, Washington, and northwestern California. The Plan includes land use categories and an aquatic conservation strategy, each of which have associated standards and guidelines for management activities. The aquatic conservation strategy has the primary objective of maintaining and restoring the distribution, diversity, and complexity of watershed-level features and processes to which aquatic and riparian species are uniquely adapted. Additionally, a survey and manage program provides safeguards for lesser known species.

State

Porter-Cologne Water Quality Control Act

The 1969 Porter-Cologne Water Quality Control Act (known as the Porter-Cologne Act) dovetails with the CWA. The Porter-Cologne Act was created to protect the quality of water in the State from degradation. The Act established the State Water Resources Control Board (SWRCB) and divided the State into nine regions, each overseen by its own Regional Water Quality Control Board (RWQCB).

California Fish and Game Code

California Law, Fish and Game Code §§ 3503 and 3503.5 provide for the protection of birds and birds' nests by prohibiting the take of birds, their nests, or their eggs. California Fish and Game Code § 3511 lists birds that are "fully protected," defined as those that may not be taken or possessed except under specific permit.

California Law, Fish and Game Code § 1600 *et seq.*, requires notification to the California Department of Fish and Wildlife (CDFW) for proposed projects that may: divert, obstruct, or change the natural flow or the

bed, channel or bank of any river, stream, or lake; use material from a streambed; or result in the disposal or deposition of debris, waste, or other material where it may pass into any river, stream, or lake.

California Endangered Species Act

Under the California Endangered Species Act (CESA), it is unlawful to take of any species that is State-listed as endangered or threatened or designated as a candidate for such listing species. Fish and Game Code § 86 defines take as “hunt, pursue, catch, capture or kill or attempt to hunt, pursue, catch, capture or kill.” CESA take authorization should be obtained from CDFW if there is potential of take of a State-listed plant or wildlife species.

CEQA Guidelines Section 15380

Several federal and State statutes protect rare, threatened, and endangered species. CEQA Guidelines Article 20, § 15380 provides that a species not listed on the federal or State list of protected species may be considered rare, threatened, or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions of endangered, rare, or threatened provided in FESA and CESA. This section of the CEQA Guidelines provides public agencies with the ability to protect a species from any potential impacts of proposed projects until the respective government agency has the opportunity to designate (list) that species as protected, if warranted.

The California Native Plant Society (CNPS) maintains an extensive list of plant species that it considers to be rare, threatened, or endangered, but have no designated status or protection under FESA or CESA. Impacts to CNPS listed species (e.g., CNPS list 1B and 2) are evaluated during CEQA environmental review.

Local

Shasta County General Plan

Shasta County’s General Plan includes the following objectives and policies that apply to the proposed project.

POLICY FW-c Projects that contain or may impact endangered and/or threatened plant or animal species, as officially designated by the California Fish and Game Commission and/or the USFWS, shall be designed or conditioned to avoid any net adverse project impacts on those species.

City of Shasta Lake General Plan

The City’s General Plan Conservation Element includes the following biological objectives and policies that apply to the proposed project.

POLICY-CON-3.2 Design or condition new development to avoid significant adverse impacts on rare, threatened, or endangered plant or animal species, as officially designated by federal and State resource agencies. Work with the CDFW to ensure the preservation of resident and anadromous fish.

IMPLMNT-3.1 Ensure that all new development restricts the use of fencing, completes a creek restoration plan in locations essential for wildlife movement, and locates structures in a manner that minimizes interference with wildlife movement.

Environmental Setting

Special-Status Species

For the purposes of this assessment, special-status has been defined to include those species that are:

- Listed as endangered or threatened under FESA (or formally proposed for, or candidates for, listing) or designated critical habitat for those species;
- Listed as endangered or threatened under CESA (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (§ 1901)
- Designated as fully protected, pursuant to California Fish and Game Code (§ 3511, § 4700, or § 5050);
- Designated as species of concern by CDFW (CEQA Guidelines § 15380);
- Defined as rare or endangered under CEQA; or,
- Other sensitive biological resources include wetlands and waters of the U.S. The USFS also maintains a list of Management Indicator Species (MIS) which are monitored to document the effect of forest management practices. The *Shasta-Trinity National Forests Land and Resource Management Plan* (USFS, 1995) includes a list of Survey and Manage Species to be protected in Appendix R. USFS MIS and Survey and Manage Species are addressed herein.

Methodology

A biological resources survey was conducted on the project site on June 27, 2022 by biologists employed by Montrose Environmental. Survey goals included identifying habitat types, sensitive habitats, potential wetlands and waters of the U.S., and special-status species. The survey was conducted by walking transects throughout the project site. Data was collected with a global positioning system and camera. Sensitive habitats include those that are designated by CDFW or potential waters of the U.S. or State. Habitat types were determined based on aerial photographs, background data review, and field observations. Observed habitats and site conditions were assessed for habitat requirements and the potential to support special-status species.

Prior to conducting the survey, biological information was obtained from the following sources:

- Aerial photographs of the project site and surrounding area;
- USFWS Information for Planning and Conservation list of species listed or proposed for listing under FESA that occur in the vicinity of the project site, updated July 10, 2020 (Attachment A of Appendix C);
- CDFW California Natural Diversity Database (CNDDDB) list of species that have been observed in the vicinity of the project site, queried June 29, 2022 (Attachment A of Appendix C);

- CNPS list of plants that have been observed in the vicinity of the project site, queried June 29, 2022 (Attachment A of Appendix C);
- USFWS National Wetlands Inventory map of wetland features, queried June 29, 2022 (Attachment B of Appendix C);
- NRCS custom soils report, queried July 5, 2022 (Attachment C of Appendix C);
- USFWS Critical Habitat for Threatened & Endangered Species (Attachment D of Appendix C);
- USFS Final Environmental Impact Statement: Land and Resource Management Plan (USFS, 1994); and
- USFS Shasta-Trinity National Forests Land and Resource Management Plan (USFS, 1995).

Habitats

The project site is mostly developed area with ruderal, weedy species in disturbed areas and around the periphery of the site. This includes the gravel lot to serve as the foundation of the water tank, and Kennett Road and the overflow parking lot for staging equipment. The remainder of the project site is asphalt and unpaved pull-outs. The surrounding land to the north is highly disturbed land developed as roadways and the parking lot and associated structures for the Centimudi Boat Launch. Land to the east, south, and west consists of mixed chaparral and montane hardwood habitats. An aerial photograph and site photos are included as Figures 3 and 4 in Appendix C.

Drainages

Three drainages were observed adjacent to the project site: 1) one drainage approximately 100 feet due south from the proposed installation site, identified as Churn Creek; 2) a drainage which crosses under Kennett Road approximately 750 feet from the proposed installation site; and 3) an additional drainage which crosses under Kennett Road approximately 850 feet from the proposed installation site. All three drainages are Class III ephemeral drainages which do not support fish, though Churn Creek may support other aquatic species further downstream from the headwater's region located near the project site.

Floodplain

The project site is not within a Federal Emergency Management Agency (FEMA) designated flood hazard area (FEMA, 2022). The Shasta Lake shoreline and boat launch ramp adjacent to Kennett Road and the overflow parking is designated as a special flood hazard area (Zone A).

Special-Status Species

Appendix C summarizes the regionally occurring special-status species identified in the USFWS, CNPS, and CNDDDB queries; and provides an analysis of the potential for these species to occur within the project site. In addition to listed species, USFS MIS, and survey and manage species (refer to Appendix R of the USFS Shasta-Trinity National Forests Land and Resource Management Plan) are also considered in the analysis prepared in Appendix C. The list of all MISs and survey and manage species was reduced through an assessment of overall habitat range and available habitat onsite. Species with no potential to occur on the project site were ruled out based on lack of suitable habitat, soils, elevation, and necessary substrate.

Background data review and special-status species searches identified 17 special-status plant species and 27 special-status animal species with the potential to occur in the region of the Project Site (Attachment A of Appendix C). The name, regulatory status, distribution, habitat requirements, period of identification, and potential to occur on the project site for each species are listed in Table 1 of Appendix C. USFS MIS with the potential to occur on the project site include: western screech owl (*Megascops kennicottii*), song sparrow (*Melospiza melodia*), black bear (*Ursus americanus*), elk (*Cervus elaphus roosevelti*), and mule deer (*Odocoileus hemionus*). These species have been identified to indicate the effects of management activities on USFS lands. As the project site provides minimal habitat value, it is anticipated the aforementioned species are likely to use the project site in a transitory capacity only.

Based on the biological survey as well as site-specific habitats and habitat requirements for each potential species that may occur, the project site does not contain suitable habitat to support special-status species. Special-status species or suitable habitat for special-status species were not observed during the survey.

Critical Habitat

No designated USFWS Critical Habitat for Threatened & Endangered Species occurs on the project site (Attachment D of Appendix C).

3.5.3 DISCUSSION OF IMPACTS

Question A

Special-Status Species

The project site associated with potential impacts to biological resources consists of ruderal habitat and developed land, which includes a gravel lot, Kennett Road, and overflow parking at the Centimudi Boat Launching Facility. These areas are highly disturbed and do not provide suitable habitat to support federal and State listed special-status plant or animal species. No special-status species were observed at the time of survey. Areas surrounding the project site primarily consist of mixed chaparral and montane hardwood habitats. Although the surrounding habitat may facilitate wildlife movement, the proposed project would not encroach on forest habitat and thus would not significantly impede potential wildlife movement.

Impacts to Special-Status Plant Species

Ground-disturbing activities have the potential to destroy or otherwise harm special-status plant species if they are present in work areas. Appendix C lists special-status plant species known to occur in the vicinity of the proposed project. No special status plant species were identified onsite and no special-status plant species were observed within the project site. Additionally, the existing project site condition would be unlikely to support special-status plant species due to a high level of disturbance. Project activities could indirectly impact individuals or reduce the habitat quality by reducing off-site water quality as a result of ground-disturbing activities. Localized habitat degradation may occur if petrochemicals, hydraulic fluids, and solvents are spilled or leaked from maintenance vehicles or equipment. Implementation of Mitigation Measures HAZ-2 and HYD-1 would reduce the potential impact to off-site special-status plant species. Therefore, with implementation of Mitigation Measures HAZ-2 and HYD-1, impacts to these species would be less than significant; *short term/localized and minor effect*.

Impacts to Special-Status Invertebrate Species

Appendix C lists the special-status invertebrate species with the potential to occur within the project site. No special-status invertebrates have the potential to occur within the proposed project. While Appendix C did not identify potential special-status invertebrate species in the proximity of the project site, due to the proximity of three Class III ephemeral drainage within 1,000 feet of the project site, proposed project activities could indirectly impact individuals or reduce the habitat quality by increasing creek turbidity and downstream sedimentation as a result of ground-disturbing activities. Localized habitat degradation may occur if petrochemicals, hydraulic fluids, and solvents are spilled or leaked from maintenance vehicles or equipment. Implementation of Mitigation Measures HAZ-2 and HYD-1 would reduce the potential impact to off-site amphibian and reptile species. Therefore, with implementation of Mitigation Measures HAZ-2 and HYD-1, impacts to these species would be less than significant; *short term/localized and minor effect*.

Impacts to Special-Status Fish Species

Appendix C lists the special-status fish species with the potential to occur within the project site. No special-status fish with the potential to occur in the project site were identified due to lack of suitable habitat. While Appendix C did not identify potential special-status fish species in the proximity of the project site, due to the proximity of three Class III ephemeral drainage within 1,000 feet of the project site, proposed project activities could indirectly impact individuals or reduce the habitat quality by increasing turbidity and downstream sedimentation as a result of ground-disturbing activities. Localized habitat degradation may occur if petrochemicals, hydraulic fluids, and solvents are spilled or leaked from maintenance vehicles or equipment. Implementation of Mitigation Measures HAZ-2 and HYD-1 would reduce the potential impact to off-site amphibian and reptile species. Therefore, with implementation of Mitigation Measures HAZ-2 and HYD-1, impacts to these species would be less than significant; *short term/localized and minor effect*.

Impacts to Special-Status Amphibian and Reptile Species

Appendix C lists the special-status amphibian and reptile species with the potential to occur within the project site. No special-status amphibians nor reptiles with the potential to occur in the project site were identified. While Appendix C did not identify potential special-status species in the proximity of the project site, due to the proximity of three Class III ephemeral drainage within 1,000 feet of the project site, project activities could indirectly impact individuals or reduce the habitat quality by increasing creek turbidity and downstream sedimentation as a result of ground disturbing activities. Localized habitat degradation may occur if petrochemicals, hydraulic fluids, and solvents are spilled or leaked from maintenance vehicles or equipment. Implementation of Mitigation Measures HAZ-2 and HYD-1 would reduce the potential impact to off-site amphibian and reptile species. Therefore, with implementation of Mitigation Measures HAZ-2 and HYD-1, impacts to these species would be less than significant; *short term/localized and minor effect*.

Impacts to Special-Status Bird Species

Appendix C lists the special-status bird species known to occur in the vicinity of the project site. Western screech owl (*Megascops kennicottii*) and song sparrow (*Melospiza melodia*) are known to occur in the vicinity of the project site. Other bird species that are protected by the MBTA and California Fish and Game Code §§ 3503 and 3503.5 could nest in the vicinity of the project site. Proposed project activities such as tree removal or the use of heavy machinery in the vicinity of active nests have the potential to disturb nesting special-status bird species and nests protected by the MBTA and California Fish and Game Code. This may cause nesting failure or reduced fitness, which could result in a significant impact.

Western screech owl and song sparrow nesting may be disturbed by construction activities if construction takes place during the general nesting season (February 15 through September 15). Additionally, there are records of nesting bald eagles by Digger Creek and other areas surrounding Shasta Lake, the nearest record occurring 1.6 miles from the project site. Bald eagle nesting may be disturbed by construction activities if construction takes place during the bald eagle nesting season (January 1 through July 31). Mitigation Measure BIO-1 includes measures for pre-construction nesting bird surveys and subsequent avoidance measures, which would ensure potential adverse effects to western screech owl, song sparrow, and bald eagle would not be substantial. Therefore, with implementation of Mitigation Measure BIO-1, impacts to these species would be less than significant; *short term/localized and minor effect*.

Impacts to Special-Status Mammal Species

Appendix C lists the special-status mammal species with the potential to occur within the project site. Special-status mammals that may be present within the vicinity of the project site include two bat species: pallid bat (*Antrozous pallidus*) and western red bat (*Laiurus blossevillii*). Noise generated from construction activities has the potential to affect maternal roosting sites of special-status bats, including pallid bat and western red bat, which are known to occur in rock outcrops and trees. The bat maternity season (March 15-July 31) is an especially sensitive period, as young may be unable to fly (i.e., non-volant) during this period. Disturbance to a maternal roost would be a significant impact. No colonial bat roosts were detected during site field assessments. Bats are primarily sensitive to changes in kilohertz, which is a unit of measurement for the frequency of sounds; higher frequencies correspond to higher pitches, rather than increase in decibels (dB), which are units based on human hearing (Caltrans, 2019). As discussed in the *Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions*, a bat maternity colony acoustic monitoring study found that there was no difference in their movement patterns on the nights after chain saws and earthmovers were operated, during which noise levels were measured at up to 87 dB (Caltrans, 2019). As discussed in Section 3.14, construction of the proposed project would result in short-term noise levels of up to 84 dB. Further, construction of the proposed project would not result in a substantial increase in groundborne vibration or the use of pile-driving equipment, which could impact maternal roosting bats. Therefore, impacts to special-status bats would be less than significant; *short term/localized and minor effect*.

Nesting Migratory Birds

Construction activities would be limited to previously developed and disturbed areas. However, migratory birds nesting within 500 feet, or 660 feet for bald eagles, of the project site could be affected if vegetation removal or loud noise-producing activities associated with construction occur during the general nesting season (February 15 through September 15). One drainage within 500 feet of the project site contains riparian vegetation suitable for nesting birds. Disturbance of an active nest would be a significant impact. Mitigation Measure BIO-1 would require a pre-construction nesting bird survey by a qualified biologist to identify active nests prior to construction as well as a disturbance-free construction buffer around active nests. Thus, implementation of Mitigation Measure BIO-1 would ensure potential impacts to nesting birds would be less than significant; *short term/localized and minor effect*.

Survey and Manage Species

Survey and Manage Species are included in Appendix R of the Shasta-Trinity National Forests Land and Resource Management Plan (USFS, 1995). The following is a list of the potential species that have the potential to occur on the project site.

- Species belonging to fungi, lichens, and bryophytes are largely suspected to occur on forest land. Eight species of false truffles, *Nivatogastrium nubigenum*, *Rhizopogon abietis*, *R. brunneiniger*, *R. evadens* var. *sublapinus*, *R. flavofibrillosus*, *Gautieria magnicellaris*, *Thaxterogaster pingue*, and *Sedecula pulvinata* are known to occur on forest land. An undescribed taxon, *Gastrosullus* sp. nov. #Trappe 7516, is also known to occur on forest land.
- Six species of vascular plants are suspected or known to occur on forest land. Species known to occur include *Allotropa virgate*, *Cypripedium fasciculatum*, and *C. montanum*.
- Five amphibians are suspected or known to occur on forest land. Larch Mountain salamander (*Plethodon larselli*), Shasta salamander (*Hydromantes shastae*), and Van Dyke's salamander (*Plethodon vandykei*) are known to occur on forest land.
- Great gray owl (*Strix nebulosi*) is the only bird species suspected to occur on forest land.
- Seven mammal species are suspected or known to occur on forest land. The red tree vole (*Arborimus longicaudus*) and lynx (*Lynx rufus*) are both known to occur on forest land. Red tree vole requires surveying prior to ground-disturbing activities; and the survey strategy for lynx includes conducting extensive surveys and subsequently managing high priority sites for this species. Bat species known to occur on forest land include long-eared myotis (*Myotis evotis*) and pallid bat (*Antrozous pallidus*).

As previously discussed, the project site is ruderal/developed habitat consisting primarily of asphalt and a gravel lot. Thus, the project site does not provide suitable habitat to support the fungi, lichens, bryophytes, or vascular plants identified in Appendix R of the Shasta-Trinity National Forests Land and Resource Management Plan (USFS, 1995). Amphibian species are also unlikely to occur due to the lack of shelter and foraging habitat. The project site also would not provide suitable habitat to support great gray owl or red tree vole as great gray owls and red tree vole habitat consists of dense forest and open meadows. The project site lacks the specific habitat requirements to support these species. Lynx may occur on the project site; however, the project site does not have suitable habitat to provide cover and foraging opportunities for lynx. Bats require suitable roost sites, which may consist of abandoned buildings, hollows or loose bark of trees, rock crevices and outcrops, and/or large snags depending on a specific species preference. The project site does not contain suitable habitat for bats and, as discussed earlier, construction activities associated with the proposed project would not result in a significant impact to roosting bats.

The project site does not provide suitable habitat to support Survey and Manage Species. Further, the project site also does not contain any known management sites for the aforementioned Survey and Manage Species. Thus, impacts to these species are not anticipated. Construction activities may affect potential USFS Survey and Manage Species; however, for the reasons discussed above, the proposed project would not have a significant impact. Impacts would be less than significant with mitigation; *short term/localized and minor effect*.

Question B

The project site consists of ruderal/developed habitat. The project site consists primarily of a gravel lot and asphalt parking areas with ruderal habitat adjacent to the developed areas. Ruderal habitat is not considered sensitive. Therefore, the proposed project would not result in direct impacts to sensitive habitats. However, indirect impacts could occur to three drainages which are adjacent to the project site. Mitigation Measure HYD-1 would require implementation of stormwater BMPs, which would reduce potential impacts regarding erosion, sedimentation, and contamination. Through Mitigation Measure HYD-1, the proposed project would not result in degradation of nearby drainages or downstream waters of the U.S./State due to erosion or sedimentation from construction activities. With implementation of Mitigation Measure HYD-1 as well as adherence to regulatory requirements, potential indirect impacts to off-site drainages, downstream water courses, and riparian habitat would be less than significant. Therefore, impacts would be less than significant with mitigation; *short term/localized and minor effect*.

Question C

The project site does not contain State or federally protected wetlands. There would be no impact to protected wetlands through removal, filling, or hydrological interruption. Because the project would disturb less than 1 acre, a Construction General Permit would not be required by the EPA. In lieu of this, a Water Pollution Control Plan (Mitigation Measure HYD-1) would be developed and implemented for the proposed project, which would meet all federal CWA requirements. Furthermore, Mitigation Measure HYD-1 would avoid potential impacts to waters of the U.S./State by creating a site-specific Water Quality Management Plan that would ensure that the proposed project would not substantially impact adjacent waterbodies. Therefore, the impact would be less than significant; *localized and minor effect*.

Question D

The project site consists of ruderal/developed habitat and is of low quality to wildlife. The adjacent undeveloped, mixed chaparral and montane hardwood habitats would not be impacted, and habitat fragmentation would not occur due to the proposed project. The project site does not include any rivers, creeks, or established wildfire corridors. Thus, no native resident or migratory fish or wildlife species, established wildlife corridors, or native wildlife nursery sites would be significantly affected. Areas surrounding the project site primarily consist of mixed chaparral and montane hardwood habitats. Although the surrounding habitat may facilitate wildlife movement, the proposed project would not encroach on these habitats and thus would not significantly impede potential wildlife movement.

Noise generated from construction activities may affect potential wildlife movement of USFS MIS including black bear, elk, and mule deer in the vicinity of the project site; however, these effects would occur only temporarily during construction and would not have a significant impact on wildlife movement in the forested areas surrounding the project site. Therefore, the impact would be less than significant; *localized and minor effect*.

Question E

The proposed project would not conflict with any local polices for the protection of biological resources. The proposed project would require the removal of a single gray pine in poor condition and trimming of a sycamore tree by a certified arborist. The sycamore tree would not be removed or adversely affected. Under City of Shasta Lake Code of Ordinances, Chapter 12.36 – Tree Conservation, gray pine is not considered

a protected species, and thus does not require a tree removal permit from the City. The proposed project would not be in conflict with any local plans or policies as it relates to biological resources. Additionally, the proposed project would not be in conflict with federal regulations as they pertain to federally-protected and/or -regulated biological resources. Therefore, the impact would be less than significant; *localized and minor effect*.

Question F

No State habitat conservation plans, natural community conservation plans, or similar plans apply to the proposed project. As the proposed project site is located on USFS land, the proposed project would be subject to the USFS Shasta-Trinity National Forests Land and Resource Management Plan (USFS, 1995). The stated objective of the Management Plan is to integrate a mix of management activities that allow use and protection of forest resources, meet the needs of guiding legislation, and address local, regional, and national issues. The construction of the proposed water tank would not result in a conflict with the Management Plan or planned uses onsite after issuance of Special Use Permit. Thus, the proposed project would not result in a conflict with any adopted habitat conservation plans or natural community conservation plans. There would be a less-than-significant impact; *localized and minor effect*.

3.5.4 MITIGATION MEASURES

BIO-1: Pre-Construction Nesting Bird Survey

The following measures shall be implemented to avoid or minimize adverse impacts to nesting migratory birds and bald eagles during construction activities associated with the proposed project.

- If construction activities (e.g., building, grading, ground disturbance, removal of vegetation) are scheduled to occur during the bald eagle nesting season (January 1 through July 31), which includes the general nesting season (February 15 through September 15), a pre-construction nesting bird survey shall be conducted by a qualified biologist throughout accessible areas of suitable habitat within 500 feet of proposed construction activity for nesting birds and extended to 660 feet for nesting bald eagles. The survey shall occur no more than 7 days prior to the scheduled onset of construction. If construction is delayed or halted for more than 7 days, another pre-construction survey for nesting bird species shall be conducted. If no nesting birds are detected during the pre-construction survey, no additional surveys or mitigation measures shall be required.
- If nesting bird species are observed within 500 feet, or 660 feet for bald eagles, of construction areas during the survey, appropriate “no construction” buffers shall be established. The size and scale of nesting bird buffers shall be determined by a qualified biologist and in consultation with CDFW and/or USFWS. Buffers shall be established around active nest locations. The nesting bird buffers shall be completely avoided during construction activities. The buffers may be removed when the qualified wildlife biologist confirms that the nest(s) is no longer occupied and all birds have fledged.

3.6 CULTURAL RESOURCES

Information in this section is summarized from a Cultural Resources Study (CRS) prepared for the proposed project (Appendix D). The CRS is being used for consultation between the USFS and the State Historic Preservation Officer (SHPO) pursuant to the requirements of Section 106 of the NHPA. The Area of Potential Effects (APE) analyzed in the CRS is congruent with the Development Footprint shown in Figure 2-3 and encompasses all areas of ground disturbance related to the proposed project, including equipment and materials staging areas.

3.6.1 ENVIRONMENTAL CHECKLIST

<u>CULTURAL RESOURCES</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.6.2 SETTING

Regulatory Context

Federal

Section 106 of the National Historic Preservation Act

Section 106 of the NHPA, as amended, and its implementing regulations found at 36 CFR Part 800, require federal agencies to identify cultural resources that may be affected by actions involving federal lands, funds, or permitting actions.

The significance of the resources must be evaluated using established criteria outlined at 36 CFR 60.4, as described below. If a resource is determined to be a historic property, Section 106 of the NHPA requires that effects of the undertaking on the resource be determined. A historic property is:

...any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic

Places, including artifacts, records, and material remains related to such a property...(NHPA Sec. 301[5])

If it is determined that a historic property will be adversely affected by implementation of a proposed action, prudent and feasible measures to avoid or reduce adverse impacts must be taken. The SHPO must be provided an opportunity to review and comment on these measures prior to implementation of the proposed action.

National Register of Historic Places

The eligibility of a resource for listing in the National Register of Historic Places (NRHP) is determined by evaluating the resource using criteria defined in 36 CFR 60.4 as follows.

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history;
- B. That are associated with the lives of persons significant in our past;
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That has yielded, or may be likely to yield, information important to prehistory or history.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979 (ARPA) (Public Law 96-95; 16 USC 470aa-mm), provides for the protection of archaeological resources and sites which are on public and Indian lands, and fosters increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before October 31, 1979. ARPA also provides for penalties for noncompliance and illegal trafficking.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) is a federal law passed in 1990. NAGPRA provides a process for museums and federal agencies to return certain Native American cultural items—human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants, and culturally affiliated Indian tribes and Native Hawaiian organizations. NAGPRA includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American burials and cultural items on federal and tribal lands, and penalties for noncompliance and illegal trafficking.

State

California Environmental Quality Act

CEQA requires that, for projects financed by or requiring the discretionary approval of public agencies in California, the effects that a project has on historical and unique archaeological resources be considered (PRC § 21083.2). Historical resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance (PRC § 50201). The CEQA Guidelines (§ 15064.5) define three cases in which a property may qualify as a historical resource for the purpose of CEQA review:

- The resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR).
- The resource is included in a local register of historic resources, as defined in section 5020.1(k) of the PRC, or is identified as significant in a historical resources survey that meets the requirements of section 5024.1(g) of the PRC (unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant).
- The lead agency determines that the resource may be a historical resource as defined in PRC §§ 5020.1(j), 5024.1, or significant as supported by substantial evidence in light of the whole record. Section 5024.1 defines eligibility requirements and states that a resource may be eligible for inclusion in the CRHR if it:
 1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
 2. Is associated with the lives of persons important in our past;
 3. Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values;
or
 4. Has yielded, or may be likely to yield, information important in prehistory or history.

Resources must retain integrity to be eligible for listing on the CRHR. Resources that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR, and thus are significant historical resources for the purposes of CEQA (PRC § 5024.1(d)(1)).

PRC § 21083.2 governs the treatment of a unique archaeological resource, which is defined as “an archaeological artifact, object, or site about which it can be clearly demonstrated” that it meets any of the following criteria:

- It contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.
- It has a special and particular quality such as being the oldest of its type or the best example of its type.
- It is directly associated with a scientifically recognized important prehistoric or historic event or person.

Local

Shasta County General Plan

The County's General Plan includes the following objectives and policies that apply to the proposed project.

POLICY HER-1 Development projects in areas of known heritage value shall be designed to minimize degradation of these resources. Where conflicts are unavoidable, mitigation measures which reduce such impacts shall be implemented. Possible mitigation measures may include clustering, buffer or non-disturbance zones, and building siting requirements.

City of Shasta Lake General Plan

Open Space Element

GOAL OS-4 Promote and protect the City's historical, cultural, and archaeological resources.

POLICY-OS-4.1 Preserve historical or archaeological resources from development impacts and include appropriate mitigation to protect such resources.

Cultural Setting

Prehistoric Setting

The earliest known and least understood occupation of California occurred during the Late Pleistocene and Early Holocene eras (10,000 to 8000 years before the present day [BP]). Early Holocene populations were highly mobile hunter-gatherers. The tool technology of California during the Paleo-Indian period is delineated by fluted projectile points similar to Clovis projectile point types found to the east in the Great Basin, and Clovis-type points have been found as close as the McCloud River in Shasta County and the Alkali Basin in southern Oregon.

Greater indications of occupation occur during the Archaic periods (8000 B.P. to the historic era). Regional activities focused on exploitation of seasonably available resources such as deer, elk, mountain sheep, rabbit, quail, salmon, acorns, grasses, roots, berries, etc. (Hamusek-McGann et al., 1998). The Archaic period has been divided into several different patterns reflective of changing cultural groups and technologies.

Borax Lake Pattern (8000 B.P.-5000 B.P.)

This post-Pleistocene period marked the entry of Hokan speakers into the region. Temperatures were warmer during this pattern than today, displacing vegetation types (and the attendant fauna) upwards to higher altitudes than the present day. During this time people made extensive use of grass seeds, and so the tool kit is partially represented by milling stones. Other Borax Lake Pattern artifacts include large, wide-stemmed projectile points, manos, and grinding stones. Subsistence likely depended on a combination of big-game hunting supplemented with plant gathering, practiced by small, mobile groups exploiting broad geographic areas (Sundahl, 1992).

Squaw Creek Pattern (5000 B.P.-3000 B.P.)

During this time, there was increasing dependence on foraging and a broader tool kit reflecting a more stable hunting/gathering strategy accessing seasonably available resources from a base camp. Stone tools

from this pattern included Squaw Creek Contracting Stem and leaf-shaped projectile points, McKee unifaces, manos, cobble spalls, and the introduction of mortar/pestle technology. Inter- and intra-site patterning suggests more intensive habitations, with multiple obsidian sources utilized. This period was coeval with the Windmill period farther south in the Central Valley (Sundahl, 1992).

Whiskeytown Pattern (3000 B.P.-1700 B.P.)

The environment became similar to the present day during this period. The tool kit was characterized by large- and medium-sized side- and corner-notched points, manos and millingstones, mortars and pestles, and notched pebble net weights. There was an emphasis on riverine resources, but seasonal foraging in the foothills was still clearly practiced. Basketry cooking was likely introduced in this period (Sundahl, 1992).

Shasta Complex (1700 B.P.-100 B.P.)

The Shasta Complex (also known as the Shasta Aspect of the Augustine Pattern) is the best understood period in the region, typified by sedentary villages focused on major rivers and tributaries. Site testing has defined a pattern of recent occupation typified by small projectile points used for bow and arrow (Gunther Series, Desert Side-Notched), drills, large chert blades, shaft smoothers, hopper mortars, bone fishing tools, charmstones, spire-topped Olivella beads, and pine-nut beads. This assemblage dates within the past 1,500 years and appears to represent the migration into northern California of the ethnographic Wintu (Sundahl, 1992).

Ethnography

Three different ethnographic groups occupied the proposed project region, including the Wintu in the immediate vicinity, the Yana to the east, and the Nomlaki to the south. As each occupied a slightly different environment, their subsistence strategies and tool kits varied, though their overall lifeways were similar.

The distribution of ethnic groups coupled with linguistic studies indicates that the Wintu were a dynamic population, rapidly increasing in numbers, establishing new villages, and expanding their territory. A study of the organization of Wintu villages suggests a comparatively recent expansion eastward by the Wintu into former Yana territory, resulting in a shifting of boundaries. Yana populations were small, and disappeared rapidly after the beginning of the historic era. Jerald Johnson has suggested that the Yana were dwindling as the result of eastward expansions by the Wintu and Nomlaki and probably would have disappeared completely even if the pressure from Anglo-Americans had not hastened the event.

The Wintu spoke a Penutian language, whereas surrounding tribes spoke Hokan languages; the Wintu may have pushed into the region from the south approximately 1,200-1,300 years ago (Sundahl, 1992). They were a semi-sedentary, foraging group occupying permanent villages near rivers and streams. The availability of resources allowed the Wintu to live in dense settlements, politically organized into independent tribelets, with the largest villages containing about 250 people. Settlements would contain conical bark houses or temporary brush shelters in the summer, with domed brush sweatshouses and roundhouses for gatherings.

The Wintu diet would have included deer, rabbits, and other small mammals; fish including salmon, steelhead, Sacramento sucker, freshwater shellfish, and lamprey; grasshoppers, salmon flies, and other insects; acorns, pine nuts, and buckeye, manzanita and other berries, and bulbs, clovers, miner's lettuce, and other greens, grass seeds, and migratory waterfowl.

The Wintun toolkit included grinding implements, digging sticks, fishing equipment, and basketry. Mortars and pestles were used to grind seeds, acorns, pigment, and soften meat. Manos and metates were also used. Bone was used as awls for basketry, harpoons and hooks, and wedges for wood cutting, as well as digging sticks for root retrieval, house excavation, and grave digging made from sharpened hardwood. Soaproot fibers were used for acorn meal brushes, paintbrushes, and hair brushes. Rope and cordage were usually made from iris fibers. Materials such as hazel, skunkbrush, willow, grapevine, redbud, pine root, poison oak, maidenhair fern, porcupine quills, and some grasses were used to create baskets and traps, including sifters, seed beaters, trays, bowls, hats, dippers, hoppers, cooking baskets, burden baskets, storage, and fish traps. Logs were used as bridges; rafts of lashed-together logs were poled across streams, and at several locations along major tributaries, bridges lashed together by grapevines could be found.

History

Shasta County

Shasta was one of California's original 27 counties, and originally included parts of present Siskiyou, Modoc, Lassen, Plumas, and Tehama counties. "Shasta" is apparently a corruption of the name of an Indian tribe living in the vicinity of Mount Shasta. The County seat was originally at Reading's Ranch, moved to Shasta in 1851 during the gold mining boom, and finally moved to Redding in 1888 (Marvin, 2019).

Redding, named for Pierson B. Reading, for many years the land agent for the Central Pacific Railroad, was founded in the summer of 1872 as the temporary railhead of the line and remained so until 1883; by 1887, the year the city was incorporated, the railroad was connected to Portland, Oregon. Because of its central location on roads heading north and south and east and west, Redding has always been the center of trade and transportation, not only for Shasta County but for much of northern California (Marvin, 2019).

Shasta-Trinity National Forest

The Shasta-Trinity National Forest is the largest National Forest in California and was established by President Theodore Roosevelt's proclamation of 1905. Initially, there were two forests; the Trinity (headquartered in Weaverville) and the Shasta (headquartered in Mt. Shasta City). The two forests were combined in 1954. Natural elements of the Shasta-Trinity National Forest include Mount Shasta, Shasta Lake, Medicine Lake Highlands, the McCloud River, and Castle Crags (USFS, 2022a). Shasta Lake is the largest man-made reservoir in California. When full, the lake has 370 miles of shoreline, which exceeds that of San Francisco Bay. Shasta Lake contains 30,000 surface acres and holds 4,550,000 acre-feet of water. Shasta Lake lies behind Shasta Dam, which is the second largest (after Grand Coulee Dam) and second tallest concrete dam (after Hoover Dam) in the United States.

Shasta Dam/City of Shasta Lake

Construction of Shasta Dam, the keystone of the Central Valley irrigation project, was approved by Congress, and initial funds were appropriated in 1935. Years before construction of the actual dam began in 1938, prospective workers poured into the area. Many were crew from the Bureau of Reclamation and construction workers from previous government projects in other states, while others were men who had not had jobs for years. Shasta County's economy, already in a slump with the closing of the copper smelters after World War I, was hard hit by the Great Depression; and many of Shasta County's businesses and labor force were struggling to get by. Men were attracted to the excitement of the boomtowns and the

prospect of government construction jobs. Other jobless men were migrant mid-west farm workers from the Dust Bowl (Marvin, 2019).

Many workers stayed on until the dam was dedicated and filled in 1950. While some quickly sold their homes and left the area, others remained and found employment in Shasta County's growing lumber industry. The nationwide post-war building boom and the popularity of plywood and particleboard as new building materials brought new economic prosperity to Shasta County. Several new lumber mills were built, and lumber-related businesses were established; the automobile and better roads allowed workers to commute to jobs in the mills in Redding and Anderson. Government water projects, Pacific Gas & Electric, and a growing recreation industry offered a more diverse economic base for Central Valley and its neighbors (Marvin, 2019).

Records Search

Montrose Environmental consulted with Shasta-Trinity National Forest archaeologist Peter Schmidt regarding cultural resource surveys and sites within the APE. Mr. Schmidt stated that no archaeological surveys had been previously completed and no archaeological resources were known within the APE. Because of the location, Montrose Environmental completed an ARPA permit application prior to the survey and received a Permit for Archaeological Investigations with Authorization ID: SLK1074 (Appendix D).

A review of historic maps (BLM, 2022) included the 1870 General Land Office (GLO) Plat map, which shows high mountains in the general APE vicinity and Churntown to the southwest, in the general location of the City of Shasta Lake. The 1882 GLO Plat indicates Ravens Ditch in the proposed project vicinity. A number of focused plat maps from the last two decades of the 19th century depict individual mining claims to the west and southwest of the APE; the next full GLO available is from 1939 and shows roadways in the proposed project vicinity. The 1901 Redding quadrangle indicates general development, including a railroad in the region, with increasing development visible on the 1944 Redding map sheet, and the 1956 Shasta Dam topographic quadrangle indicates that the roadway in the APE is already in existence.

Land Patent records for 1893 (BLM, 2022) show a 160-acre Indian Allotment made to Elijah Timmons, a member of the Wintu Tribe, and as an Indian Fee Patent in 1911. Allotments were made and "trust" patents were issued by the GLO, which kept the land in trust for the individual for a period of up to 25 years after which he could sell the land for himself. Prior to that time, he/she could petition the Secretary of the Interior to release him/her from guardianship and allow him/her to sell the land. The landowner would be issued a "fee" patent that gave him/her the right to sell the land.

Field Survey

Area of Potential Effects

The approximately 3.91-acre APE includes all potential areas of disturbance associated with the proposed project. This includes:

- A staging area in the Centimudi Boat Launch overflow parking area at the northern end of the APE that measures approximately 325 feet northwest to southeast by 130 feet northeast to southwest;
- An approximately 1,700-foot long portion of Kennett Road which connects the staging area with Lake Boulevard and which extends up to 20 feet to each side of the roadway;

- The approximately 195-foot (north to south) by 260-foot (east to west) water tank construction pad in the southwestern corner of the intersection of Kennett Road and Lake Boulevard, and
- The approximately 100-foot long waterline trench that would run from the water tank to connect with extant infrastructure on the west side of Lake Boulevard.

Construction would not exceed 7 feet in depth, to allow for the water line connection and tank construction. The archaeological survey was completed on June 27, 2022 by Montrose Environmental archaeologists. Pedestrian transects were walked back and forth across the pad at 15-meter intervals, except where the debris had been piled, and ground surface visibility was almost 100%. The western edge of Kennett Boulevard was examined with a single pedestrian transect; the eastern edge has been cut into an extremely steep slope. Another pedestrian transect was walked around the outside circumference of the overflow parking lot. No archaeological or paleontological resources were identified (Appendix D).

3.6.3 DISCUSSION OF IMPACTS

Question A

The cultural resources APE for the proposed project is congruent with the development footprint shown in Figure 2-3, and encompasses the entirety of the development, staging, and travel areas for the proposed project. As discussed previously, the APE is composed of existing developed and disturbed areas which have been thoroughly surveyed via the pedestrian surveys conducted by Montrose Environmental on June 27, 2022. No resources were identified that would be potentially eligible for protection under the NHPA during the survey of the APE. Compliance with the NHPA will be reached by the Shasta-Trinity National Forest working under a Programmatic Agreement with the SHPO, and therefore no SHPO consultation would be required.

As described earlier, the records search revealed that no cultural resources have been recorded within the APE. No resources were identified by the Shasta-Trinity National Forest archaeologist during consultation that would be affected by construction of the proposed project. Based on the results of the background research, field survey, topography, and level of previous disturbance, the potential for NRHP/CRHR-eligible resources within the proposed project area is considered to be low. The foundation pad consists of cleared, leveled land and because, prior to the construction of Shasta Lake, the area was one of very steep and rugged terrain, non-conducive to prehistoric settlement and occupation. There would be no impact; *no effect*.

Questions B and C

As described in Question A, there are no known cultural resources on the project site. However, as construction of the proposed project requires ground disturbing activities, there is the potential that previously unknown archaeological resources and/or human remains could be encountered during subsurface construction activities, which would be a potentially significant impact. Implementation of Mitigation Measures CR-1, CR-2, and CR-3 would ensure that inadvertently discovered resources that may be eligible for the NHRP or CRHR would be investigated and evaluated for eligibility to the NRHP and CRHR. Moreover, implementation of Mitigation Measures CR-1, CR-2, and CR-3 would provide for the appropriate treatment of human remains. These actions would ensure that potential impacts to previously unidentified archaeological resources or human remains would result in a less-than-significant impact with the implementation of mitigation; *no effects*.

3.6.4 MITIGATION MEASURES

CR-1: Cultural Resources Training

Prior to commencement of any earth disturbance (e.g., clearing, grading, trenching, etc.), all construction personnel participating in the ground-disturbing activities and their supervisors shall receive training from a qualified archeologist and/or Native American representative regarding cultural and tribal cultural resources (TCR) and shall be given the opportunity to review the training materials and participate in the initial training.

CR-2: Inadvertent Discovery of Archaeological Resources

In the event of any inadvertent discovery of archaeological resources, all such finds shall be subject to Section 106 of the NHPA, the ARPA, NAGPRA, the Paleontological Resources Preservation Act, PRC § 21083.2 and CEQA Guidelines § 15064.5. Procedures for inadvertent discovery include the following.

- All work within 50 feet of the find shall halt until a professional archaeologist can evaluate the significance of the find in accordance with NRHP and CRHR criteria.
- If any find is determined to be significant by the archaeologist then representatives of the City and Shasta-Trinity National Forest shall meet with the archaeologist to determine the appropriate course of action. If necessary, a Treatment Plan shall be prepared by an archeologist outlining recovery of the resource, analysis, and reporting of the find. The Treatment Plan shall be submitted to the City and Shasta-Trinity National Forest for review and approval prior to resuming construction.
- All significant cultural materials recovered shall be subject to scientific analysis, professional curation, and a report prepared by the professional archaeologist according to current professional standards.

CR-3: Discovery of Human Remains

In the event that human remains are encountered during construction activities, all project-related ground disturbance within 100 feet of the find shall halt until the County coroner has been notified. If the coroner determines that the remains are Native American, the provisions of NAGPRA shall apply. Project-related ground disturbance in the vicinity of the find shall not resume until either NAGPRA or the process detailed in CEQA Guidelines § 15064.5 (e) has been completed.

3.7 ENERGY

3.7.1 ENVIRONMENTAL CHECKLIST

<u>ENERGY</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during proposed project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.7.2 SETTING

Regulatory Context

Federal

At the federal level, the EPA and the National Highway Traffic Safety Administration (NHTSA) have developed regulations to improve the efficiency of cars, and light-, medium-, and heavy-duty vehicles.

State

Warren-Alquist Act

The 1974 Warren-Alquist Act (P.R.C. § 25000 *et seq.*) established the California Energy Commission (CEC) and created a State policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Legislature continues to amend the Act to address pressing energy needs and issues, and the CEC publishes an updated version of the Act each year. The 2022 edition of the Warren-Alquist Act was published in January 2022.

State of California Integrated Energy Policy Report

Senate Bill (SB) 1389 requires the CEC to adopt an Integrated Energy Policy Report (IEPR) every two years. The IEPR contains an assessment of major energy trends and issues facing the electricity, natural gas, and transportation fuel sectors within California. The Report provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the economy of California; and protect public health and safety.

The IEPR calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the IEPR identifies a number of strategies, including assistance to public

agencies and fleet operators in implementing incentive programs for Zero Emission Vehicles and their infrastructure needs, and encouraging urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

California Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Non-Residential Buildings (California Building Energy Efficiency Standards) specified in Title 24, Part 6 of the CCR were established in 1978 in response to a legislative mandate to reduce energy consumption in California. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The most recent standards were adopted in 2022 and took effect on January 1, 2023 (for building permit applications submitted on or after that date). These standards are updated every three years. The new standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, and strengthen ventilation standards.

California Green Building Standards Code

The California Green Building Standards Code (CALGreen), specified in CCR, Title 24, Part 11, is a Statewide regulatory code for all buildings, residential and commercial included. The regulations are intended to encourage more sustainable and environmentally friendly building practices, require low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. The standards require that all new residential and non-residential development implement various energy conservation measures, including ceiling, wall, and concrete slab insulation; weather stripping on doors and windows; closeable doors on fireplaces; insulated heating and cooling ducts; water heater insulation blankets; and certified energy efficient appliances. CALGreen is updated periodically and the latest update, CALGreen 2022, became effective on January 1, 2023.

Renewables Portfolio Standard Program

The California Renewables Portfolio Standard (RPS) Program was established in 2002 by SB 1078 and requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide a certain percentage of their supply from renewable sources. The initial requirement was that at least 20% of electricity retail sales had to be served by renewable resources by 2017. The RPS Program was accelerated in 2015 with SB 350 that mandated a 50% RPS by 2030. In 2018, SB 100 was signed into law, increasing the RPS to 60% by 2030 and requiring all electricity in California to come from carbon-free resources by 2045.

Assembly Bill 1007 (Pavley)-Alternative Fuel Standards

Assembly Bill (AB) 1007, (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a State plan to increase the use of alternative fuels in California; therefore, the CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other local, State, and federal agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80% reduction in greenhouse gas (GHG) emissions associated with personal transportation, even as the population of California increases.

Local

Shasta County General Plan

There are no applicable County General Plan objectives or policies that apply to the proposed project.

City of Shasta Lake General Plan

The City’s General Plan Conservation Element includes the following energy objectives and policies that apply to the proposed project.

GOAL CON-4 Consider conservation practices in community planning decisions to reduce environmental pollutants, conserve energy and water resources, preserve critical wildlife habitats, and address climate change.

POLICY-CON-4.3 Promote cost-effective water and energy consumption in the City as much as possible; continue and build upon existing programs to reduce water and energy consumptions in the City.

Environmental Setting

The project site is located within the City of Shasta Lake and is surrounded by recreational and rural residential uses. Energy would be supplied to the project site by the City of Shasta Lake Electric Utility (Electric Utility).

City of Shasta Lake Electric Utility Operations

Electric Utility provides “bundled” services (i.e., electricity, transmission, and distribution services) to 4,600 customers within the City limits as well as adjacent areas, including residential, commercial, industrial, and agricultural consumers. Customers also can obtain electricity from self-generation resources like rooftop solar installations. Table ENE-1 provides the total energy consumption by industry from 2015-2020. In 2021, total energy use was 221.1 gigawatt-hours (City of Shasta Lake, 2022).

**TABLE ENE-1
City of Shasta Lake Electricity Consumption 2015-2020 (GWh)**

Year	Commercial Building	Industry	Residential	Streetlight	Total (gigawatt hours)
2015	11.15	140.20	38.23	-	189.58
2016	11.10	148.34	38.23	-	198.27
2017	11.13	138.68	40.92	0.14	190.87
2018	10.75	147.94	37.69	0.27	196.65
2019	10.02	145.30	38.70	0.27	194.29
2020	11.55	155.32	41.68	0.27	208.82

Source: City of Shasta Lake, 2022.

Renewable Energy Resources

California law requires load-serving entities, such as Electric Utility, to gradually increase the amount of renewable energy they deliver to their customers. SB 350 became effective on January 1, 2016, increasing the amount of renewable energy that must be delivered by most load-serving entities, such as Electric Utility, to their customers from 33% of their total annual retail sales by the end of the 2017-2020 compliance period to 50% of their total annual retail sales by the end of the 2028-2030 compliance period. In September 2018, the California Governor signed SB 100 into law, increasing the California electricity portfolio that must come from renewables from 50% to 60% by 2030; and establishing a State policy that 100% of all retail electricity sales must come from RPS-eligible or carbon-free resources by 2045.

Renewable generation resources for the purposes of the RPS Program include bioenergy such as biogas and biomass, certain hydroelectric facilities (30 megawatts or less), wind, solar, and geothermal energy.

3.7.3 DISCUSSION OF IMPACTS

Questions A and B

Construction

The proposed project consists of installing a new water storage tank in Shasta County on USFS land. Construction of the proposed project would consume energy primarily from fuel used by construction vehicles and equipment. Fossil fuels, mainly diesel and gasoline, would be used for construction vehicles and other equipment during site clearing, grading, paving, and building. However, the increase in fuels consumed during construction would be temporary in nature and would not represent a significant permanent increase in demand on available fuel. No component of the construction of the proposed project would result in the wasteful or inefficient consumption of fuel compared to other construction sites in the region or State.

Overall fuel and energy reductions are difficult to quantify; however, all construction vehicles and equipment would comply with the latest emissions standards. These standards would further reduce fuel and energy use during all stages of construction and avoid wasteful, inefficient, or unnecessary fuel energy consumption. Therefore, construction of the proposed project would not result in inefficient, wasteful, or unnecessary consumption of fuel energy as it would comply with relevant standards. Therefore, energy consumption during construction of the proposed development would be less than significant; *short term/localized and minor effect*.

Operation

The proposed project would replace the capacity of the two existing water tanks that have reached and/or exceeded their useful lives with a singular water storage tank. Electricity would be used to pump water in and out of the tank, to provide lighting, and to operate the facility. Fuel would also be used by vehicles traveling to and from the project site for routine maintenance activities. However, the new water storage tank would be developed in compliance with the latest energy efficiency standards, and routine maintenance would occur infrequently; excess consumption of fuels would not result. Furthermore, the proposed project would include the use of a gravity-assisted water pressure system that would help convey water from the water storage tank, reducing potential on- and off-site energy usage (Appendix A).

Electric Utility would provide electricity to the proposed project. Operation of the proposed project would not obstruct or conflict with current or future plans to grow renewable energy use by Electric Utility or any State or federal agency. Furthermore, the proposed project would consume approximately 1033.2 kilowatt-hours of energy per year, which is a negligible amount (0.000005%) compared to the 221.1-gigawatt hours of electricity provided by Electric Utility in 2021 (Appendix B). Accordingly, the proposed project would not conflict with a State or local plan for renewable energy or energy efficiency and would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, this impact would be less than significant; *short term/localized and minor effect*.

3.7.4 MITIGATION MEASURES

None required.

3.8 GEOLOGY/SOILS

3.8.1 ENVIRONMENTAL CHECKLIST

<u>GEOLOGY/SOILS</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: <ul style="list-style-type: none"> 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? 	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.8.2 SETTING

Regulatory Context

Federal

National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) created the National Earthquake Hazards Reduction Program (NEHRP), establishing a long-term earthquake risk reduction program to better understand, predict, and mitigate risks associated with seismic events. Four federal agencies are responsible for coordinating activities under NEHRP: the U.S. Geological Survey (USGS); National Science Foundation (NSF); FEMA; and National Institute of Standards and Technology. Since its inception, NEHRP has shifted its focus from earthquake prediction to hazard reduction. The current program objectives are as follows.

1. Developing effective measures to reduce earthquake hazards;
2. Promoting the adoption of earthquake hazard reduction activities by federal, state, and local governments, national building standards and model building code organizations, engineers, architects, building owners, and others who play a role in planning and constructing buildings, bridges, structures, and critical infrastructure or “lifelines;”
3. Improving the basic understanding of earthquakes and their effects on people and infrastructure through interdisciplinary research involving engineering, natural sciences, and social, economic, and decision sciences; and
4. Developing and maintaining the USGS seismic monitoring system (Advanced National Seismic System); the NSF-funded project aimed at improving materials, designs, and construction techniques (George E. Brown Jr. Network for Earthquake Engineering Simulation); and the global earthquake monitoring network (Global Seismic Network).

Implementation of NEHRP objectives is accomplished primarily through original research, publications, and recommendations and guidelines for state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation subtitle of the Omnibus Public Land Management Act, 16 USC 470aaa to 470aaa-11 requires the U.S. Department of Agriculture and the U.S. Department of the Interior to issue implementation regulations to provide for the preservation, management, and protection of paleontological resources on federal lands, and ensure that these resources are available for current and future generations to enjoy as part of America’s national heritage.

Paleontological resources are defined as the traces or remains of prehistoric plants and animals. Such remains often appear as fossilized or petrified skeletal matter, imprints or endocasts, and reside in sedimentary rock layers. Fossils are important resources, due to their scientific and educational value. Fossil remains of vertebrates are considered significant resources. Invertebrate fossils are considered significant if they function as index fossils. Index fossils are those that appear in the fossil record for a relatively short and known period of time, allowing geologists to interpret the age range of the geological formations in which they are found.

Significance for paleontological resources is reflected in terms of compliance with the Antiquities Act of 1906 (Public Law 59-209; 16 USC 431 *et seq.*; 34 Stat. 225), which calls for the protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal land. Additional provisions appear in the Archaeological and Historic Data Preservation Act of 1974, as amended, for the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data, in such cases wherein this type of data might be otherwise destroyed or irrecoverably lost as a result of federal projects.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (PRC § 2621 *et seq.*) was passed to reduce the risk to life and property from surface faulting in California. The Act prohibits construction of most types of structures intended for human occupancy on the surface traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). The Alquist-Priolo Act defines criteria for identifying active faults, giving legal weight to terms, such as “active,” and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are “sufficiently active” and “well defined.” Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Because the Alquist-Priolo Act does not prohibit construction of utility infrastructure, such as substations or powerlines, and the proposed project does not involve the development of structures intended for human occupancy; regulatory policies are not applicable to the proposed project.

California Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC §§ 2690-2699.6) establishes Statewide minimum public safety standards for mitigation of earthquake hazards. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act. Under the Seismic Hazards Mapping Act, the State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other seismic hazards, and cities and counties are required to regulate development within mapped seismic hazard zones. In addition, the Act addresses not only seismically induced hazards but also expansive soils, settlement, and slope stability. Under the Act, cities and counties may withhold the development permits for a site within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

California Building Code and International Building Code

Title 24 of the CCR is also known as the California Building Standards Code (CBC). The CBC specifies standards for geologic and seismic hazards other than surface faulting. These codes are administered and updated by the California Building Standards Commission. The CBC specifies criteria for open excavation, seismic design, and load-bearing capacity directly related to construction in California.

The 2012 IBC (known as the Uniform Building Code prior to 2000) was developed by the International Conference of Building Officials and is used by most states, including California, as well as local jurisdictions to set basic standards for acceptable design of structures and facilities. The IBC provides information on criteria for seismic design, construction, and load-bearing capacity associated with various buildings and other structures and features. Additionally, the IBC identifies design and construction requirements for addressing and mitigating potential geologic hazards. New construction generally must meet the requirements of the most recent version of the IBC.

Local

Shasta County General Plan

The County's General Plan includes the following objectives and policies that apply to the proposed project/

POLICY SG-d Shasta County shall develop and maintain standards for erosion and sediment control plans for new land use development. Special attention shall be given to erosion prone hillside areas, including those with extremely erodible soils types such as those evolved from decomposed granite.

City of Shasta Lake General Plan

The Conservation and Public Safety Elements of the City's General Plan include the following geological objectives and policies that apply to the proposed project.

Conservation Element

GOAL CON-4 Consider conservation practices in community planning decisions to reduce environmental pollutants, conserve energy and water resources, preserve critical wildlife habitats, and address climate change.

POLICY-CON-4.3 Promote cost-effective water and energy consumption in the City as much as possible; continue and build upon existing programs to reduce water and energy consumptions in the City.

POLICY-CON-4.5 Incorporate erosion mitigation practices into construction and development projects.

IMPLMNT-CON-4.1 Require construction best practices to reduce erosion that take into account site and climate conditions, consistent with the MS4 stormwater program standards.

Public Safety & Community Health Element

GOAL HS-6 Minimize the risk to life and property from geologic hazards.

POLICY-HS-6.1 Protect development from seismic hazards, and protect essential or critical structures, such as schools, public meeting facilities, emergency services, and high-rise and high-density structures, by developing standards appropriate for such protection.

POLICY-HS-6.2 Comply with State seismic and building standards in the design and siting of critical facilities, including hospital facilities, law enforcement and fire stations, school facilities, hazardous material manufacture and storage facilities, bridges, and large public assembly halls. Require all new buildings in the City be built under the seismic requirements of the currently adopted codes.

- POLICY-HS-6.4 Sedimentation and erosion from development shall be minimized through ordinances and implementation mechanisms as adopted by the City.
- POLICY-HS-6.5 Protect development from geologic hazards such as landslides, erosion, and expansive soils.

Environmental Setting

Regional Geology

The project site is located within the Cascade Range geomorphic province in western Shasta County (California Geological Survey [CGS], 2015c). The Cascade Range is a chain of volcanic cones extending from Washington to Oregon and into California (CGS, 2002). Mount Shasta is located approximately 40 miles north of the project site and Lassen Peak is approximately 20 miles southeast of the project site boundary. Mount Shasta erupts episodically with 10 or more eruptions occurring in short (500-2,000 year) time periods separated by long intervals (3,000-5,000 years) with few or no eruptions. Evidence suggests that magma most recently erupted at the surface about 3,200 years ago. (USGS, 2022a).

Over 50 non-explosive eruptions have occurred at Lassen Peak in the last 100,000 years. The area has been inactive for the last 25,000 years with three notable exceptions—the Chaos Crags eruption (1,100 years ago), the eruption of Cinder Cone (1666), and the Lassen Peak eruption (1914 to 1917). The Lassen Peak eruption consisted mostly of sporadic steam blasts. In May of 1915, however, partially molten rock oozing from the vent began building a precarious lava dome. The dome collapsed on May 19, 1915, sending an avalanche of hot rock down the north flank of the volcano. Three days later, a vertical column of ash exploded from the vent reaching altitudes of 30,000 feet (USGS, 2022b).

Site Topography

The project site is located approximately 0.2 miles southwest of Lake Shasta. The construction site is located on a relatively flat, cleared area southeast of the Lake Boulevard and Kennett Road intersection with an elevation of approximately 1,200 feet amsl (Appendix A). The construction site area has historically been used for storage and disposal of driftwood removed from the Centimudi Boat Launch. There are no mapped landslides or landslide features on the project site (USGS, 2023).

Regional Seismicity and Fault Zones

According to the USGS, the project site is located in a moderately high seismic hazard area (USGS, 2018). The Alquist-Priolo Act defines active faults as those that have shown seismic activity during the Holocene period, approximately the past 11,000 years, while potentially active faults are those that have shown activity within the Quaternary period, or the past 1.8 million years (CGS, 2019). The nearest active and potentially active fault zones are the Battle Creek Fault Zone, which is approximately 20 miles south of the project site near census-designated place of Cottonwood and the Hat Creek Fault Zone approximately 40 miles east of the project site near the census-designated Town of Burney (CGS, 2015a).

Soils

Soil types on the project site primarily consist of Boomer very stony clay loam and Goulding-Holland families association, which are soil types typical of areas with steep slope; the soils are well-drained (NRCS, 2022).

Liquefaction is the sudden loss of soil strength caused by seismic forces acting on water-saturated, granular soil, leading to a “quicksand” condition generating various types of ground failure. Soils comprised of sand and sandy loams that are in areas with high groundwater tables or high rainfall are subject to liquefaction. The soils on the project site are well drained and the groundwater table is deep; therefore, there is a low risk of liquefaction at the project site (NRCS, 2022). The soil on the project site where the water storage tank would be constructed has a plasticity index of 14.9%, which suggests that the soil is not expansive (NRCS, 2022).

Paleontological Resources

A search of the online archives of the University of California Museum of Paleontology (UCMP; UCMP, 2022) shows that 11,053 fossil specimens have been recorded in Shasta County, largely from Potter Creek Cave and Samwell Cave, north of the APE and on the far side of Shasta Lake. No paleontological resources were identified from the project site.

Methodology

The evaluation of impacts was qualitative in nature and considered whether and how construction and operation of the proposed project, reasonably foreseeable distribution components, and alternatives could directly or indirectly affect geology, soils, seismicity, and paleontological resources, as determined by the CEQA Guidelines Appendix G significance criteria. As described further below, the impact analysis also considered the California Supreme Court decision, California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369 (“CBIA v. BAAQMD”) that has bearing on the analysis of geology, soils, seismicity, and paleontological resources impacts.

3.8.3 DISCUSSION OF IMPACTS

Question A

Although the project site is located in an area has been subject to historic seismic ground shaking, there are no mapped surface faults on the project site that would have the potential to rupture and the project site is not near a designated Alquist-Priolo earthquake fault (DOC, 2022c). Construction of the proposed project would not increase the risk of ground shaking or fault rupture. The water tank would be designed to be structurally sound and constructed in compliance with the CBC, which requires the seismic-design response spectrum to be established and incorporated into the design of all new structures. Additionally, the proposed project would follow all design criteria listed in the City of Shasta Lake Code of Ordinances § 15.08.210, which includes stability measures. As described earlier, the potential for ground failure or liquefaction to occur is low due to the presence of a deep groundwater table and well-drained soil types on the project site (NRCS, 2022). The project site is not located in an area with any known landslides (DOC, 2022b). Therefore, impacts would be less-than-significant; *localized and minor effect*.

Question B

Construction of the proposed project would involve minor grading, trenching, and earth-moving activities, as well as installation of project components. Construction would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events, which could generate accelerated runoff, localized erosion, and sedimentation. Construction activities could exacerbate soil erosion and result in the loss of topsoil; this is a potentially significant impact. As described in the setting section above, the

construction site is a flat and cleared area requiring minimal grading and earthwork. Because the project would disturb less than 1 acre, a Stormwater Pollution Prevention Plan would not be required. Implementation of Mitigation Measure HYD-1 would ensure compliance with water quality standards during construction, as discussed in Section 3.11. This includes limiting ground disturbance areas, restoring disturbed areas to pre-construction contours, erosion control measures, and revegetation. Furthermore, implementation of Mitigation Measure HYD-1 would ensure that potential impacts resulting from soil erosion or the loss of topsoil would be reduced to a less-than-significant level.

During operation, there would be limited potential for erosion and loss of topsoil as the proposed project would alter the existing drainage patterns in the project area. Water falling on the new structure as precipitation would either flow to surrounding areas or directly infiltrate to the soil/groundwater below. Therefore, the impacts related to soil erosion and loss of topsoil would be less than significant with mitigation; *localized and minor effect*.

Questions C and D

As discussed previously, the soil on the project site where the water storage tank will be constructed has a plasticity index of 14.9 percent, which suggests that the soil is not expansive (NRCS, 2022). In addition, the soils on the project site are well drained and the groundwater table is deep; therefore, there is a low risk of liquefaction at the project site (NRCS, 2022). There are no mapped landslides or landslide features on the project site and the project site and surrounding area is relatively flat (CGS, 2015b). Therefore, the proposed project would not expose people or structures to substantial adverse effects from liquefaction, landslides, unstable geologic units or soils, or expansive soils. Furthermore, construction of the proposed project would not result in an increased risk of liquefaction, landslides, unstable geologic units or soils, or expansive soils. There would be no impact; *no effect*.

Question E

The proposed project does not involve the use of septic tanks or the disposal of wastewater. There would be no impact; *no effect*.

Question F

As described in Section 3.8.3, no known paleontological resources have been identified within the project site. However, as the project involves ground-disturbing activities during construction, there is the potential that previously unknown unique paleontological resources or sites could be encountered during subsurface construction activities. This is a potentially significant impact. In the event that paleontological resources or sites are found, Mitigation Measure GEO-1 would ensure that the proposed project would not directly or indirectly destroy a unique paleontological resource or site. Furthermore, no unique geological features are present on the project site. With adherence to the City's Standard Conditions of Approval, impacts to paleontological resources would be less than significant. Therefore, the impact would be less than significant; *localized and minor effect*.

3.8.4 MITIGATION MEASURES

None required.

3.9 GREENHOUSE GAS EMISSIONS

3.9.1 ENVIRONMENTAL CHECKLIST

<u>GREENHOUSE GAS EMISSIONS</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.9.2 SETTING

Regulatory Setting

Federal

This section describes the federal, State, and local regulations related to GHG emissions and climate change. At the federal level, the EPA has developed regulations to reduce GHG emissions from motor vehicles and has developed permitting and reporting requirements for large stationary emitters of GHGs. The EPA and NHTSA set standards for passenger cars and light trucks for the Corporate Average Fuel Economy standards and GHG emissions standards. In March 2020, NHTSA and the EPA revised these standards under the Safer Affordable Fuel-Efficient Vehicles Rule, which increases the stringency of fuel economy and carbon dioxide standards by 1.5% in stringency each year for model years 2021 through 2026.

State

California has been a leader among U.S. states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total Statewide GHG emissions in the future. The climate change strategy for California is multifaceted and involves a number of State agencies implementing a variety of laws and policies. A brief summary of these laws and policies is listed below.

Assembly Bill 1493

Signed by the California Governor in 2002, AB 1493 requires CARB to adopt regulations requiring a reduction in GHG emissions emitted by cars in the State. AB 1493 is intended to apply to 2009 and newer vehicles. On June 30, 2009, the EPA granted a necessary CWA waiver for California to implement AB 1493.

Executive Order S-3-05

Executive Order (EO) S-3-05 was signed by the California Governor on June 1, 2005 and established the following Statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010,
- Reduce GHG emissions to 1990 levels by 2020, and
- Reduce GHG emissions to 80% below 1990 levels by 2050.

EO S-3-05 created a Climate Action Team (CAT) headed by the California Environmental Protection Agency (CalEPA) that included several other State agencies. The CAT is tasked by EO S-3-05 with outlining the effects of climate change on California and recommending an adaptation plan, as well as creating a strategy to meet the emission reduction targets.

California Global Warming Solutions Act of 2006 (AB-32)

Signed by the California Governor on September 27, 2006, AB 32 codifies a key requirement of EO S-3-05, specifically the requirement to reduce GHG emissions in California to 1990 levels by 2020. AB 32 tasks CARB with monitoring State sources of GHGs and designing emission reduction measures to comply with emission reduction requirements. However, AB 32 also continues the efforts of the CAT to meet the requirements of EO S-3-05 and states that the CAT should coordinate overall State climate policy.

To accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly. In October 2007, CARB published a list of early action measures that it estimated could be implemented and would serve to meet about 25% of the required 2020 emissions reductions (CARB, 2007). To assist CARB in identifying early action measures, the CAT published a report in April 2007 that updated their 2006 report and identified strategies for reducing GHG emissions (CAT, 2007). In its October 2007 report, CARB cited the CAT strategies and other existing strategies that can be utilized to achieve the remainder of the emissions reductions (CARB, 2007). AB 32 requires that CARB prepare a comprehensive “scoping plan” that identifies all strategies necessary to fully achieve the required 2020 emissions reductions. Consequently, in December 2008, CARB released its scoping plan to the public; the plan was approved by CARB on December 12, 2008. An update to the Climate Change Scoping Plan occurred on May 22, 2014, and included new strategies and recommendations to ensure reduction goals of near-term 2020 would be met with consideration of current climate science.

A second update to the Climate Change Scoping Plan was adopted on December 14, 2017. The 2017 Scoping Plan Update addresses the 2030 target established by SB 32, as discussed below, and establishes a proposed framework of action for California to meet a 40% reduction in GHG by 2030 compared to 1990 levels. The key programs that the 2017 Scoping Plan Update builds on include the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, an increase in the use of renewable energy in the State, and a reduction of methane emissions from agricultural and other wastes (CARB, 2017).

Executive Order S-01-07

Executive Order S-01-07 was signed by the California Governor on January 18, 2007. It mandates a Statewide goal to reduce the carbon intensity of transportation fuels by at least 10% by 2020. This target

reduction was identified by CARB as one of the AB 32 early action measures in the October 2007 report (CARB, 2007).

Senate Bill 375

Senate Bill 375 was approved by the California Governor on September 30, 2008. SB 375 provides for the creation of a new regional planning document called a “Sustainable Communities Strategy” (SCS). An SCS is a blueprint for regional transportation infrastructure and development that is designed to reduce GHG emissions from cars and light trucks to target levels set by CARB for 18 regions throughout California. Each of the various metropolitan planning organizations must prepare an SCS that is included in their respective regional transportation plan. An SCS influences transportation, housing, and land use planning. CARB then determines whether the SCS will achieve regional GHG emissions reduction goals.

Senate Bill 605

On September 21, 2014, Governor Jerry Brown signed SB 605 that requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the State no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means “an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide.” SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, CARB completed an inventory of sources and emissions of short-lived climate pollutants in the State based on available data, identified research needs to address any data gaps, identified existing and potential new control measures to reduce emissions, and prioritized the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.

The final strategy released by CARB in March 2017 focuses on methane, black carbon, and fluorinated gases, particularly hydrofluorocarbons (HFC), as important short-lived climate pollutants. The final strategy recognizes emission reduction efforts implemented under AB 32 (e.g., refrigerant management programs) and other regulatory programs (e.g., in-use diesel engines, solid waste diversion). The measures identified in the final strategy and their expected emission reductions will feed into the update to the CARB Scoping Plan.

Executive Order B-30-15

Executive Order B-30-15 was signed by the California Governor on April 29, 2015. It sets interim GHG targets of 40% below 1990 levels by the year 2030, to ensure California will meet its 2050 targets set by EO S-3-05. It also directs CARB to update the Climate Change Scoping Plan. The 2030 Target Scoping Plan Concept Paper was released on June 17, 2016.

Senate Bill 350

Senate Bill 350 codifies the GHG targets for 2030 set by EO B-30-15. To meet these goals, SB 350 also raises the California RPS from 33% renewable generation by 2020 to 50% renewable generation by December 31, 2030.

Senate Bill 32

Additionally, SB 32, signed in 2016, further strengthens AB 32 with goals of reducing GHG emissions to 40% below 1990 levels by 2030. Based on GHG emissions inventory data compiled by CARB through 2017 and the emission limit of 431 million metric tons (MT) of carbon dioxide equivalents (CO₂e) established in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report, California emission reduction goals for near-term 2020 will be met.

California Renewable Portfolio Standards - SB 1078, SB 350, and SB 100

The California RPS Program was established in 2002 by SB 1078 and requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide a certain percentage of their supply from renewable sources. The initial requirement was for at least 20% of electricity retail sales to be served by renewable resources by 2017. The RPS Program was accelerated in 2015 with SB 350 which mandated a 50% RPS by 2030. In 2018, SB 100 was signed into law, which again increased the RPS to 60% by 2030 and requires all electricity in the State to come from carbon-free resources by 2045.

Senate Bill 743

Senate Bill 743 changes how public agencies must evaluate the transportation impacts of projects under CEQA. The bill required revisions to the CEQA Guidelines that would establish new criteria for determining the significance of a project's transportation impacts that will more appropriately balance the needs of congestion management with Statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHG emissions. As required under SB 743, the Governor's Office of Planning and Research (OPR) developed potential metrics to measure transportation impacts that may include, but are not limited to, VMT, VMT per capita, automobile trip generation rates, or automobile trips generated. The new metric would replace the use of automobile delay and level of service as the metric to analyze transportation impacts under CEQA. The OPR recommends different thresholds of significance for projects depending on land use types. For example, residential and office space projects must demonstrate a VMT level that is 15% less than that of existing development to determine whether the mobile-source GHG emissions associated with a project are consistent with Statewide GHG reduction targets. With respect to retail land uses, any net increase of VMT may be sufficient to indicate a significant transportation impact.

Local**Shasta County**

Shasta County developed a draft Shasta Regional Climate Action Plan (RCAP) in August 2012 (County, 2012). The RCAP includes GHG inventories and projections for each jurisdiction in Shasta County for 2008, 2020, 2035, and 2050. The plan also shows that Shasta County would achieve a reduction in GHG emissions in the year 2020 below 2008 business as usual emissions with the implementation of State and federal reduction measures. Shasta County has not adopted thresholds of significance for GHGs. According to SCAQMD staff, the County's GHG policy is to quantify, minimize, and mitigate GHG emissions, as feasible.

City of Shasta Lake

Chapter 4 of the RCAP is specific to the City. Although the City has not adopted the RCAP, the RCAP provides background information regarding GHG emissions in the City, as well as recommended GHG reduction measures that can be considered in developing mitigation measures for projects within the City.

Environmental Setting

“Global warming” and “climate change” are common terms used to describe the increase in the average temperature of the earth’s near-surface air and oceans since the mid-20th century. Natural processes and human actions have been identified as impacting climate. The IPCC has concluded that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. Since the 19th century, however, increasing GHG concentrations resulting from human activity such as fossil fuel combustion, deforestation, and other activities are considered to be a major factor in climate change. GHGs in the atmosphere naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space, which is a phenomenon sometimes referred to as the “greenhouse effect.” Some GHGs occur naturally and are necessary to keep the earth’s surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have trapped solar radiation and decreased the amount that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), HFCs, perfluorocarbons (PFC), and sulfur hexafluoride (SF₆) are the principal GHGs. When concentrations of these gases exceed historical concentrations in the atmosphere, the greenhouse effect is intensified. CO₂, CH₄, and N₂O occur naturally and are also generated through human activity. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing, natural gas leaks from pipelines, and industrial processes, and incomplete combustion associated with agricultural practices, landfills, energy providers and other industrial facilities. Other human-generated GHGs include fluorinated gases such as HFCs, PFCs, and SF₆, which have much higher heat-absorption potential than CO₂ and are byproducts of certain industrial processes.

CO₂ is the reference gas for climate change and is the GHG emitted in the highest volume. The effect that each GHG has on global warming is the product of the mass of their emissions and their global warming potential (GWP). GWP indicates how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO₂. For example, CH₄ and N₂O are substantially more potent GHGs than CO₂, with GWPs of approximately 30 and approximately 275 times that of CO₂, which has a GWP of 1.

In emissions inventories, GHG emissions are typically reported as MT of CO₂e. CO₂e is calculated as the product of the mass emitted by a given GHG and its specific GWP. While CH₄ and N₂O have much higher GWPs than CO₂, CO₂ is emitted in higher quantities and accounts for the majority of GHG emissions in CO₂e, both from commercial developments and human activity.

3.9.3 DISCUSSION OF IMPACTS

Thresholds of Significance

Criteria for determining the significance of impacts due to GHG emissions have been developed based on Appendix G of the CEQA Guidelines and relevant agency thresholds. Impacts due to GHG emissions would be considered significant if the proposed project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The SCAQMD has not established CEQA thresholds for GHG emissions. However, the Bay Area Air Quality Management District (BAAQMD) has established GHG thresholds that are used by several air districts in northern California. Other air districts that currently use BAAQMD's significance thresholds include the Northern Sonoma Air Quality Management District, the Placer County Air Quality Control District, the Yolo-Solano Air Quality Management District, and the Feather River Air Quality Management District. Consequently, the City, in its discretion, has determined that the BAAQMD's GHG thresholds are appropriate to use to evaluate the significance of the proposed project's GHG emissions.

The quantitative thresholds developed by BAAQMD were formulated based on AB 32 and California Climate Change Scoping Plan reduction targets. Thus, a project cannot exceed a numeric BAAQMD threshold without also conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (the State Climate Change Scoping Plan). Therefore, if a project exceeds a numeric threshold and results in a significant cumulative impact, it would also result in a significant cumulative impact with respect to plan, policy, or regulation consistency, even though the project may incorporate measures and have features that would reduce its contribution to cumulative GHG emissions.

BAAQMD provides multiple options in its 2017 CEQA Guidelines for analysis of GHG emissions generated from operations. At the time of this analysis, BAAQMD has not yet provided a construction-related GHG generation threshold, but it does recommend that construction-generated GHGs be quantified and disclosed. The thresholds suggested by BAAQMD are as follows:

- Compliance with a qualified GHG reduction strategy; or
- 1,100 MT of CO₂e per year; or
- 4.6 MT of CO₂e per service population (employees plus residents) per year (for 2020) or 2.6 MT CO₂e per service population (for 2030).

Consistent with the BAAQMD guidelines, this analysis uses the 1,100 metric tons of CO₂e per year threshold to evaluate GHG emissions for the proposed project.

Methodology

Construction and operational GHG emissions were estimated using the CalEEMod Version 2020.4.0 air quality model. Construction and operation are considered not to overlap and, therefore, are analyzed separately. It is assumed that construction would last approximately six months, and the first full year of operation would occur in 2025.

Construction GHG emissions from on- and off-road vehicle operation and stationary sources emissions from operation of air compressors and generators were estimated for each construction phase. The model estimates emissions for a variety of sources, including transportation, electricity use, natural gas use, and solid waste disposal. Proposed project-specific construction CalEEMod inputs are provided in the CalEEMod Inputs Table included as Appendix B.

Operational GHG emissions from build-out of the proposed project were estimated using CalEEMod and included direct mobile sources, including commercial vehicle trips, as well as indirect GHG emissions sources from electricity use. Project-specific operational CalEEMod inputs are provided in the CalEEMod Inputs Table included as Appendix B.

Questions A and B

The proposed project would directly generate limited amounts of GHGs during short-term construction activities. Operation of the proposed project would result in GHG emissions from area, energy, and mobile sources. GHG emissions from the proposed project are presented in Table GHG-1. As shown in Table GHG-1, the proposed project would result in approximately 3.53 MT of CO₂e per year, which would not exceed the BAAQMD threshold of significance.

There are no adopted local plans associated with GHG emissions. As described above, the BAAQMD thresholds of significance were based on AB 32 and California Climate Change Scoping Plan reduction targets. A project that meets the BAAQMD numeric thresholds would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (AB 32 and California Climate Change Scoping Plan). Table GHG-1 provides the proposed project’s construction-related GHG emissions.

**Table GHG-1
Construction-Related GHG Emissions**

Emission Source	GHG Emissions	
	Unmitigated	Mitigated
Construction (MT CO₂e)		
Construction	96.06	96.06
Operation (MT CO₂e/year)		
Area	0.00	0.00
Energy	0.23	0.23
Mobile	0.10	0.10
Waste	0.00	0.00
Water	0.00	0.00
<i>Operation Subtotal</i>	<i>0.33</i>	<i>0.33</i>
<i>Amortized Construction¹</i>	<i>3.20</i>	<i>3.20</i>
Total Project-Related GHG Emissions	3.53	3.53
BAAQMD Threshold (MT CO ₂ e/yr)	1,100	1,100
Above Threshold?	No	No
Notes: ¹ Construction-related GHG emissions were amortized over the life of the proposed project (30 years) to determine annual construction emissions. Acronyms: CO ₂ e = carbon dioxide equivalents; GHG = greenhouse gas; MT = metric tons Source: Appendix B.		

As shown in Table GHG-1, the proposed project would generate GHG emissions below the BAAQMD threshold of significance after mitigation. Therefore, the proposed project would not conflict with a plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The impact would be less than significant; *short term/localized and minor effect*.

3.9.4 MITIGATION MEASURES

None required.

3.10 HAZARDS AND HAZARDOUS MATERIALS

3.10.1 ENVIRONMENTAL CHECKLIST

<u>HAZARDS AND HAZARDOUS MATERIALS</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the proposed project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.10.2 SETTING

Regulatory Context

Federal

U.S. Environmental Protection Agency

The EPA administers numerous statutes pertaining to human health and the environment. The EPA regulates toxic air contaminants through its implementation of the CAA. Although the CAA covers a range of air pollutants, Section 112(r) specifically covers “extremely hazardous materials” which include acutely toxic, extremely flammable, and highly explosive substances. Section 112(r) (referred to as the EPA’s Risk Management Plan [RMP]) requires facilities involved in the use or storage of extremely hazardous materials to implement an RMP. An RMP requires a detailed analysis of potential accident factors present at a facility and requires the implementation of mitigation measures designed to reduce the identified accident potential.

The EPA also regulates the land disposal of hazardous materials through the Resource Conservation and Recovery Act (RCRA). Under RCRA, the EPA regulates the activities of waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). RCRA further requires the tracking of hazardous waste from its generation to its final disposal through a process often referred to as the “cradle-to-grave” regulation. The “cradle-to-grave” regulation requires detailed documentation and record keeping for hazardous materials generators, transporters, and/or handlers in order to ensure proper accountability for violations.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (more commonly known as CERCLA) provides a federal fund to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through various enforcement mechanisms, the EPA obtains private party cleanup orders and recovers costs from financially viable individuals and companies once a response action has been completed. Uncontrolled or abandoned hazardous waste site identification, monitoring, and response activities in states are coordinated through the respective state environmental protection or waste management agencies.

U.S. Department of Transportation

The U.S. Department of Transportation regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This Act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

State

Definition of Hazardous Material

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the CCR as:

A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may

either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed” (CCR, Title 22, § 66260.10).

Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the RCRA and the State Hazardous Waste Control Law. Both laws impose “cradle-to-grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

California Occupational Safety and Health Administration

California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in the State. Cal/OSHA regulations concerning the use of hazardous materials in the workplace, as detailed in Title 8 of the CCR, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation.

Cal/OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Safety Data Sheets be available to employees and that employee information and training programs be documented.

Regional Water Quality Control Board

The SWRCB and RWQCBs also regulate hazardous substances, materials, and wastes through a variety of State statutes including, for example, the Porter-Cologne Water Quality Control Act, Cal. Water Code § 13000 *et seq.*, and the underground storage tank cleanup laws (Cal. Health and Safety Code §§ 25280-25299.8). RWQCBs regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. Any person proposing to discharge waste within any region must file a report of waste discharge with the appropriate regional board.

Local

Shasta County Environmental Health Division

The Shasta County Environmental Health Division has been designated by CalEPA as the Certified Unified Program Agency (CUPA) for Shasta County. Shasta County is responsible for permitting, inspections, and/or enforcement for the following Unified Programs: Hazardous Materials Area Plans, Hazardous Materials Business Plans, Hazardous Waste and Hazardous Waste Treatment, Underground Storage Tanks, Aboveground Petroleum Spill Prevention, Control, and Countermeasure Plans, and California Accidental Release Prevention.

Shasta County Hazardous Materials Area Plan

The Shasta County Hazardous Materials Area Plan (County, 2018) includes measures to protect the health and safety of Shasta County's citizens and the environment from the effects of hazardous materials emergency incidents in the County, including incidents in the cities of Redding, Anderson, and Shasta Lake. The Area Plan describes the County's pre-incident planning and preparedness for hazardous materials releases; clarifies the roles and responsibilities of federal, State, and local agencies during a hazardous materials incident; and describes the County's hazardous materials incident response program, training, communications, and post-incident recovery procedures. The Area Plan describes operational and general response procedures for the Shasta-Cascade Hazardous Materials Response Team, which is the primary hazardous materials response group for Shasta County.

Shasta County Emergency Operations Plan

The Shasta County Emergency Operations Plan (EOP) is the primary emergency planning and management document within the County (County, 2014). The EOP provides a framework for coordinated response and recovery activities during a large-scale emergency and describes how various agencies and organizations in the County (e.g., federal, State, local, and tribal governments and agencies, community organizations, faith-based organizations, private-sector partners, etc.) would coordinate resources and activities. The EOP is activated in response to emergencies and disasters in the community, including hazardous materials incidents, when additional resources or extended response activities are needed. Government Code § 8607(a) requires the use of the Standardized Emergency Management System (SEMS) for managing emergencies involving multiple jurisdictions and agencies as outlined in the CCR §§ 2400-2450. The EOS is based on the functions and principles of SEMS.

City of Shasta Lake Local Hazard Mitigation Plan

The City of Shasta Lake Local Hazard Mitigation Plan (LHMP) updates the 2014 FEMA-approved City of Shasta Lake LHMP. The purpose of hazard mitigation plan is to reduce or eliminate long-term risk to people and property from hazards. The LHMP update documents the hazard mitigation planning process and identifies relevant hazards and vulnerabilities and strategies the City will use to decrease vulnerability and increase resiliency and sustainability in the community.

City of Shasta Lake General Plan

The City's General Plan Public Safety Element does not include hazards objectives and policies that apply to the proposed project.

Environmental Setting

Study Area and Adjacent Property Database Reports

Database searches were conducted for records of known storage tank sites and known sites of hazardous materials generation, storage, and/or contamination within the vicinity of the project site. The following database resources were reviewed:

- List of Hazardous Waste and Substances sites from the DTSC EnviroStor database (DTSC, 2022);
- Map of Leaking Underground Storage Tank (LUST) Site Locations by County and Fiscal Year from the SWRCB GeoTracker database (SWRCB, 2022a);

- List of solid waste disposal sites identified by the SWRCB with waste constituents above hazardous waste levels outside the waste management unit (SWRCB, 2022b);
- List of “active” Cease and Desist Orders and Cleanup and Abatement Orders from the SWRCB (CalEPA, 2020a); and
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by the DTSC (CalEPA, 2020b).
- The Cortese List is prepared in accordance with California Government Code § 65962.5. The list of hazardous waste and substances sites from the DTSC’s EnviroStor and the SWRCB’s GeoTracker databases were reviewed to locate "Cortese List" sites. The nearest GeoTracker listings in relation to the project site include two LUSTs, which have been remediated. One site is located at Digger Bay Marina, which is approximately 1.16 miles to the northeast and the other is located at the Shasta Dam Visitor Center, approximately 1.07 miles to the west). The next closest listing from the EnviroStor database is the Valley Plating Company, which is located approximately 3.0 miles south of the project site; the company has been out of operation since April of 1989 and the site is in the process of closure.

3.10.3 DISCUSSION OF IMPACTS

Methodology

Sensitive Receptors

Sensitive receptors are primarily those that have the potential to come in contact with hazardous material in its concentrated form. The surrounding land uses and occupants are identified as potential sensitive receptors. The nearest sensitive receptors to the project site are the Shasta Dam Visitor Center located approximately 0.5 miles west of the proposed water tank location and a cluster of residences located on Lake Boulevard approximately 0.5 miles south of the project site.

Question A

Construction activities for the proposed project would require handling of hazardous materials, such as fuels, lubricating fluids, and solvents for use with construction equipment onsite. Accidental spills or improper use, storage, transport, or disposal of these hazardous materials could result in a public hazard or the transport of hazardous materials (particularly during storm events) to the underlying soils and groundwater.

Although these hazardous materials could pose a hazard, proposed project activities would be required to comply with extensive regulations so that substantial risks would not result. Examples of compliance with these regulations would include preparation of a hazardous materials business plan, which would include a training program for employees, an inventory of hazardous materials, and an emergency plan. All storage, handling, and disposal of these materials would be performed in accordance with regulations established by DTSC, EPA, the Occupational Safety and Health Administration, the California Governor’s Office of Emergency Services, CUPA, and Cal/OSHA. As a result of compliance with the applicable regulations as described above, no significant risks would result to construction workers, the public, or the environment from the construction-related transport, use, storage, or disposal of hazardous materials. Additionally, Mitigation Measure HAZ-2 requires specific measures for spill prevention and containment of hazardous

materials on the project site during construction. During operation, the proposed project would not require the routine transport, use, or disposal of hazardous materials. With implementation of mitigation measures and requirements identified above, impacts associated with transport, use, or disposal of hazardous materials would be reduced to less-than-significant with mitigation. Therefore, the impact would be less than significant with mitigation; *localized and minor effect*.

Question B

During operation, the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials. Construction of the project would involve temporary use of hazardous materials, including fuel for construction equipment, paints, solvents, and sealants. Storage, handling, and use of these materials would occur in accordance with standard construction BMPs to minimize the potential for spill or release and ensure that any such spill or release would be controlled onsite. Construction plans and specifications would include standard construction BMPs for handling, storage, use, and disposal of hazardous materials, such as the requirement to contain materials inside buildings or under other cover, vehicle specifications for hazardous material transport and disposal, procedures for safe storage, and training requirements for those handling hazardous materials. Additionally, Mitigation Measure HAZ-2 requires specific measures for spill prevention and containment of hazardous materials on the project site during construction. Compliance with standard construction specifications, and Mitigation Measures HAZ-2 and HYD-1 would ensure that impacts would be less-than-significant with mitigation incorporated. Therefore, the impact would be less than significant with mitigation; *localized and minor effect*.

Question C

No schools are located within one-quarter mile of the project site. The nearest school is the Mountain Lakes High School, which is located approximately 1.4 miles south of the project site. There would be no impact; *no effect*.

Question D

As discussed in the Section 3.10.2, project site is not located on a site or immediately adjacent to a site included on a hazardous materials list and, therefore, would not create a significant hazard to the public or the environment. There would be no impact; *no effect*.

Question E

The project site is not located within an airport land use plan. No airports are located within 2 miles of the project site. The nearest airport is the Tews Field Airport, which is a private airstrip located approximately 4.9 miles southeast of the project site. There would be no impact; *no effect*.

Question F

During construction of the proposed project, one lane of Lake Boulevard would be required to temporarily close due to construction. Lane closures, if not properly regulated, would interfere with an adopted emergency response or evacuation plan, which would be a potentially significant impact. However, as described in Section 3.18.4, Mitigation Measures T-1 requires that a Construction Traffic Control Plan (CTCP) be developed prior to the start of construction activities. The CTCP would require that adequate

emergency access is provided to all adjacent land use during construction activities. Therefore, with implementation of Mitigation Measures T-1, the proposed project would not interfere with an adopted emergency response plan or emergency evacuation plan in place through the State, County, or City. Impacts would be less than significant with mitigation; *short term/localized and minor effect*.

Question G

Explained further in Section 3.21, the proposed project is not located in a fire hazard severity zone and during operation would not expose people to wildfire hazards. However, the surrounding topography does involve unique slopes and other factors that would exacerbate wildfire risks. Activities associated with the construction of the proposed project would involve the use of potentially spark-producing construction equipment, which would temporarily increase the risk of fire ignition. To reduce the risk of wildland fires, Mitigation Measure HAZ-1 would be required to mitigate the potential to ignite fires during construction, such as requiring construction equipment to be equipped with a spark arrester in good working order. During operation, the proposed project would not increase the risk of wildfire ignition onsite as electric utilities to the project site would be undergrounded and would not require the storage of petroleum-based products onsite. Therefore, with implementation of Mitigation Measure HAZ-1, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, and impacts would be less than significant with mitigation; *short term/localized and minor effect*.

3.10.4 MITIGATION MEASURES

HAZ-1: Construction Hazards Reduction

During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a fire break. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

The following measures shall be implemented to reduce impacts from hazardous materials during construction:

- Potentially hazardous materials, including fuels, shall be stored away from drainages and secondary containment shall be provided for all hazardous materials during construction.
- Vehicles and equipment used during construction shall be provided proper and timely maintenance to reduce the potential for mechanical breakdowns leading to spills.
- Maintenance and fueling shall be conducted in an area that meets the criteria set forth in the spill prevention plan.
- If contaminated soil and/or groundwater is encountered or if suspected contamination is encountered during project construction, work shall be halted in the area, and the type and extent of the contamination shall be identified. A qualified professional, in consultation with the USFS and the EPA shall then develop an appropriate method to remediate the contamination. If necessary, a remediation plan approved by the EPA shall be prepared and implemented for the duration of construction of the proposed project.

HAZ-2: Accidental Spill Prevention and Response Plan

- Potentially hazardous materials, including fuels, shall be stored away from drainages and secondary containment shall be provided for hazardous materials during construction.
- A spill prevention, storage, and disposal plan shall be developed as a part of the water pollution control plan, prepared by the contractor and approved by the City and USFS and shall identify proper storage, collection, and disposal measures for potential pollutants used onsite, as well as proper cleanup and reporting procedures. The plan shall contain an inventory of potentially hazardous materials stored and used onsite, emergency response protocols for the release and disposal of unused hazardous materials, and employee training of emergency response procedures.

3.11 HYDROLOGY/WATER QUALITY

3.11.1 ENVIRONMENTAL CHECKLIST

<u>HYDROLOGY/WATER QUALITY</u>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 which would: <ul style="list-style-type: none"> i) result in a substantial erosion or siltation on- or offsite; 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? 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.11.2 SETTING

Regulatory Context

Federal

Water Resources

The federal Water Pollution Control Act (33 USC § 1251 et. seq.), otherwise known as the CWA, sets forth national goals that waters shall be “fishable, swimmable” waters (CWA § 101 (a)(2)). To enforce the goals of the CWA, the EPA established the National Pollutant Discharge Elimination System (NPDES). The NPDES is a national program for regulating and administering permits for discharges to receiving waters, including nonpoint sources. Under §1251 (b) of the CWA, Congress and the EPA must recognize and preserve the primary responsibilities and rights of states concerning the reduction of pollution in water resources. The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) gives the ultimate authority over California water rights and water quality policy to the SWRCB. The Porter-Cologne Act also established nine RWQCBs to ensure that water quality on local/regional levels is maintained. The project site is located in Region 5, Central Valley RWQCB.

The USFS has issued the National Best Management Practices for Water Quality Management on National Forest System Lands, which is technical guide for the implementation of BMPs in compliance with the CWA and state Regulations (USFS, 2012). The USFS also issued a Water Quality Management for Forest System Lands in California, Best Management Practices to provide regional BMP guidance for the Pacific Southwest Region (Region 5). Region 5 is the designated water quality management agency for USFS lands in California (USFS, 2000). Section 208 of the CWA requires area-wide waste treatment management plans and water quality management plans for nonpoint sources of pollution (an unidentifiable source that is not discharged at a specific, single location). In addition, Section 319 of the CWA addresses nonpoint source pollution and also requires development of water quality management plans (USFS, 2000).

Sole Source Aquifers

Under 40 CFR Part 149, sole source groundwater aquifers are given protection from federally funded projects that would potentially impact the use of the aquifer as a potable water supply. The Sole Source Aquifer (SSA) program allows the EPA to perform environmental review of projects that are financed or are provided financial assistance from federal grants or federal loan guarantees. To become designated as an SSA, an individual, corporation, association, or federal, state, or local agency may petition the EPA, provided the petition includes sufficient hydrogeologic information to confirm that the aquifer provides more than 50% of a community’s water supply.

Currently, Region 9 of the EPA (California, Nevada, Arizona, Hawaii, and other U.S. Territories) has designated nine SSAs, with three designated in California (EPA, 2022). The project site is not located within a designated SSA (EPA, 2022).

Floodplain

Executive Order 11988 requires that federal agencies evaluate the potential effects of any actions they may take in a floodplain. Specifically, the EO states that agencies shall first determine whether the proposed action would occur in a floodplain. If an agency proposes to allow an action to be located in a floodplain, “the agency shall consider alternatives to avoid adverse effects and incompatible development in the

floodplains.” Finally, if the only practicable alternative action requires siting in a floodplain, the agency shall “minimize potential harm to or within the floodplain.”

The Disaster Relief Act of 1974 as amended by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 is the action that created FEMA; FEMA is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for distributing Flood Insurance Rate Maps (FIRM), which are used in the National Flood Insurance Program. These maps identify the locations of special flood hazard areas, including 100-year floodplains. A 100-year flood event is defined as a flood event which has a one percent chance of occurring in any given year. The 100-year and 500-year floodplains correspond to a 1% and 0.2% annual chance of a flood, respectively.

Northwest Forest Plan

The Northwest Forest Plan (NWFP) provides a landscape approach to federal land management that is designed to protect threatened and endangered species as well as contribute to social and economic sustainability within 24.5 million acres of federally-managed lands in western Oregon, Washington, and northwestern California. The Plan includes land use categories and an aquatic conservation strategy, each of which have associated standards and guidelines for management activities. The aquatic conservation strategy has the primary objective of maintaining and restoring the distribution, diversity, and complexity of watershed-level features and processes to which aquatic and riparian species are uniquely adapted. It includes the goal of maintaining and restoring water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code § 13000 *et seq.*) provides the basis for water quality regulation within California. The Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the State. The RWQCB implements waste discharge requirements identified in the Report of Waste Discharge.

State Non-Degradation Policy

In 1968, as required under the federal Anti-Degradation Policy described previously, the SWRCB adopted a Non-Degradation Policy aimed at maintaining high quality for waters in California. The Non-Degradation Policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

1. Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the State and would not unreasonably affect present and anticipated beneficial uses of such water.

2. Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements that would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the State would be maintained.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) requires local agencies to form groundwater sustainability agencies (GSA) for the high and medium priority basins. GSAs develop and implement groundwater sustainability plans (GSP) to avoid undesirable results and mitigate overdraft within 20 years.

Local

Shasta County General Plan

The County’s General Plan includes the following objectives and policies that apply to the proposed project.

POLICY W-a Sedimentation and erosion from proposed developments shall be minimized through grading and hillside development ordinances and other similar safeguards as adopted and implemented by the County.

City of Shasta Lake General Plan

The City’s General Plan Conservation Element includes the following hydrological objectives and policies that apply to the proposed project.

Conservation Element

POLICY CON-11 Protect and improve the quality of surface water.

Environmental Setting

Upper Sacramento River Watershed

The project site is located approximately 0.12 miles south of Lake Shasta and approximately 700 feet south of the Centimudi Boat Launch, which provides access to the lake. Lake Shasta, including the project site is located within the Upper Sacramento River Watershed. The Upper Sacramento River Watershed is approximately 600 square miles. The Upper Sacramento River originates from water flowing off Mount Shasta to the north and from the Klamath Mountains to the west. The river flows south for approximately 40 miles, joined by numerous tributary streams, and empties into Lake Shasta above Shasta Dam. Wilderness, high mountains, and numerous lakes and streams, together with an abundance of public land, make this watershed a center for outdoor recreation. Prominent features in the watershed include Lake Shasta and Shasta Dam (Sacramento River Watershed Program, 2022). As listed in Table 2-1 and shown on Figure 2-1 of the Basin Plan, beneficial uses of Shasta Lake include municipal and domestic water supply irrigation, power, recreation, spawning, and wildlife habitat (RWQCB, 2019).

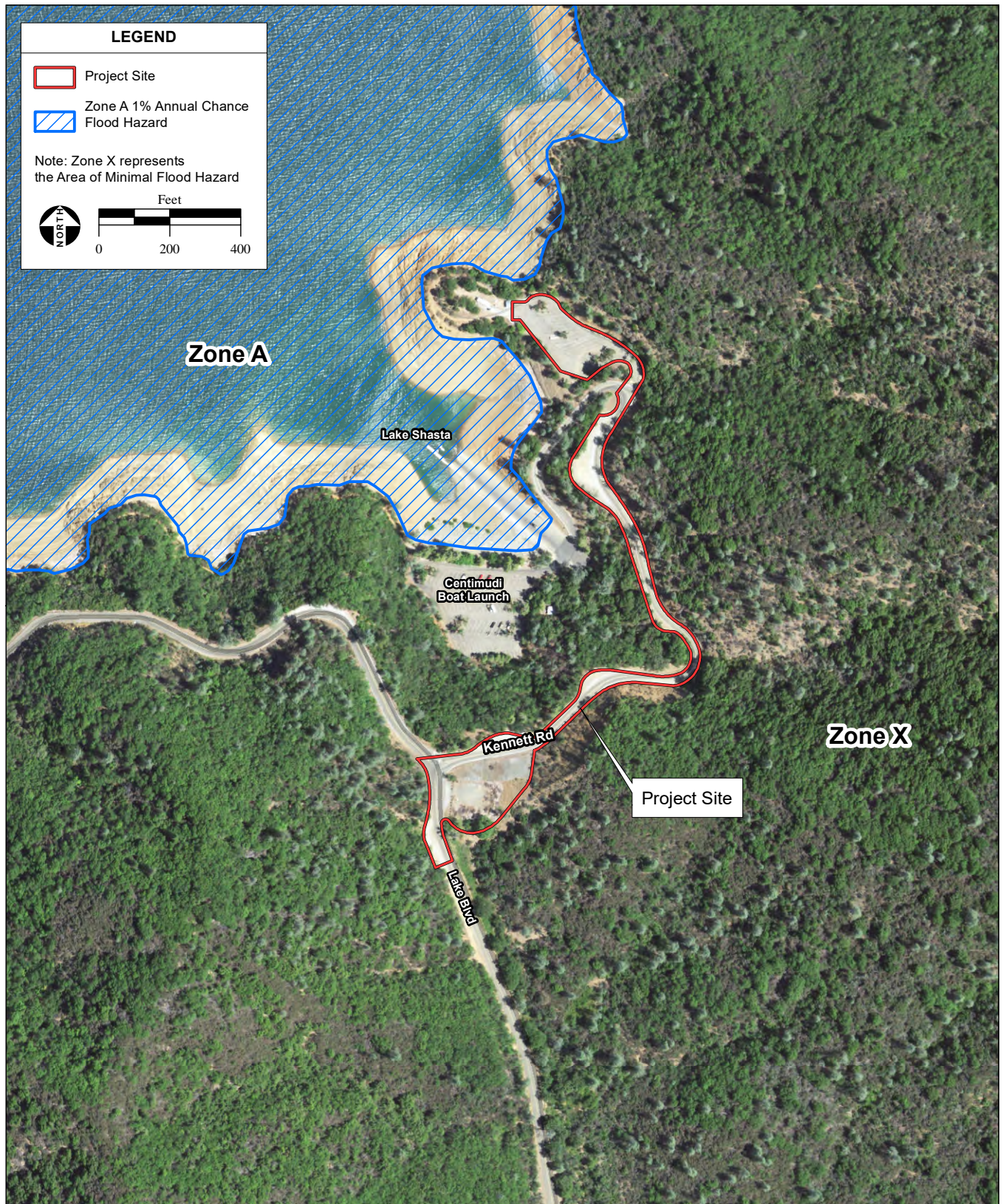
The Upper Sacramento River Watershed is located within hydrologic unit code 1802005 (USGS, 2020). The average annual rainfall for the City of Shasta Lake is 65.82 inches, the majority of which occurs between December and March (U.S. Climate Data, 2022).

Water Quality

Lake Shasta is listed on the CWA Section 303(d) list of impaired waterbodies for mercury and metals. The source of these pollutants is unknown. As required by the CWA, a Total Maximum Daily Load (TMDL) needs to be developed by the RWQCB for each listing (mercury and metals); the expected TMDL completion date for Lake Shasta is 2027. (SWRCB, 2022c).

Floodplain

The project site is not within a FEMA-designated flood hazard area. The project site is located on FIRMs 06089C1209G and 06089C1208G; both FIRMs designate the project site as within Zone X, Area of Minimal Flood Hazard and outside of the 500-year and 100-year floodplains (FEMA, 2022). FEMA flood zones are depicted on Figure 3-1.



SOURCE: USDA NAIP aerial photograph, 7/13/2020; FEMA, 2022; ESRI 2022; AES-Montrose, 12/21/2022

City of Shasta Lake Centimudi Water Storage Tank Initial Study / 222509 ■

Figure 3-1
FEMA Flood Zone

Groundwater

The project site is located in the Sacramento Basin, specifically the McCloud Area Subbasin (5-035) (Department of Water Resources [DWR], 2020a). The McCloud Area Subbasin is designated by the DWR as Very Low Priority under the SGMA. Basins designated as Very Low Priority are not required to form a GSA or GSP under the SGMA (DWR, 2020b).

3.11.3 DISCUSSION OF IMPACTS

Question A

Construction of the proposed project would include the use of construction equipment for site clearing, grading, trenching for utility line extension, placement of concrete foundation for the water tank, material around the tank for vehicular access, aggregate base to fill the water line trench, and construction of the water tank. Construction equipment and materials have the potential to leak, thereby discharging pollutants into stormwater or groundwater. Construction site pollutants include particulate matter, sediment, oils and greases, concrete, aggregate base, and adhesives. Discharge of these pollutants could result in contamination of area drainages and Lake Shasta, causing an exceedance of water quality standards. Minimal grading and earthwork would be required because the project site is flat and the concrete pad and vehicle access area around the water tank would be less than 0.66 acres. Other areas of disturbance are related to construction staging. Implementation of a Water Quality Management Plan and BMPs as specified under Mitigation Measure HYD-1 would ensure compliance with water quality standards during construction.

The proposed project is the construction of a new water storage tank to meet an existing water storage deficit and replace two existing tanks that have been identified for replacement. The water tank would include a concrete foundation and v-gutter around the tank to allow for drainage and percolation into the ground. Water would be pumped from the clear well at the WTP to the water storage tank via an existing 16-inch water transmission main located on Lake Boulevard that would be extended to the water storage tank. Because the proposed project is a water storage tank that would store treated water and drainage from the water tank would be treated water contained onsite, operation of the proposed project would not affect the water quality of Lake Shasta.

Region 5 of the USFS is the designated water quality management agency for USFS lands in California. As required by the CWA and the Water Quality Management for Forest System Lands in California Best Management Practices document, a site-specific Water Quality Management Plan and applicable BMPs would be developed to control erosion and surface water runoff to prevent sediment and pollutants from impacting water quality. With implementation of Mitigation Measure HYD-1, the proposed project would require the preparation of a site-specific Water Quality Management Plan that would incorporate BMPs in conformance with the USFS Water Quality Management BMPs for construction activities. Therefore, impacts related to water quality standards would be reduced to less-than-significant levels. Impacts would be less than significant with mitigation; *short term/localized and minor effect*.

Question B

The proposed project is a water storage tank for treated water and is sized to accommodate existing water use demands. The water tank would not result in an increase in existing water demand and therefore would not have an effect on available groundwater supplies. In addition, the project site is located in a Very Low

Priority groundwater basin and as such is not subject to a GSP. Furthermore, construction of the concrete foundation, gutter, and vehicle access area would not substantially increase the impervious surface on the project site and, therefore, would have a minimal effect on groundwater recharge. Therefore, impacts to groundwater resources would be less than significant; *localized and minor effect*.

Question C

As previously described, construction activities would result in a limited amount of grading over a flat and small area. The project site is located in an area of minimal flood hazard and, therefore, the water tank, foundation, and vehicle access area would not place structures in a floodplain such that flood flows would be impeded or redirected. In addition, Mitigation Measure HYD-1, would ensure the preparation of and conformance with a Water Quality Management Plan that would incorporate BMPs, including an Erosion Control Plan, to minimize erosion, surface runoff, or redirection of flood flows. Therefore, impacts related to alterations of drainage patterns and impervious surfaces would be less than significant. The impacts would be less than significant with mitigation; *short term/localized and minor effect*.

Question D

As previously mentioned, the project site is located in an area of minimal flood hazard (Zone X) as classified by FEMA (FEMA, 2020). The project site is located inland and, therefore, would not be subject to a tsunami wave. In addition, because the project site is located 0.25 miles south of Lake Shasta and therefore upriver from Shasta Dam, there is a no potential for a seiche to occur that would inundate the project site. Therefore, impacts would have no impact; *no effect*.

Question E

As previously discussed, due to the limited amount and limited area of grading, as well implementation of Mitigation Measure HYD-1, construction of the proposed project would not conflict with implementation of a water quality control plan. Because the proposed project is a water storage tank for treated water, operation of the proposed project also would not conflict with implementation of a water quality control plan. Because the project site is located above a Very Low Priority groundwater basin, there is no requirement for a sustainable groundwater management plan. In addition, due to the limited area of development, construction and operation of the proposed project would have minimal effect on the underlying groundwater basin. Therefore, impacts would be less than significant with mitigation; *short term/localized and minor effect*.

3.11.4 MITIGATION MEASURES

HYD-1: Water Quality Management Plan

A site-specific Water Quality Management Plan shall be prepared in conjunction with the USFS and the City for the proposed project prior to construction, which shall include, but not be limited to, the following BMPs in conformance with USFS BMPs for California:

- Areas where ground disturbance occurs shall be identified in advance of construction and be limited to approved areas.
- Vehicular construction traffic shall be confined to the designated access routes and staging areas.

- Equipment maintenance and cleaning shall be confined to staging areas. No vehicle maintenance shall occur onsite during construction.
- Disturbed areas shall be restored to pre-construction contours to the extent possible.
- Hay/straw bales and silt fences shall be used to control erosion during stormwater runoff events.
- The highest quality soil shall be salvaged, stored, and used for native re-vegetation/seeding.
- Drainage gaps shall be implemented in topsoil and spoil piles to accommodate/reduce surface water runoff.
- An Erosion Control Plan that includes sediment control measures shall be in place prior to construction and shall be maintained until disturbed areas have been re-vegetated. Erosion control structures shall be in place and operational at the end of each day if work activities occur during the rainy season.
- Fiber rolls shall be placed along the perimeter of disturbed areas to ensure sediment and other potential contaminants of concern are not transported offsite or to open trenches. Locations of fiber rolls shall be field adjusted as needed.
- Vehicles and equipment stored in the construction staging area shall be inspected regularly for signs of leakage. Leak-prone equipment shall be staged over an impervious surface or other suitable means shall be provided to ensure containment of any leaks. Vehicle/equipment wash waters or solvents shall not be discharged to surface waters or drainage areas.
- During the rainy season, soil stockpiles and material stockpiles shall be covered and protected from the wind and precipitation. Plastic sheeting shall be used to cover the stockpiles and straw wattles shall be placed at the base for perimeter control.
- Contractors shall immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. Leaks and spills shall be reported to the designated representative of the lead contractor. Contaminated media shall be collected and disposed of at an off-site facility approved to accept such media.

3.12 LAND USE/PLANNING

3.12.1 ENVIRONMENTAL CHECKLIST

<u>LAND USE/PLANNING</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.12.2 SETTING

Regulatory Context

Federal

Shasta-Trinity Land and Resource Management Plan

The National Forest Land and Resource Management Plan, required by the Forest and Rangeland Renewable Resources Planning Act, is the document that provides standards for the management of the Shasta and Trinity National Forests in order to integrate a mix of management activities that allow use and protection of forest resources, meet the needs of guiding legislation, and address local, regional, and national issues.

36 CFR 292 (b)—Whiskeytown-Shasta-Trinity National Recreation Area

36 CFR 292 is the part of the federal code of regulations that regulates National Recreation Areas. Subpart B specifically applies to the Whiskeytown-Shasta-Trinity National Recreation Area. It outlines the general provisions, land uses regulations and restrictions, and objective standards. It provides specific guidance for property development within the Whiskeytown-Shasta-Trinity National Recreation Area and includes provisions for signage and the protection of roadsides and shorelines.

Local

Shasta County General Plan

There are no applicable Shasta County General Plan objectives or policies that apply to the proposed project.

City of Shasta Lake General Plan

The City of Shasta Lake’s General Plan includes the following land use objectives and policies that apply to the proposed project.

Land Use Element

- POLICY-LU-4.2 Ensure that adequate public service facilities/uses (e.g., schools, parks, fire stations, etc.) and public utilities (e.g., substations, pump stations, transmission lines, etc.) are in place in a timely fashion to protect public safety. Accomplish this through regular, comprehensive, and advanced infrastructure master planning efforts. Appropriate zoning for such facilities will be determined in response to the identified need as it occurs.
- POLICY-LU-4.5 Work with outside agencies and non-profit organizations to encourage the provision of services and facilities not subject to City jurisdiction, such as public schools and quasi-public recreational and other infrastructure. (Source: Existing Policy PF-e, modified)

Public Services & Facilities Element

- PF-3 Improve and maintain the Citywide water system facilities.

Environmental Setting

Project Site Land Uses

The approximately 3.91-acre project site is located in Shasta County on APN 065-500-001 at the corner of Kennett Road and Lake Boulevard on U.S. Government property managed by the USFS (refer to Figures 2-2 and 2-3). The project site is located approximately 0.2 miles north of the City of Shasta Lake city limits. The construction area is a flat, cleared area that has historically been used for storage and disposal of driftwood removed from the Centimudi Boat Launching Facility. The project site is zoned National Recreation Area (NRA-S) and has a Shasta County General Plan Designation of Public Land (PUB). The roads accessing the project site are under the jurisdiction of Shasta County. The City entered into an agreement with the County in which the County would defer permitting to the City.

Surrounding Land Uses

Centimudi Boat Launching Facility and Shasta Lake are located directly north of the project site. The project site is located on land managed by the USFS and is surrounded by forestland. The City's WTP is located approximately 0.35 miles west of the project site. Regional access to the project site is provided by I-5. Local vehicular access to the project site is provided via Lake Boulevard and Kennett Road.

3.12.3 DISCUSSION OF IMPACTS

Question A

Projects that have the potential to physically divide an established community typically include new freeways and highways, major arterials streets, and railroad lines or projects that introduce incompatible land uses to a community. The proposed project would occur in area that is not in the vicinity of an established community and would not construct a new roadway or introduce an incompatible land use to the project vicinity. The proposed water tank would be sized to satisfy existing demand and would not result in an unplanned increase in available potable water that would result in indirect, unplanned development that results in incompatible land uses. Thus, the proposed project would result in no impact; *no effect*.

Question B

The proposed project is consistent with the existing General Plan and Zoning designation of the project site. The project site is located on land managed by the USFS; accordingly, the approval of the proposed project would require a Special Use Permit from the USFS. As the proposed project would occur on federally managed land, the proposed project would undergo NEPA evaluation prior to approval to evaluate potential federal impacts to the environment. This IS has evaluated potential environmental effects associated with the proposed project and has included mitigation measures that would reduce all impacts to less-than-significant levels. Additionally, the County has agreed to allow the City to issue a building permit and the grading permit on behalf of the County. The County would issue the required encroachment permit. Implementation of Mitigation Measures AES-1 and AES-2 would ensure that the project would not conflict with the Shasta-Trinity National Forest Land and Resource Management Plan. Thus, with compliance will all local, State, and federal regulations and requirements and the receipt of the appropriate building, grading, and encroachment permits, impacts associated with the potential conflict with a land use plan, policy, or regulation would be less than significant with mitigation; *localized and minor effect*.

3.12.4 MITIGATION MEASURES

With the implementation of Mitigation Measures AES-1 and AES-2, no other mitigation would be necessary.

3.13 MINERAL RESOURCES

3.13.1 ENVIRONMENTAL CHECKLIST

<u>MINERAL RESOURCES</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.13.2 SETTING

Regulatory Setting

Pursuant to the mandate of the Surface Mining and Reclamation Act of 1975 (SMARA), the State Mining and Geology Board (SMGB) designates mineral deposits that have regional, multi-community, or Statewide economic significance. SMARA allows the SMGB to designate and classify lands containing mineral deposits of regional or Statewide significance. Classification of minerals is completed by the State Geologist in accordance with the SMGB’s priority list, into four Mineral Resource Zones (MRZ). Lands classified as MRZ-1 are areas where geologic information indicates no significant mineral deposits are present; MRZ-2 indicates areas that contain identified mineral resources; MRZ-3 indicates areas of undetermined mineral resources significance; and MRZ-4 indicates areas of unknown mineral resource potential (DOC, 2019).

Environmental Setting

Data Basin maintains a compiled map of the USGS’s Mineral Resource Data System (MRDS) and the U.S. Bureau of Mines Mineral Availability System/Mineral Industry Locator System (Data Basin, 2022). There are no mineral resources identified on the project site. The nearest known resource is a historical gold mine located approximately 0.69 miles southeast of the project site (MRDS identification number W025250). The historic “Lucky Boy” site (MRDS identification number M021231), which is located 0.72 miles northwest of the project site, was also identified as a historic producer of gold and quartz near where Shasta Dam Road crosses over the Shasta Dam.

3.13.3 DISCUSSION OF IMPACTS

Questions A and B

As discussed above, there are no known mineral resources located on or near the project site and there are no locally important mineral resource recovery sites in the area (Data Basin, 2022). Additionally, the

construction of the water tank onsite would not preclude the site from potential mineral extraction in the future. Therefore, the proposed project would not result in the loss of availability of any mineral resources. There would be no impact; *no effect*.

3.13.4 MITIGATION MEASURES

None required.

3.14 NOISE

3.14.1 ENVIRONMENTAL CHECKLIST

<u>NOISE</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 2 miles of a public airport or public use airport, would the proposed project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.14.2 SETTING

Regulatory Setting

Federal

Federal Noise Abatement Criteria

The FHWA provides construction noise level thresholds in its Construction Noise Handbook, 2006, which are provided in Table NOI-1.

**Table NOI-1
Federal Construction Noise Thresholds**

Noise Receptor Locations and Land Uses	Daytime (7 A.M. - 6 P.M.)	Evening (6 P.M. - 10 P.M.)	Nighttime (10 P.M. - 7 A.M.)
	dBA, Leq ¹		
Noise-Sensitive Locations: (residences, institutions, hotels, etc.)	78 or Baseline + 5 (whichever is louder)	Baseline + 5	Baseline + 5 (if Baseline < 70) or Baseline + 3 (if Baseline > 70)
Commercial Areas: (businesses, offices, stores, etc.)	83 or Baseline + 5	None	None
Industrial Areas: (factories, plants, etc.)	88 or Baseline + 5	None	None
Notes: ¹ Leq thresholds were empirically determined. Acronyms: dBA = A-weighted decibels; Leq = equivalent continuous noise level			

Operational noise standards used would be the FHWA Noise Abatement Criteria (NAC) for the assessment of noise consequences related to surface traffic and other project-related noise sources; however, the proposed project would not increase traffic volumes in the project area.

The assessment of vibration noise is based on the Federal Transportation Administration (FTA) standards of 0.5 peak particle velocity (PPV) for structures and 0.1 PPV for annoyance of people (FTA, 2006).

Local

Shasta County General Plan

There are no applicable Shasta County General Plan objectives or policies that apply to the proposed project.

City of Shasta Lake General Plan

The City’s General Plan contains the following objectives, policies, and implementation measures related to noise.

Objectives

- OBJECTIVE N-1 Protect noise sensitive areas of the City by regulation of new noise-generating development.
- OBJECTIVE N-2 Protect noise sensitive new development from existing and future noise generators by regulations encouraging each to locate within compatible noise environments.
- OBJECTIVE N-3 Protect established noise-generating development from noise sensitive new development.

Policies

POLICY N-a New development shall use appropriate site planning and building design to reduce undesirable noise impacts. The noise sensitivity of land uses as established in Table N-1 shall be used in the location of new development, preparation of general plan amendments and specific plans. The noise exposure level shall be established by reference to the Noise Contour Map (on file with the City) or project-specific measurements or calculations.

The interpretive guidelines in Figure N-1 shall not be applied mechanically, but with the degree of flexibility required in each case to achieve a sound and feasible land use decision. However, in no case shall a residential land use be located where the existing noise environment, combined with the measured or calculated noise reduction of the type of structure under consideration, makes it impossible to maintain an interior noise environment at or below 45 dBA CNEL [Community Noise Equivalent Level].

POLICY N-b The planning and design of improvements in the circulations systems shall consider their noise impacts on adjacent land uses and shall include measure to mitigate significant noise impacts.

Implementation Measures

IMPLEMNT N-(1) Condition approval of all new development in residential areas with an actual or project exterior noise level of greater than 60 dB CNEL on the use of noise mitigation measures to reduce exterior sound levels in those residential areas to less than or equal to 60 dB CNEL.

IMPLEMNT N-(2) Where noise mitigation measures are anticipated to be needed based on a review of a project, require that project applicants secure the services of a qualified acoustical engineer to perform a detailed technical study and to design mitigation measures.

IMPLEMNT N-(3) Where site conditions permit, require noise buffers along the Union Pacific Railroad for all new adjoining developments that are subject to unacceptable noise levels.

IMPLEMNT N-(4) Site-specific railroad noise studies shall be prepared for noise sensitive development project anticipated to be affected by railroad noise. Generalized railroad noise contours are shown on the Noise Contour Map and serve as a “trigger” indicating where future study is advisable.

IMPLEMNT N-(5) Control noise at the source through use of insulation, berms, building design and orientation, buffer yards, staggered operating hours, and other techniques; where necessary, use noise barriers to attenuate noise to acceptable levels; require that barriers are landscaped to reduce negative visual impacts on the community.

- IMPLEMNT N-(6) Encourage noise attenuation programs that avoid visual sound walls, where practical. Open space, parking, accessory buildings, frontage roads, and landscaping can be used to bugger development from noise.
- IMPLEMNT N-(7) Request Caltrans to provide freeway sound walls adjacent to residential areas where existing noise levels exceed 67 dB, consistent with State standards and Caltrans’ priorities for community noise abatement.

**Table NOI-2
Noise Sensitivity Standards**

New Land Use	Outdoor Activity Area - L _{dn}	Interior Activity Area- L _{dn} /Peak Hour L _{eq}
All Residential	60-65	45
Transient Lodging	65	45
Hospitals & Nursing Homes	60	45
Theaters & Auditoriums	-	35
Churches, Meeting Halls, Schools, Libraries, etc.	60	40
Office Buildings	65	45
Commercial Buildings	65	50
Playgrounds, Parks, etc.	70	-
Industrial Facilities	65	50
Source: Appendix Table N-1 (City of Shasta Lake, 2023).		

Existing Noise and Vibration Environments

Existing Sensitive Receptors

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

There are no noise sensitive land uses in the vicinity of the project site. The nearest residences are located approximately 0.6 miles south of the project site along Lake Boulevard.

3.14.3 DISCUSSION OF IMPACTS

Construction Noise Environment

During the construction of the proposed project, noise from construction activities would temporarily add to the noise environment in the project vicinity. As shown in Table NOI-3 activities involved in construction would generate maximum noise levels ranging from 76 to 85 dB at a distance of 50 feet.

**Table NOI-3
Construction Equipment Noise**

Type of Equipment	Maximum Level, dBA at 50 feet
Backhoe	78
Compactor	83
Compressor (air)	78
Crane	85
Dozer	85
Drum Mixer	80
Dump Truck	76
Excavator	81
Flat Bed Truck	84
Generator	81
Pneumatic Tools	85
Welding Truck	73
Source: FHWA, 2018.	

Construction activities would take place within the proposed project's development footprint. Construction activities would be limited to between the daytime hours of 7:00 A.M. and 7:00 P.M Monday through Friday and between the daytime hours of 8:00 A.M. and 5:00 P.M on Saturdays. No construction activities shall take place on Sundays or on federal and local holidays.

Construction Vibration Environment

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. Table NOI-4 shows the typical vibration levels produced by construction equipment (Caltrans, 2018).

Table NOI-4
Vibration Levels for Various Construction Equipment

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)	Peak Particle Velocity at 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/Drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026
Source: Appendix E.			

Noise Level Increase Criteria for Long-Term Project-Related Noise Level Increases

The CEQA Guidelines define a project impact as significant if it “increases substantially the ambient noise levels for adjoining areas.” Generally, a project may have a significant effect on the environment if it would substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 1 dB change cannot typically be perceived by the human ear,
- A 3 dB change is barely perceptible,
- A 5 dB change is clearly perceptible, and
- A 10 dB change is perceived as being twice or half as loud.

Question A

Construction

During construction of the proposed project, noise from construction activities would add to the noise environment in the immediate project vicinity. As indicated in Table NOI-3, activities involved in construction would generate maximum noise levels ranging from 76 to 85 dBA L_{max} at a distance of 50 feet. Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

Construction of project components would occur over the course of six months. It is anticipated that construction of the proposed project would occur in April 2024. The following equipment may be utilized occasionally during construction of the proposed project:

- Dozer
- Crane
- Concrete and dump trucks
- Flat-bed delivery truck
- Trench/Excavator
- Backhoe/Loader
- Welding truck
- Generator

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. This noise increase would be short in duration and would occur only during daytime hours.

Noise from localized point sources (such as construction sites) typically decreases by approximately 6 dBA with each doubling of distance from source to receptor. Given this noise attenuation rate and assuming no noise shielding from either natural or man-made features (e.g., trees, buildings, fences), the existing sensitive receptor (recreational users) located within approximately 200 feet of construction activity could experience maximum instantaneous noise levels of up to 73 dBA L_{max}. These levels are less than the City of Shasta Lake and FHWA construction noise threshold of 78 dB exterior construction noise standard for daytime (7 A.M. to 7 P.M.) activities. Construction activities would be limited to between the daytime hours of 7:00 A.M. and 7:00 P.M. Monday through Friday and 8:00 A.M. and 5:00 P.M. on Saturdays. No construction activities would take place on Sundays or on federal and local holidays. Impacts relating to exterior noise levels due to construction of the proposed project would be considered less than significant. Impacts would be less than significant; *localized and minor effect*.

Operation

The proposed project would result in occasional, temporary operational noise associated with maintenance activities. The work would occur on an as-needed basis and would not result in a permanent, frequent, or continuous increase in noise levels. The post-project ambient noise levels would be similar to existing ambient noise levels. Therefore, impacts relating to noise levels due to operation of the proposed project would be considered less than significant. Additionally, the proposed project would comply with all federal regulations relating to noise, including the FHWA Construction Noise Handbook and NAC. Impacts would be less than significant; *localized and minor effect*.

Question B

Common construction activities and equipment may expose people to excessive groundborne vibration or groundborne noise. Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Caltrans provides guidance regarding construction-related groundborne vibration (Caltrans, 2020). The Caltrans manual states that vibrations with a PPV of 0.1 inches/second begin to cause irritation. Larger, heavier construction vehicles

have a PPV of 0.089 inches/second or less at a distance of 25 feet (Caltrans, 2020). Building damage is expected at vibration levels of 0.5 inches/second or greater for buildings of reinforced-concrete, steel, or timber construction.

Groundborne vibrations typically reduce in effect over short distances. The project site is not adjacent to residential land uses or other existing structures. The project site is located in an area with passive recreational resources. At a distance of 250 feet, the PPV would be approximately 0.0028 inches/second. Thus, potential impacts associated with the proposed project would be localized and temporary during the construction period and would not substantially impact passive recreational users. Construction of the proposed project would require the use of heavier construction equipment, specifically backhoes, dozers, and flat-bed trucks. The proposed project would not require pile driving, blasting, or other special construction techniques associated with greater groundborne vibration. Therefore, the expected groundborne vibration generation associated with the proposed project would remain below the 0.1 inch/second annoyance threshold and the proposed project would not a potentially significant impact related to vibration during construction or operation. Impacts would be less than significant; *localized and minor effect*.

Question C

There are no public or private airstrips within 2 miles of the project site. Thus, the project would have no impact; *no effects*.

3.14.4 MITIGATION MEASURES

None required.

3.15 POPULATION AND HOUSING (AND ENVIRONMENTAL JUSTICE)

3.15.1 ENVIRONMENTAL CHECKLIST

<u>POPULATION AND HOUSING (AND ENVIRONMENTAL JUSTICE)</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.15.2 SETTING

Regulatory Setting

Federal

Environmental Justice Communities

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, as amended, directs federal agencies to develop an environmental justice strategy that identifies and addresses disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The CEQ is responsible for verifying the federal government’s compliance with EO 12898 and NEPA. The CEQ, in consultation with the EPA and other agencies, has developed guidance to assist federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed.

According to guidance from the CEQ (1997) and EPA (1998), agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by a proposed action and, if so, whether there may be disproportionately high and adverse environmental effects to those populations. Communities may be considered “minority” under the EO if one of the following characteristics apply:

- The cumulative percentage of minorities within a census tract is greater than 50% (primary method of analysis).

- The cumulative percentage of minorities within a census tract is less than 50%, but the percentage of minorities is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (secondary method of analysis).

According to the EPA, either the county or the state can be used when considering the scope of the “general population.” A definition of “meaningfully greater” is not given by the CEQ or EPA, although the latter has noted that any affected area that has a percentage of minorities that is above the state’s percentage is a potential minority community and any affected area with a minority percentage double that of the state’s is a definite minority community under EO 12898.

Communities may be considered “low-income” under the EO if one of the following characteristics applies:

- The median household income for a census tract is below the poverty line (primary method of analysis).
- Other indications are present that indicate a low-income community is present within the census tract (secondary method of analysis).

In most cases, the primary method of analysis would suffice to determine whether a low-income community exists in the affected environment. However, when a census tract income may be just over the poverty line or where a low-income pocket within the tract appears likely, the secondary method of analysis may be warranted. Other indications of a low-income community under the secondary method of analysis include limited access to health care, overburdened or aged infrastructure, and dependence on subsistence living.

Local

Shasta County General Plan

There are no applicable Shasta County General Plan objectives or policies that apply to the proposed project.

City of Shasta Lake General Plan

There are no applicable City General Plan objectives or policies that apply to the proposed project.

Environmental Setting

The project site is located in Shasta County on land managed by the USFS within the Whiskeytown-Shasta-Trinity National Recreation Area at Shasta Lake. The nearest populated area is the City of Shasta Lake, which is 0.2 miles south of the project site. As of July 1, 2021, the City of Shasta Lake has a population of approximately 10,423, with approximately 87.9% being white (U.S. Census Bureau, 2022a). As of July 2021, approximately 16.8% of individuals living within the City are living at or below the poverty level. The median household income is \$48,257 as of July 2021, in 2020 dollars (U.S. Census Bureau, 2022b).

3.15.3 DISCUSSION OF IMPACTS

Question A

During construction, the proposed project would employ a small number of workers temporarily. These workers are expected to live locally, or commute to the project site and would not generate population growth in the area. The proposed project does not involve characteristics such as homes or businesses that would directly generate population growth nor would the proposed project extend roadways; the

extension of water lines would only extend to the proposed water tank. The proposed project would involve construction of water supply infrastructure for the City of Shasta Lake. However, as discussed in Section 2.3, the proposed project would not lead to an increase in water consumption; it would only allow the water system to utilize additional storage to meet peak hour and maximum day demands, fire flow storage, and emergency storage needs. Therefore, the proposed project would not lead to unplanned population growth due to increased capacity and the impact on population and housing would be less than significant.

Question B

The proposed project is on USFS lands and would not construct new housing or require the demolition of existing housing. In addition, as discussed in Question A, the proposed project would not lead to an increase in water consumption or increase capacity that would result in an increase in population that would necessitate additional housing. Therefore, the proposed project would not displace existing housing or people that would necessitate the construction of replacement housing. There would be no impact; *no effect*.

ENVIRONMENTAL JUSTICE

The proposed project is located on USFS lands in an unpopulated area. The nearest populated area is the City of Shasta Lake. As discussed earlier, the demographics of the City are approximately 87.9% white. Therefore, the City does not qualify as a minority community. According to federal poverty guidelines, the poverty threshold for the 48 contiguous states is \$13,590 for a single person household, with an increase of \$4,720 for each additional individual in a household (Assistant Secretary for Planning and Evaluation, 2022). Therefore, the median household income of \$48,257 would not qualify the City as a low-income community. Additionally, the poverty level as reported by the U.S. Census Bureau for the City (16.8%) is within 6% of poverty levels in Shasta County (13.9%) and the State of California (11.5%). Therefore, the City would not qualify as a low-income community. The proposed project would be limited to the project site and would not impact lands within the City. As the City does not qualify as a minority or low-income community, impacts regarding environmental justice would not occur. Impacts associated with the proposed project would be less than significant; *localized and minor effect*.

3.15.4 MITIGATION MEASURES

None required.

3.16 PUBLIC SERVICES

3.16.1 ENVIRONMENTAL CHECKLIST

<u>PUBLIC SERVICES</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
i) Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.16.2 SETTING

Regulatory Setting

Federal

There are no federal regulations that apply to the proposed project.

State

There are no State regulations that apply to the proposed project.

Local

Shasta County General Plan

There are no applicable Shasta County General Plan objectives or policies that apply to the proposed project.

City of Shasta Lake General Plan

There are no applicable City General Plan objectives or policies that apply to the proposed project.

Fire Protection/Emergency Medical Services

Fire protection and emergency medical services within the City are provided by the Shasta Lake Fire Protection District (SLFPD). SLFPD has one station, which is located at 4126 Ashby Court in the City of Shasta Lake, approximately 3.6 miles south of the project site. The SLFPD is currently staffed by nine full-time professional firefighters and one administrative clerk. The SLFPD currently has five engines in their inventory (SLFPD, 2022). The nearest hospital to the project site is Mercy Medical Center Redding, which is located at 2175 Rosaline Avenue in the City of Shasta Lake, which is approximately 10 miles south of the project site. Mercy Medical Center provides a comprehensive range of inpatient and outpatient medical services to the local population and serves as the highest-level trauma center in the area (Level II) (Dignity Health, 2021).

Law Enforcement

The project site would be served by Shasta County Sheriff's Office and USFS rangers provide law enforcement services within USFS-managed land. The closest sheriff's station is located at 4488 Red Bluff within the City of Shasta Lake, which is approximately 3.1 miles south of the project site.

Schools

The Gateway Unified School District serves the City through eight separate schools, with a total of 2,184 students (National Center for Education Statistics, 2022).

Parks

The project site is located within the Whiskeytown-Shasta-Trinity National Recreation Area which is managed by the USFS. The nearest park to the project site outside of Whiskeytown-Shasta-Trinity National Recreation Area is Margaret Polf Park, located approximately 2 miles south of the project site. Margaret Polf Park is managed by the City of Shasta Lake's Parks and Recreation Department.

3.16.3 DISCUSSION OF IMPACTS

Question a(i)

The proposed project would upgrade the City's current water storage tank and allow for the increased storage of water. Construction-related activities associated with the proposed project could involve the use of spark-producing construction equipment, which could temporarily increase the risk of igniting a fire on the project site. This would be a potentially significant impact. Mitigation Measure HAZ-1 would minimize potential fire risks from construction activities by requiring a spark arrestor in good working order. With implementation of Mitigation Measure HAZ-1, the proposed project would not significantly increase fire risk over existing conditions or demand for fire protection services and impacts would be less than significant. Less than significant with mitigation; *localized and minor effect*.

Question a(ii) – a(v)

The proposed project would not construct land uses that would result in an increase in demand for police, school, or recreational services. Construction, operation, and maintenance activities associated with the

proposed project would not create impacts to police protection, local schools, and parks, or increase demand for other public facilities. No impact to these public services would occur. No impact, *no effect*.

3.16.4 MITIGATION MEASURES

With the implementation of Mitigation Measure HAZ-1, no other mitigation would be necessary.

3.17 RECREATION

3.17.1 ENVIRONMENTAL CHECKLIST

<u>RECREATION</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Would the proposed project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the proposed project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.17.2 SETTING

Shasta-Trinity National Forest is the largest national forest in California and was established by President Theodore Roosevelt’s proclamation of 1905. The Whiskeytown-Shasta-Trinity National Recreation Area surrounds Shasta Lake and is one of only 18 national recreation areas managed by the USFS. The lake and surrounding terrain support a large variety of recreation opportunities.

Regulatory Setting

Federal

There are no federal regulations that apply to the proposed project.

State

There are no State regulations that apply to the proposed project.

Local

Shasta County General Plan

There are no applicable Shasta County General Plan objectives or policies that apply to the proposed project.

City of Shasta Lake General Plan

There are no applicable City General Plan objectives or policies that apply to the proposed project.

3.17.3 DISCUSSION OF IMPACTS

Questions A and B

The proposed project would not construct land uses that would result in an increase in demand for recreational services and does not include the construction of recreational facilities. The proposed project would be sized to satisfy existing water demand and would not result in an increase in available potable water above existing demand. Thus, the proposed project would not result direct or indirect population growth that would increase the use of regional parks and other recreational facilities. Therefore, the proposed project would not result in increased populations that would increase demands for recreational services. Construction activities would be limited to a short-term duration and would not impede the use of existing access points to Shasta Lake. The impact would be less than significant; *localized and minor effect*.

3.17.4 MITIGATION MEASURES

None required.

3.18 TRANSPORTATION

3.18.1 ENVIRONMENTAL CHECKLIST

<u>TRANSPORTATION</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.18.2 SETTING

Transportation Network

Vehicular access to the project site is provided via Lake Boulevard and Kennett Road. Regional access is provided by I-5. These roads are defined as follows in the Shasta County General Plan Circulation Element (County, 2004):

- **I-5** is the only major federal highway in Shasta County. In the vicinity of the project site, it is a north-south, four-lane freeway that connects the City of Redding to the south and northern California counties and Oregon to the north.
- **Highway 151/Shasta Dam Boulevard** is a two-lane local street west of I-5 that is not designated on the General Plan Circulation maps. A local street provides access to individual adjoining properties.
- **Lake Boulevard** is identified as a rural two-lane arterial. An arterial provides connections between links in the highway network and connects major destinations with the highway network.
- **Kennett Road** is a two-lane local street that is not shown on the General Plan Circulation maps.

Bikeways, Pedestrian Facilities, Public Transportation System

There are no identified existing bikeways or pedestrian facilities in the immediate vicinity of the project site. The Shasta County Draft Bicycle Transportation Plan provides the long-term framework to improve and encourage bicycle transportation throughout the County. Bikes are allowed on I-5 (approximately 3.5 miles to the east of the project site) and along SR-151/Shasta Dam Boulevard (approximately 0.5 miles to the west) (County, 2010). Shasta Regional Transportation Agency (SRTA)'s Go Shasta Plan provides the long-term implementation plan and recommended projects for the creation of a connected and safe pedestrian bicycle lane network and increased alternative transportation connectivity. The Plan includes the development of a bike route along Lake Boulevard as a recommended plan but there are no existing bike routes along Lake Boulevard currently (SRTA, 2019) The SRTA prepared a Regional Active Transportation Plan (RATP) that identifies a Regional Bicycle Network Map and Regional Pedestrian Network Map. As indicated on Figure 3.22 of the RATP, in the vicinity of the project site, Lake Boulevard and Shasta Dam Boulevard (approximately 0.5 miles to the west) are identified as a Recommended Bike Route. An existing shared use-path (bicycle and pedestrian) is identified in the vicinity of Shasta Dam Visitor Center (SRTA, 2019). The Circulation Element of the City of Shasta Lake 2040 General Plan also identifies Lake Boulevard as a potential, future bike route (City of Shasta Lake 2023).

The Shasta County Parks, Trails, and Open Space Plan (PTOS) was developed to identify issues and opportunities for improving the provision of parks, trails, and open space in Shasta County. Map 3 of the PTOS shows a Potential Trail of Bike Route along Shasta Lake, west of the project site (County, 2009). The Dry Fork Creek Trail is an existing trail located approximately 1.25 miles northwest of the project site (USFS, 2022b).As the Regional Transportation Planning Agency for Shasta County, SRTA prepared the Coordinated Transportation Plan. As identified in this Plan, the Redding Area Bus Authority (RABA) provides local bus transportation in Shasta County (SRTA, 2017). The project site is located outside the RABA service area. The nearest bus route is the Anderson Commuter, approximately 1.5 miles south of the project site (RABA, 2022).

Regulatory Setting

Federal

There are no federal regulations that apply to the proposed project.

State

There are no State regulations that apply to the proposed project.

Local

Shasta County General Plan

There are no applicable Shasta County General Plan objectives or policies that apply to the proposed project.

City of Shasta Lake General Plan

There are no applicable City General Plan objectives or policies that apply to the proposed project.

3.18.3 DISCUSSION OF IMPACTS

Question A

Access to the project site would be provided from Lake Boulevard and Kennett Road. Because the project site is relatively flat, partially cleared, and the area of construction for the new water tank, concrete pad, and vehicle access area is relatively small, the duration and extent of construction activities would be minimal. Construction activities include brush clearance and grading, excavation to extend the existing water line across Lake Boulevard, and the construction of the new water tank. These activities would generate new trips from construction and worker vehicles during the construction period, estimated to be six months. No more than 10 construction workers are anticipated to be on site at one time, with the exception of brush clearance and grading, which would occur over two days. Vehicle trips associated with clearing and grading of the project site are estimated to be 10 truck trips, in addition to the average number of daily trips generated by other construction and worker vehicles of approximately 10 trips per day. Construction activities would take place Monday through Friday between the hours of 7:00 A.M and 7:00 P.M. and between 8:00 A.M. and 5:00 P.M. on Saturday. Because the proposed project would require trenching to connect the existing water line to the proposed water tank, one lane of Lake Boulevard would require temporary closure during construction. Therefore, implementation of an Encroachment Permit, as required under Mitigation Measure T-1, and a Temporary Traffic Control Plan (TTCP), as described under Mitigation Measure T-2 would result in minimal effects on traffic circulation during construction.

During project operation, no new vehicle trips are expected to be generated because existing City staff would perform general operation and maintenance activities required for the new water tank (approximately two workers, once per week).

As described above, the proposed project would have minimal impact on programs, plans, or policies that address the circulation system due to the lack of bicycle and pedestrian facilities in the immediate area, the distance of any proposed bicycle and pedestrian facilities from the project site, and the lack of nearby public transit. Therefore, impacts on the circulation system would be reduced to less-than-significant levels with implementation of Mitigation Measure T-1, which would require obtaining and complying with all applicable encroachment permits, and Mitigation Measure T-2, which would require the development, approval, and implementation of a TTCP prior to construction activities. The impact would be less than significant with mitigation; *short term/localized and minor effect*.

Question B

The OPR Technical Advisory contains screening thresholds for land use projects and suggests lead agencies may screen out VMT impacts using project size, maps, and transit availability. For small land use projects, absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a SCS or general plan, and projects that generate or attract fewer than 110 trips per day generally, may be assumed to cause a less-than-significant impact.

As described above, the proposed project would generate a maximum of 10 trips per day from construction vehicles associated with brush clearance and grading, excavation, construction of the new water tank, and worker trips. However, during the two-day grading phase, a maximum of 20 vehicle trips could occur each day. During operation of the water tank, the proposed project is expected to generate no new vehicle trips, as existing City staff would perform general operation and maintenance activities (estimated to be two

workers, once per week). Therefore, as the number of additional trips generated by the proposed project during construction is well below the 110-trip screening threshold for VMT impacts contained in the OPR Technical Advisory, the proposed project would cause a less-than-significant transportation impact related to VMT. Impacts would be less than significant; *localized and minor effect*.

Question C

Construction vehicles accessing the project site and construction staging area would use the existing access points from Lake Boulevard and Kennett Road. The new water tank would be located in a flat, cleared area that has historically been used for storage and disposal of driftwood removed from the Centimudi Boat Launch. Upon construction of the proposed project, the construction site would be accessed from these same points for operation and maintenance activities. No additional access points would be constructed and, therefore, no new geometric design features would be introduced. Because construction vehicles and equipment would access the project site and staging area at points that may have limited visibility due to the curve of these existing roadways, Mitigation Measure T-1 would require obtaining an encroachment permit, and Mitigation Measure T-2 would require the use of a flag person to assist with traffic control during construction. Implementation of Mitigation Measures T-1 and T-2 would reduce traffic hazards due to design features or incompatible use to a less-than-significant level. Impacts would be less than significant; *short term/localized and minor effect*.

Question D

As described above, trenching for the extension of the existing water line across Lake Boulevard could result in the temporary closure of one lane during excavation. In addition, construction vehicles would be entering and exiting the project site and construction staging area. These activities have the potential to temporarily impede emergency access. Therefore, Mitigation Measure T-1, which requires obtaining an encroachment permit, and Mitigation Measure T-2, which requires a flag person to assist with traffic control and maintain adequate emergency access, would ensure that impacts are less than significant. Impacts would be less than significant; *short term/localized and minor effect*.

3.18.4 MITIGATION MEASURES

T-1: Obtain and Comply with All Applicable Road Encroachment Permits

Prior to the start of construction activities, all applicable local, State, and USFS road encroachment permits shall be obtained and the conditions of approval complied with.

T-2: Temporary Traffic Control Plan

Prior to the start of construction activities, a TTCP shall be developed detailing the construction route, hours of construction, the construction staging area, and the location and duration of any anticipated lane closures. Lane closures shall be limited during peak traffic hours to the extent practicable. The TTCP shall require the implementation of a flag person to assist with one-way traffic control in the event of lane closures, to assist with traffic control at the project site and construction staging area, and to maintain adequate emergency access. The TTCP shall be reviewed and approved by the City prior to the start of construction activities.

3.19 TRIBAL CULTURAL RESOURCES

3.19.1 ENVIRONMENTAL CHECKLIST

<u>TRIBAL CULTURAL RESOURCES</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC § 21074 as either a site, feature, place, or 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:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC § 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC § 5024.1. In applying the criteria set forth in subdivision (c) of PRC § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.19.2 SETTING

California Native American prehistoric, historic, archaeological, cultural, and sacred places are essential elements in tribal cultural traditions, heritages, and identities. Tribal knowledge about the land and TCRs at issue are included in environmental assessments for projects that may have a significant impact on such TCRs. TCRs can only be identified by members of the Native American community, thus requiring consultation under CEQA.

Regulatory Setting

Federal

National Historic Preservation Act Section 106

Section 106 of the NHPA of 1966 requires tribal consultation in all steps of the process when a federal agency project or effort may affect historic properties that are either located on tribal lands, or when any

Native American tribe or Native Hawaiian organization attaches religious or cultural significance to the historic property (traditional cultural property [TCP]), regardless of the property's location.

When such an undertaking occurs on tribal land, the federal agency must notify appropriate Native American tribes of the undertaking and give those tribal groups the opportunity to consult, should they wish to do so.

State

Assembly Bill 52

AB 52, signed into law in 2014, established a new category of resources in CEQA called TCRs that considers the tribal cultural values in addition to the scientific and archaeological values when determining impacts and mitigation. Pursuant to PRC, Division 13, § 21074, TCRs can be either:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either:
 - a. Included or determined to be eligible for inclusion in the CRHR, or
 - b. Included in a local register of historical resources as defined in subdivision (k) of PRC § 5020.1.
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to the eligibility criteria for the CRHR (PRC § 5024.1(c)). In applying these criteria, the lead agency must consider the significance of the resource to a California Native American tribe.

Native American tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their TCRs. In light of this, AB 52 requires that, within 14 days of a decision to undertake a project or determination that a project application is complete, a lead agency shall provide written notification to California Native American tribes that have previously requested placement on the agency's notice list. Notice to tribes shall include a brief project description, location, lead agency contact information, and the statement that the tribe has 30 days to request consultation. The lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a tribe.

Local

Shasta County General Plan

Shasta County's General Plan includes the following objectives and policies that apply to the proposed project.

OBJECTIVE HER-1 Protection of significant prehistoric and historic cultural resources.

POLICY HER-a Development projects in areas of known heritage value shall be designed to minimize degradation of these resources. Where conflicts are unavoidable, mitigation measures which reduce such impacts shall be implemented. Possible mitigation measures may include clustering, buffer or non-disturbance zones, and building siting requirements.

City of Shasta Lake General Plan

The City of Shasta Lake’s General Plan includes the following objectives and policies that apply to the proposed project.

Land Use Element

POLICY-LU-3.6 When working on issues affecting California Indian Tribal Governments, the City will act consistently, respectfully, and sensitively. When there are regulatory, statutory, or procedural impediments limiting the City’s ability to work with tribal governments in the area, the City will make every effort to eliminate such impediments.

Open Space Element

GOAL OS-4 Promote and protect the City’s historical, cultural, and archaeological resources.

POLICY-OS-4.1 Preserve historical or archaeological resources from development impacts and include appropriate mitigation to protect such resources.

POLICY-OS-4.2 Require consultation with affected communities, such as the Wintu, to determine the culturally appropriate treatment of historical or archaeological resources. This includes proper storage and handling, and potentially placing collections in a curated facility. These procedures should be based on existing federal curation standards.

Consultation

As the federal Lead Agency, in accordance with Section 106 of the NHPA, the Shasta-Trinity National Forest sent an “invitation to consult” letter to the federally recognized Redding Rancheria, and “invitation to participate in the Section 106 process” letters to the non-federally recognized Winnemem Wintu Tribe, Wintu Tribe of Northern California, and United Tribes of Northern California on January 14, 2021. No responses were received.

Montrose Environmental sent a request to the Native American Heritage Commission (NAHC) on June 2, 2022 asking for a search of the Sacred Lands File and for a list of individuals who might have information regarding the proposed project vicinity; a reply was received (dated July 14, 2022). The Sacred Lands File search was positive, and NAHC recommended contacting the Winnemem Wintu Tribe. The information was forwarded to the City and USFS, and Montrose Environmental sent contact letters to everyone listed by the NAHC, including Winnemem Wintu, on July 15, 2022.

On June 3, 2022 and July 15, 2022, the City sent notifications to Chairperson Gary Rickard of the Wintu Tribe of Northern California, to Chief Caleen Sisk of the Winnemem Wintu Tribe, to Mark Miyoshi, the Tribal Historic Preservation Officer (THPO) of the Winnemem Wintu Tribe, and to Chairman Jack Potter of Redding Rancheria. In a telephone conversation on July 15, 2022, Chairperson Rickard stated that a cultural monitor would be required during ground-disturbing activities.

On August 26, 2022 a reply was received from the Pit River Tribe Cultural Information Officer Jose Silva and Pit River THPO Natalie Forrest-Perez stating that the proposed project is adjacent to the ancestral

lands of the Pit River Tribe. While the Pit River Tribe has no knowledge of cultural resources at the project site, the Pit River Tribe wishes to be notified if cultural materials are discovered during construction.

3.19.3 DISCUSSION OF IMPACTS

Questions A and B

As discussed in Section 3.6, no TCPs were identified during consultation efforts conducted under Section 106 of the NHPA, and no TCRs were identified during consultation with Native American tribes under AB 52. However, because construction of the proposed project would require ground-disturbing activities, there is the potential of unanticipated discoveries of subsurface archaeological deposits or human remains, which would be a potentially significant impact. The conclusion of consultation under Section 106 and AB 52 and the application of Mitigation Measures TCR-1, CR-1, CR-2, and CR-3 would reduce impacts to TCPs or TCRs to a less-than-significant level. Therefore, impacts would be less than significant with mitigation; *localized and minor effect*.

3.19.4 MITIGATION MEASURES

TCR-1: Tribal Cultural Monitor

The City shall engage a tribal monitor from the Wintu Tribe of Northern California to monitor ground-disturbing activities associated with grubbing, clearing, and excavation for the proposed project.

If prehistoric archaeological resources are discovered during ground-disturbing activities, all such activities shall halt within 50 feet of the find until a professional archaeologist can evaluate the significance of the find in accordance with the Wintu Tribal Monitor, the City, and the USFS. Construction shall not resume in the vicinity of the find until consultation is concluded or until a reasonable, good-faith effort has failed to provide a resolution to further impacts that is acceptable to the consulting parties.

3.20 UTILITIES/SERVICE SYSTEMS

3.20.1 ENVIRONMENTAL CHECKLIST

<u>UTILITIES/SERVICE SYSTEMS</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposed project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.20.2 SETTING

Regulatory Setting

Federal

Code of Federal Regulations 36 CFR § 292.13(c)(1) – Standards; Protection of Roadsides

This section applies to the Shasta Unit where the proposed project is located. The regulation states:

“Provisions to protect natural scenic qualities and maintain screening along public travel routes will include: 1) Prohibition of new structural improvements or visible utility lines within a strip of land extending back not less than 150 feet from both sides of the centerline of any public road or roadway except roads within subdivisions or commercial areas. In addition to buildings, this prohibition pertains to aboveground power and telephone lines, borrow pits, gravel, or earth extraction areas, and quarries.”

Although the project site is located within the prohibited zone, the USFS decided to approve the project site and allow further environmental review.

State

There are no applicable State regulations that apply to the proposed project.

Local

Shasta County General Plan

Shasta County’s General Plan includes the following objectives and policies that apply to the proposed project.

POLICY W-e The Shasta County Water Agency should encourage and promote interagency water planning efforts within the County, particularly in the Redding Basin.

City of Shasta Lake General Plan

The City of Shasta Lake’s General Plan includes the following utility objectives and policies that apply to the proposed project.

POLICY-LU-4.2 Ensure that adequate public service facilities/uses (e.g., schools, parks, fire stations, etc.) and public utilities (e.g., substations, pump stations, transmission lines, etc.) are in place in a timely fashion to protect public safety. Accomplish this through regular, comprehensive, and advanced infrastructure master planning efforts. Appropriate zoning for such facilities will be determined in response to the identified need as it occurs.

Environmental Setting

Water Suppliers and Supply

Construction of the proposed project 2.45-million-gallon water tank is intended to replace the two 1940s-era tanks located at the City’s WTP; these tanks have passed their useful service life with a combined total of 500,000 gallons of capacity. The water would be pumped from the clear well at the WTP to the proposed Centimudi Tank. The WTP typically operates for 15 hours per day regardless of the time of year. During operation of the existing WTP plant, water would be pumped to the proposed Centimudi tank. There would be no increase in consumption; the proposed water tank would provide additional water storage and would help maintain existing water system pressure.

Solid Waste Collection and Disposal

Solid waste collection in the City is provided by Waste Management and disposed at the Anderson Landfill that is owned and operated by Waste Management. The Anderson Landfill has a design capacity of 16,353,000 cubic yards and is expected to reach its permitted capacity in 2093 (CalRecycle, 2019).

3.20.3 DISCUSSION OF IMPACTS

Questions A and B

The proposed project involves construction of a single water tank to replace two aging, storage tanks located at the City's WTP. Water would be pumped from an existing well and would be used for potable water, fire suppression, and system pressure uses. The proposed project would not require the expansion or relocation of water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities. Additionally, the proposed project would not result in a negative impact to the City's water supply. There would be no impact; *no effect*.

Question C

The proposed project is a public utility project and would not require the construction of wastewater facilities, a connection to sewer lines, or the use of a septic system. Additionally, the proposed project would not increase the demand for wastewater services. There would be no impact; *no effect*.

Questions D and E

The project site is currently used to store driftwood and debris collected from Shasta Lake until it can be properly disposed of; this activity would be required to be relocated, but loss of the storage area would not generate additional solid waste. It is anticipated that some solid waste would be generated by construction of the Centimudi Water Tank; however, the proposed project does not involve the demolition of any structures. Solid waste generated during construction would be transported to the Anderson Landfill, which has 10,409,132 cubic yards of remaining capacity. Anderson Landfill has sufficient capacity and the additional solid waste generated during project construction would not result in a significant impact to the landfill. Operation of the new water tank would generate negligible amounts of solid waste. Therefore, the proposed project would not significantly increase demand for solid waste services. Thus, impacts would be less than significant; *localized and minor effect*.

3.20.4 MITIGATION MEASURES

None required.

3.21 WILDFIRE

3.21.1 ENVIRONMENTAL CHECKLIST

<u>WILDFIRE</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the proposed project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.21.2 SETTING

Regulatory Context

State

CAL FIRE Hazard Severity Zones

The California Department of Forestry and Fire Protection (CAL FIRE) Hazard has adopted Fire Hazard Severity Zone (FHSZ) mapping for State Responsibility Areas (SRA) throughout the State. These maps rate wildfire hazards as “moderate,” “high,” or “very high” based on fuel loading, slope, fire weather, and other relevant factors. the entire project site is within an SRA that is mapped as a very high FHSZ. No part of the project site would be located within a Local Responsibility Area (LRA) (CAL FIRE, 2023).

State and Local Responsibility Areas

SRAs are lands in California where CAL FIRE has legal and financial responsibility for wildfire protection and where CAL FIRE administers fire hazard classifications and building standard regulations. LRAs include land in cities, cultivated agricultural lands, unincorporated non-flammable areas, and lands that do not meet the criteria for SRA of Federal Responsible Areas (State of California, 2022). California PRC §§ 4201 through 4204 and California Government Code §§51175-51189 direct CAL FIRE to map fire hazard zones within SRAs and LRAs, respectively, based on relevant factors such as fuels, terrain, and weather. These zones, referred to as FHSZs, are based on the physical conditions that give a likelihood that an area will burn over a 30- to 50-year period without considering modifications such as fuel reduction efforts. The zones also relate to the requirements for building codes designed to reduce the ignition potential to buildings in the wildland-urban interface zones.

Wildfire protection responsibility is also shared with local emergency services. The Shasta County Office of Emergency Services, located in Redding, coordinates with local agencies and jurisdictions, as well as State and federal agencies, to prepare for, respond to, and recover from emergencies and disasters, including wildfires. The Office of Emergency Services is responsible for maintaining and updating the Shasta County Emergency Operation Plan, which is the County’s all-hazards plan and serves as a guide to ensure optimum flexibility during emergencies. The SLFPD is also responsible for wildfire protection within or around the City of Shasta Lake.

Local

Shasta County General Plan

Shasta County’s General Plan includes the following energy objectives and policies that apply to the proposed project.

POLICY FS-a All new land use projects shall conform to the County Fire Safety Standards.

City of Shasta Lake General Plan

The City of Shasta Lake’s General Plan includes the following objectives and policies that apply to the proposed project.

GOAL HS-3 Minimize the risk to life and property from wildfire.

POLICY-HS-3.2 Ensure emergency responders have adequate water supplies around the City, particularly in developed areas with limited access in high fire hazard zones.

Environmental Setting

The project site is located within a Federal Responsibility Area (CAL FIRE, 2022a) and is not located within a FHSZ (CAL FIRE, 2022b). The proposed project is not located in an SRA or LRA and is not located in a Very High FHSZ. However, lands to the south of the project site are within an LRA, and lands to the east of the project site are within an SRA. Additionally, lands to the south of the project site are located within a Very High FHSZ. The USFS is responsible for wildland fire control on USFS-administered lands (County, 2014). The USFS also protects approximately 200,000 acres of private lands adjacent to or within USFS boundaries through an agreement with the Shasta County Fire Department.

Shasta County surrounds Shasta Lake and is comprised of hilly forest terrain and has an active history of wildfire. In some areas of the Shasta County, the buildup of fuels from the reduction of fire frequency and the spread of human development has led to an increase in the probability of wildfires. The project site is located within a relatively flat and currently undeveloped area within federal land managed by the USFS. The project site is surrounded by Shasta Lake to the north and USFS forest lands on the east, west, and south and well as the County of Shasta to the south.

3.21.3 DISCUSSION OF IMPACTS

Question A

The proposed project would occur within the limits of the project site and would not impact land within a SRA or Very High FHSZ. Shasta County maintains an EOP; however, the proposed project would not conflict with this plan, and the proposed project would serve to increase the County's emergency fire response capacity. Project components would be designed and constructed in accordance with applicable safety and building codes and industry recognized standards. Additionally, the proposed project would increase water storage capacity for the purpose of emergency fire suppression for lands surrounding the project site, including SRA and Very High FHSZ areas. One lane of Lake Boulevard may be required to temporarily close due to construction. One-way traffic control would be implemented to maintain through traffic. Lake Boulevard is not an evacuation route, and through traffic would be maintained as needed. Construction activities and traffic would be temporary; Mitigation Measure T-1 includes preparation of a CTCP that would ensure emergency response and evacuation would not be impacted during construction. Therefore, impacts would be less than significant with mitigation; *localized and minor effect*.

Question B

As mentioned above, the proposed project is not located in an SRA or a Very High FHSZ. However, areas adjacent to the project site are located in SRA and considered within a Very High FHSZ. Project components would be designed and constructed in accordance with applicable safety and building codes and industry recognized standards. The proposed project would be located on a relatively flat, currently undeveloped area surrounded to the north by Shasta Lake and to the south surrounding forest land. The proposed project does not involve unique slopes or other factors that would exacerbate wildfire risks. Additionally, Mitigation Measure HAZ-1 would minimize potential fire risks from construction activities by requiring a spark arrestor in good working order. With implementation of Mitigation Measure HAZ-1, the proposed project would not significantly increase fire risk over existing conditions. Therefore, wildfire risk would not be exacerbated and the potential to expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire would be less than significant. Therefore, the project's impact would be less than significant; *localized and minor effect*.

Question C

As mentioned above, the proposed project is not located in an SRA or a Very High FHSZ. The purpose and need for the proposed project would be to increase the water capacity for the City and its residents due to wildfires in the area. The impact would be less than significant; *localized and minor effect*.

Question D

As mentioned above, the proposed project is not located in an SRA or a Very High FHSZ. As described in Section 3.8, the proposed project is not located on an unstable geologic unit or soil and does not have a high risk of landslides or liquefaction. The project site is currently undeveloped and would not substantially alter drainage patterns. The project site is located in an area of minimal flood hazard and, therefore, the water tank, foundation, and vehicle access area would not place structures in a floodplain such that flood flows would be impeded or redirected. Therefore, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. There would be a less-than-significant impact; *localized and minor effect.*

3.21.4 MITIGATION MEASURES

None required.

3.22 MANDATORY FINDING OF SIGNIFICANCE

<u>MANDATORY FINDINGS OF SIGNIFICANCE</u>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Does the proposed 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the proposed 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.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the proposed project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question A

The project site includes potential impacts to sensitive species and nesting birds and other wildlife, as discussed in Section 3.4. With implementation of mitigation measures identified in Section 3.4, the proposed project would not reduce habitat for fish or wildlife species, threaten to eliminate a plant or animal community, or adversely affect rare or endangered species. Implementation of Mitigation Measure BIO-1 would ensure that project impacts to biological resources would be less than significant.

As discussed in Section 3.5, no known cultural resources would be affected by the proposed project. Implementation of Mitigation Measure CR-1 would ensure that appropriate measures are implemented to ensure that impacts to any inadvertent discovery of cultural resources during ground-disturbing activities remain less than significant. Mitigation Measure CR-2 would ensure compliance with applicable regulations and appropriate protocol should human remains be unearthed during project construction. With implementation of mitigation measures, impacts would be less than significant.

Question B

A cumulative impact refers to the combined effect of “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines § 15355). Cumulative impacts reflect “the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time” (CEQA Guidelines § 15355[b]). Impact analyses included in this IS consider nearby projects and the proposed project within the context of local and regional planning guidance. Cumulative impacts for each resource area have been considered within the analysis of each resource area. When appropriate, mitigation measures have been provided to reduce all potential impacts to a less-than-significant level. Because the construction duration would be short, approximately six months and would generate a maximum of 20 daily truck trips, the proposed project’s contribution to existing cumulative impacts would be less than considerable. Cumulative impacts of the proposed project and other similar projects would result in less-than-significant impacts with implementation of the mitigation measures identified throughout this IS.

Question C

Based on the analysis provided in the individual resource sections, the proposed project would result in less-than-significant impacts for the following resource topics: forestry resources, energy, greenhouse gases, land use and planning, mineral resources, noise, population and housing, recreation, and utilities and service systems. Mitigation measures pertaining to cultural and TCRs would reduce proposed project-related impacts to less-than-significant levels. As such, implementation of mitigation measures would ensure that the effects on human beings would be less than significant with mitigation.

4 LIST OF PREPARERS

4.1 CITY OF SHASTA LAKE – CEQA LEAD AGENCY

Shelby Millingar, P.E., Associate Civil Engineer

William Bond, P.E., City Engineer and Public Works Director

Peter Bird, AICP, Senior Planner

Tony Thomasy, Water Department Superintendent

4.2 MONTROSE ENVIRONMENTAL – CONSULTANT

Project Manager:

Kathleen Sholty

Technical Staff:

Marcus Barrango

Kelli Raymond

Jedidiah Dowell

Charlane Gross, RPA

Jennifer Stucker

Taylor Van Demarr

Dana Hirschberg

5 REFERENCES

- Assistant Secretary for Planning and Evaluation, 2022. U.S. Federal Poverty Guidelines Used to Determine Financial Eligibility for Certain Programs, HHS Poverty Guidelines for 2022. Available online at: <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>. Accessed June 2022.
- Bureau of Land Management (BLM), 2022. GLO Records. Available at: <http://www.gloreCORDS.blm.gov/default.aspx>. Accessed June 2022.
- California Air Resources Board (CARB), 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. Available online at: http://www.arb.ca.gov/cc/ccea/meetings/ea_final_report.pdf. Accessed September 2022.
- CARB, 2016. *Ambient Air Quality Standards*. Available online at: <https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed on September 2022.
- CARB, 2017. Climate Change Scoping Plan Update, 2017. Available online at: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed September 2022.
- CARB, 2023. CARB Identified Toxic Air Contaminants. Available online at: <https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants>. Accessed February 2023.
- California Department of Conservation (DOC), 2019. State Mining and Geology Board Guidelines. Guidelines for Classification and Designation of Mineral Lands. Available online at: <https://www.conservation.ca.gov/smgb/Guidelines>. Accessed May 3, 2022.
- DOC, 2022a. Prime Farmland and Farmland of Statewide Importance. Available online at: https://www.conservation.ca.gov/dlrp/fmmp/Pages/prime_farmland_fmmp.aspx. Accessed August 10, 2022.
- DOC, 2022b. Reported California Landslides Map. Available online at: <https://cadoc.maps.arcgis.com/apps/webappviewer/index.html?id=bc48ad40e3504134a1fc8f3909659041>. Accessed May 4, 2022.
- DOC, 2022c. California Geological Survey Seismic Hazards Program: Alquist-Priolo Fault Hazard Zones Map. Available online at: <https://gis.data.ca.gov/maps/ee92a5f9f4ee4ec5aa731d3245ed9f53/explore?location=40.829713%2C-122.259035%2C9.99>. Accessed June 28, 2022.
- California Environmental Protection Agency (CalEPA), 2020a. Cortese List Data Resources. *List of "active" CDO and CAO from Water Board*. Available online at: <https://calepa.ca.gov/sitecleanup/corteselist/>. Accessed August 2022.
- CalEPA. 2020b. Cortese List Data Resources. Available online at: <https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/>. Accessed August 2022.
- California Department of Forestry and Fire Protection (CAL FIRE), 2022a. State Responsibility Area Viewer. Available online at: <https://calfire->

- forestry.maps.arcgis.com/apps/webappviewer/index.html?id=468717e399fa4238ad86861638765ce1. Accessed June 2022.
- CAL FIRE, 2022b. Fire Hazard Severity Zone Viewer. Available online at: <https://egis.fire.ca.gov/FHSZ/>. Accessed June 2022.
- CAL FIRE, 2023. Very High Fire Hazard Severity Zones in LRA as Recommended by CAL FIRE. Shasta County. Available online at: <https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/>. Accessed February 17, 2023.
- California Department of Transportation (Caltrans), 2018. Caltrans Vibration Guidance Manual. Available online at: <https://dot.ca.gov/programs/environmental-analysis/noise-vibration/guidance-manuals>. Accessed January 31, 2023.
- Caltrans, 2019 Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions. Available online at: <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/caltrans-bat-mitigation-guide-a11y.pdf>. Accessed January 31, 2023.
- Caltrans, 2022. California State Scenic Highway System Map. Available online at: <https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>. Accessed June 2022.
- California Energy Code, 2022. Section 130.2 Outdoor Lighting Controls and Equipment. Available online at: <https://codes.iccsafe.org/content/CAEC2022P1/subchapter-4-nonresidential-and-hotel-motel-occupancies-mandatory-requirements-for-lighting-systems-and-equipment-and-electrical-power-distribution-systems#:~:text=Exception%20%20to%20Section%20130.2,and%20365%20days%20per%20year>. Accessed January 31, 2023.
- California Geological Survey (CGS), 2002. Note 36: California Geomorphic Provinces. Revised December 2002. Available online at: <https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-36.pdf>. Accessed May 3, 2022.
- CGS, 2015a. Fault Activity Map of California. Available online at: <https://maps.conservation.ca.gov/cgs/fam/>. Accessed May 4, 2022.
- CGS, 2015b. Landslide Inventory. Available online at: <https://maps.conservation.ca.gov/cgs/lsl/>. Accessed June 2022.
- CGS, 2015c. Geologic Map of California. Available online at: <https://maps.conservation.ca.gov/cgs/gmcl/>. Accessed May 3, 2022.
- CGS, 2019. Alquist-Priolo Earthquake Fault Zones. Available online at: <https://www.conservation.ca.gov/cgs/alquist-priolo#:~:text=The%20Alquist%20Priolo%20Act%20requires,more%20than%20one%20hundred%20cities>. Accessed May 4, 2022.
- CalRecycle, 2019. SWIS Facility/Site Activity Details, Anderson Landfill, Inc. (45-AA-0020). Available online at: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1049?siteID=3457>. Accessed August 2022.

- City of Shasta Lake, 2023. 2040 General Plan. Available online at: <chrome-extension://efaidnbnmnibpcjpcglclefindmkaj/https://www.cityofshastalake.org/DocumentCenter/View/3596/Final-City-of-Shasta-Lake-2040-General-Plan>. Accessed January 31, 2023.
- City of Shasta Lake, 2016. City of Shasta Lake 2016-2026 Water Master Plan. Available online at: <https://www.cityofshastalake.org/DocumentCenter/View/1299/2016-2026-Water-Master-Plan?bidId=>. Accessed June 8, 2022.
- City of Shasta Lake, 2022. Water Treatment. Available online at: [https://www.cityofshastalake.org/913/Water-Treatment#:~:text=The%20Fishermen%20Point%20Treatment%20Plant,gallons%20per%20day%20\(MGD\)](https://www.cityofshastalake.org/913/Water-Treatment#:~:text=The%20Fishermen%20Point%20Treatment%20Plant,gallons%20per%20day%20(MGD).). Accessed June 1, 2022.
- Climate Action Team, 2007. *Climate Action Team Proposed Early Actions to Mitigate Climate Change in California*. Climate Action Team. California. 2007.
- Council on Environmental Quality, 1997. Environmental Justice Guidance Under the National Environmental Policy Act. Available online at: https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf. Accessed June 2022.
- Data Basin, 2022. California Mineral Resources. Available online at: <https://databasin.org/maps/new/#datasets=f2985196ca6b45cf8f2ad604beb95b34>. Accessed June 2022.
- Department of Toxic Substances Control (DTSC), 2022. Department of Toxic Substances Control EnviroStor. *Hazardous Waste and Substances Site List (Cortese)*. Available online at: <https://www.envirostor.dtsc.ca.gov/public>. Accessed August 2022.
- Department of Water Resources (DWR), 2020a. California Department of Water Resources – Bulletin 118, California’s Groundwater Update 2020, Appendix F. Hydrologic Region Basin Maps with Basin Tables. Available online at: https://data.cnra.ca.gov/dataset/calgw_update2020/resource/551ee7be-0cba-4dbf-ab96-c7cd7d2eef34/. Accessed December 20, 2022.
- DWR, 2020b. State of California, California Natural Resources Agency, Department of Water Resources, Sustainable Groundwater Management Program. Sustainable Groundwater Management Act 2019 Basin Prioritization, Process and Results, May 2020. Available online at: <https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization>. Accessed December 20, 2022.
- Dignity Health, 2021. Mercy Mt. Shasta. Available online at: <https://www.dignityhealth.org/north-state/locations/mercy-mtshasta>. Accessed February 1, 2023.
- Federal Emergency Management Agency (FEMA), 2020. FEMA Flood Map Service Center: Search By Address. Available online at: <https://msc.fema.gov/portal/search?AddressQuery>. Accessed December 19, 2022.
- FEMA, 2022. Definition of Zone X (Unshaded). Available online at: <https://www.fema.gov/about/glossary>. Accessed February 17, 2023.
- Federal Highway Administration (FHWA), 2006. *FHWA Roadway Construction Noise Model User’s Guide*. FHWA-HEP-05-054 DOT-VNTSC-FHWA-05-01. January 2006.

- FHWA, 2018. Construction Noise Handbook. Available online at: <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nrc.gov/docs/ML1805/ML18059A141.pdf>. Accessed January 31, 2023
- FHWA, 2022. America's Byways. Available online at: <https://www.fhwa.dot.gov/byways/>. Accessed June 2022.
- Federal Transit Administration, 2006. *Transit Noise and Vibration Impact Assessment*. FTA-VA-90-1003-06. May 2006. Available online at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf. Accessed September 2020.
- Hamusek-McGann, B., E. Ritter, and J. Burcell, 1998. Living on the Edge: *Archaeological Signatures of the Eastern Shasta Valley Foothills, Siskiyou County, California*. Articles of the SCA Proceedings 11:102-111.
- Marvin, Judith, 2019. *Architectural Resources Study Toyon Water Treatment Plant CA-030-1916 City of Shasta Lake Shasta County, California*. Report prepared for Analytical Environmental Services.
- National Center for Education Statistics, 2022. Gateway Unified. Available online at: https://nces.ed.gov/ccd/districtsearch/district_detail.asp?Search=2&ID2=0614950&DistrictID=0614950&details=4. Accessed February 1, 2023.
- National Resources Conservation Service (NRCS), 2022. Custom Soils Report for the Centimudi Water Storage project. Available online at: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed June 28, 2022.
- Redding Area Bus Authority (RABA), 2022. Routes and Stops. Available online at: <https://www.cityofredding.org/departments/redding-area-bus-authority/services/bus>. Accessed December 27, 2022.
- Regional Water Quality Control Board (RWQCB), 2019. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, The Sacramento River Basin and the San Joaquin River Basin, Revised February 2019. Available online at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201902.pdf. Accessed December 20, 2022.
- Sacramento River Watershed Program, 2022. Sacramento River Watershed Program, Upper Sacramento River Watershed. Available online at: <https://sacriver.org/explore-watersheds/northeast-subregion/upper-sacramento-river-watershed/>. Accessed December 19, 2022.
- Shasta County, 2004. General Plan. Available online at: <https://www.co.shasta.ca.us/index/drm/planning/general-plan>. Accessed May 4, 2022.
- Sacramento Valley Air Quality Engineering and Enforcement Professionals, 2018. 2018 triennial update of the NSVPA Air Quality Attainment Plan. Available online at: <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.fraqmd.org/files/f342b0261/Item+3+2018+Triennial+Report.pdf>. Accessed January 31, 2023
- Shasta County, 2004. Air Quality Services. Available online at: <https://www.shastacounty.gov/air-quality/page/air-quality-services>. Accessed January 31, 2023.

- Shasta County, 2009. Shasta County Parks, Trails and Open Space Plan, August 2009. Available online at: <https://www.shastacounty.gov/sites/default/files/fileattachments/planning/page/3309/parks-trails-open-space-plan.pdf>. Accessed December 27, 2022.
- Shasta County, 2010. Shasta County 2010 Bicycle Transportation Plan (BTP), adopted June 2010. Available online at: <https://ca-srta.civicplus.com/DocumentCenter/View/3244/ShastaCountyBikePlan2010>. Accessed December 27, 2022.
- Shasta County, 2012 Draft Shasta Regional Climate Action Plan. Available online at: <https://www.shastacounty.gov/planning>. Accessed February 1, 2023.
- Shasta County, 2014. Shasta County Emergency Operations Plan. Available online at: <https://www.shastacounty.gov/county-administrative-office/page/emergency-operations-plan>. Accessed February 1, 2023.
- Shasta Lake Fire Protection District, 2022. Shasta Lake Fire Protection District. Available online at: <https://cityofshastalake.org/Directory.aspx?did=34>. Accessed February 1, 2023.
- Shasta Regional Transportation Agency (SRTA), 2017. Shasta Coordinated Transportation Plan, February 28, 2017. Available online at: <https://ca-srta.civicplus.com/DocumentCenter/View/3492/2017-Shasta-Coordinated-Transportation-Plan?bidId=>. Accessed December 27, 2022.
- SRTA, 2019. GoShasta Regional Active Transportation Plan, February 2018 (Updated August, 2019). Available online at: https://ca-srta.civicplus.com/DocumentCenter/View/4773/GoShasta_Regional_ATP_with_appendices_8-2020?bidId=. Accessed December 27, 2022.
- Society of Vertebrate Paleontology, 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Available online at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines-1.pdf. Accessed February 1, 2023.
- Sundahl, Elaine, 1992. *Cultural Patterns and Chronology in the Northern Sacramento River Drainage*. Proceedings of the Society for California Archaeology Vol. 5:89-112.
- State of California, 2022. Board of Forestry and Fire Protection. Accessed March 2, 2022. Available online at: <https://bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer/>. Accessed February 1, 2023.
- State Water Resources Control Board (SWRCB), 2022a. SWRCB GeoTracker Database. Available online at: https://geotracker.waterboards.ca.gov/map/?global_id=T0608900269. Accessed August 2022.
- SWRCB, 2022b. Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit. Available online at: <https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf>. Accessed August 2022.
- SWRCB, 2022c. 2020-2022 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report). Appendix A: Recommended 2020-2022 303(d) List of Impaired Waters (Region 5) and Final Appendix H: 2018 303(d) List of Impaired Waters (Region 5). Available online at: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html. Accessed December 20, 2022.

- University of California Museum of Paleontology (UCMP), 2022. Specimen Database. Available at: <http://ucmpdb.berkeley.edu/>. Accessed June 2022.
- U.S. Census Bureau, 2022a. Quickfacts Shasta City, Shasta County, and California. Population. Available online at: <https://www.census.gov/quickfacts/fact/table/shastacountycalifornia,CA,shastalakecitycalifornia/PST045221>. Accessed June 2022.
- U.S. Census Bureau, 2022b. Quickfacts Shasta City, Shasta County, and California. Income and Poverty. Available online at: <https://www.census.gov/quickfacts/fact/table/shastacountycalifornia,CA,shastalakecitycalifornia/PST045221>. Accessed June 2022.
- U.S. Climate Data, 2022. Climate Shasta Lake – California. Available online at: <https://www.usclimatedata.com/climate/shasta-lake/california/united-states/usca2163>. Accessed December 19, 2022.
- U.S. Environmental Protection Agency (EPA), 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. Available online at: https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_epa0498.pdf. Accessed February 1, 2023.
- EPA, 2013. National Ambient Air Quality Standards for Particulate Matter. Available online at: <https://www.federalregister.gov/documents/2013/01/15/2012-30946/national-ambient-air-quality-standards-for-particulate-matter>. Accessed February 1, 2023.
- EPA, 2022. Map of Sole Source Aquifer Locations. Available online at: <https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b>. Accessed December 19, 2022.
- U.S. Forest Service (USFS), 1994. Final Environmental Impact Statement: Land and Resource Management Plan. Available online at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5209393.pdf. Accessed July 2022.
- USFS, 1995. Shasta-Trinity National Forests Land and Resource Management Plan. Available online at: <https://www.fs.usda.gov/detailfull/stnf/landmanagement/planning/?cid=stelprdb5108815&width=full>. Accessed February 17, 2023.
- USFS, 2000. Water Quality Management for Forest System Lands in California, Best Management Practices, September 2000. Available online at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5362512.pdf. Accessed December 21, 2022.
- USFS, 2012. National Best Management Practices for Water Quality Management on National Forest System Lands (Volume 1: National Core BMP Technical Guide), FS-990a, April 2012. Available online at: www.fs.usda.gov/naturalresources/watershed/pubs/FS_National_Core_BMPs_April2012.pdf. Accessed December 16, 2022.
- USFS, 2022a. Shasta-Trinity National Forest History & Culture. Available online at: <https://www.fs.usda.gov/main/stnf/learning/history-culture#:~:text=Shasta%2DTrinity%20National%20Forest%20is,Shasta%20City>). Accessed June 2022.

- USFS, 2022b. Dry Fork Creek Trail, Interactive Visitor Map. Available online at: <https://www.fs.usda.gov/recarea/stnf/recarea/?recid=6463>. Accessed December 27, 2022.
- U.S. Geological Survey (USGS), 2018. 2018 Long-Term National Seismic Hazard Map. Available online at: <https://www.usgs.gov/media/images/2018-long-term-national-seismic-hazard-map>. Accessed August 16, 2020.
- USGS, 2020. USGS, Science in Your Watershed, Locate Your Watershed. Available online at: <https://water.usgs.gov/wsc/cat/18020005.html>. Accessed December 19, 2022.
- USGS, 2022a. Northern California Legacy Catalog: Scenarios of Battle Creek and Hat Creek Faults. Available online at: <https://earthquake.usgs.gov/scenarios/catalog/nclegacy/>. Accessed on June 28, 2022.
- USGS, 2022b. California Volcano Observatory. Available online at: <https://www.usgs.gov/observatories/calvo>. Accessed August 2022.
- USGS, 2023. U.S. Landslide Inventory and Interactive Map. Available online at: <https://www.usgs.gov/programs/landslide-hazards/maps>. Accessed February 1, 2023.

APPENDIX A

TECHNICAL MEMORANDUM – SITING OPTIONS

Technical Memorandum No. 1.0 – Revision 1

TO: Jeff Tedder, City of Shasta Lake DATE: December 4, 2018

FROM: Paul Reuter, P.E. *PJR* JOB NO.: 110.91
Paige Cibart, E.I.T. *PC*

SUBJECT: Finished Water Storage Tank Siting Options

BACKGROUND / NEED FOR PROJECT

The purpose of this technical memorandum is to evaluate alternatives for constructing a new 2.45-million-gallon (MG) finished water storage tank to replace the City of Shasta Lake's (City) existing tanks. There are two primary objectives for constructing a new finished water storage tank, described as follows:

1. Correct Existing Storage Deficiency: Section 6.2 of the City's 2016-2026 Water Master Plan (WMP) describes existing water system deficiencies pertaining to treated and raw water storage capacity. The WMP indicates the City currently has a 0.68 MG City-wide storage deficit. In addition, it is recommended the City increase its raw water storage. Constructing a new finished water storage tank at a different location will allow the City to correct its storage deficit and free up space to construct a larger raw water storage tank.

During the 2018 Carr Fire, the fire nearly reached the southern boundary of the City's water service area. Even though the fire did not reach the City, its water infrastructure was severely impacted, nearly draining the system's storage. Therefore, correcting its current storage deficit is of utmost importance.

2. Maintain Existing Water System Pressures: The City's water supply originates at the highest elevation in the service area. Water is conveyed to lower reaches of the system through pressure reducing valves and defined pressure zones. Lowering the water supply origination point (finished water storage tank) would have detrimental effects on all downstream conveyance infrastructure, thereby affecting the City's ability to convey necessary flows during peak periods.

In addition, the City currently provides water, via gravity, to several U.S. Bureau of Reclamation (USBR) facilities, including the Visitor's Center, Off-Highway Vehicle Site, and Centimudi Boat Ramp. These services rely on a direct connection to the finished water storage tank to deliver reliable service. Any reduction in elevation approaching 30 feet will require a booster pump station and/or new service pipeline to serve the USBR facilities.

The City currently has two existing finished water storage tanks located on the north side of Fisherman's Point Water Treatment Plant (WTP). Both tanks have reached/exceeded their useful lives and were recommended for demolition/replacement as part of the WMP. To accomplish the objectives described hereinbefore, the WMP recommended the City demolish the two existing finished water storage tanks, construct a new raw water storage tank at that location, and construct a new finished water storage tank near the intersection of Lake Boulevard and Kennett Road.

There is not adequate room at the Fisherman's Point WTP to construct both a new raw water storage tank and a 2.45 MG finished water storage tank.

The treated water storage reservoirs provide pressures to Zone A, which includes the corridor, south, along Lake Boulevard to existing pressure reducing stations (PRVs) near Red Bud Lane. In order to maintain current system pressures, it is important for the City to maintain a relatively consistent tank elevation as the current finished water storage tanks. The intersection of Lake Boulevard and Kennett Road has ground elevations within a few feet of the existing finished water storage tank site, rendering it an ideal location to construct a new tank.

The existing finished water storage tanks are about 30 feet tall. If a new tank is installed at an elevation more than 30 feet below the existing site, the City will be unable to provide gravity water service to the USBR facilities.

Gravity water service provides the most reliable water service and is not impacted by power outages. In lieu of gravity service, a new booster pump station could be installed, but like anything mechanical, continuous water service becomes less reliable. However, booster pumping is made more reliable by installing redundant pumps/motors and permanent standby power generators with an automatic transfer switch - both costly options.

In order to increase storage to an acceptable level, maintain similar system pressures, and maintain gravity water service to the USBR facilities, we are proposing three options for siting a new finished water storage tank. The options are described below:

FINISHED WATER STORAGE TANK SITING OPTIONS

Option 1 – Lake/Kennett Tank At-Grade

The Option 1 site is located in the flat, cleared area southeast of the Lake/Kennett intersection, see Figure 1. The area has been used for storage and disposal of driftwood removed from the Centimudi Boat Ramp. While the tank would take up the majority of the area, accommodations could be made to facilitate continuance of the driftwood processing efforts. The proposed tank at this site would be 120 feet in diameter by about 32 feet high.

Minimal grading and earthwork would be required at this location, which eliminates the need for a large earthwork scar graded into the hillside. This site would be the most visible from Shasta Lake, but there are a number of mitigations that could be incorporated into final design to minimize visual impacts, such as:

- Painting tank exterior to match surrounding vegetation.
- Incorporating a mural into the exterior paint that matches surrounding vegetation.
- Planting a line of native trees along the north side of the tank to act as a screen from visual impacts on Shasta Lake.
- Any combination of the above measures.

To help evaluate potential visual impacts to Shasta Lake users resulting from a tank at this location, we have prepared two visual renditions using tools available in Google Earth and AutoCAD Civil 3D. Both renditions are reflective of an approximate lake level of 1,045 feet from approximately 3,000 feet (0.57 miles) away, corresponding to the date of the Google Earth photo.

Figure 2: This rendition represents the Google Earth ground profile that does not reflect the 3D impacts of existing vegetation.

Figure 3: Using AutoCAD 3D tools, we added vegetation to the existing ground surface assuming typical heights of existing trees. As indicated, we believe a new tank at this location would be largely screened by existing vegetation at lake elevations below 1,045 feet.

Since the Option 1 site contains very little earthwork, it is the least costly option. It is also the best option for maintaining existing water pressures to the City's downstream water infrastructure and the USBR facilities.

Option 2 – Lake Blvd, 350 Ft. South of Lake/Kennett

The Option 2 site is located approximately 350 feet south of the Lake/Kennett intersection, east of Lake Blvd, see Figure 1. Since there is no flat ground at this location, it would be necessary to cut an earthwork bench into the hillside to the east of Lake Blvd. In order to minimize earthwork, it is proposed to construct an 8-foot-tall retaining wall around the back side of the tank. Even with the retaining wall, there would still be over 17,000 cubic yards of material requiring removal from the site.

The tank base elevation would be about 25 feet lower than the Option 1 site, but a taller tank is proposed in order to 1) minimize system pressure reductions and impacts for serving the USBR facilities and 2) reduce the quantity of earthwork. The water service elevation would still be about 7 feet lower than Option 1 meaning at tank drawdowns approaching 23 feet, the USBR facilities would be out of water without a booster pump and/or new service pipeline. The proposed tank would be about 92 feet in diameter by 50 feet high and contain a bolt-down foundation due to the diameter-to-height ratio.

Given the amount of earthwork and associated scar, Option 2 is likely to require more environmental review.

This option would allow the top portion of tank and upper earthwork scar to be seen from Shasta Lake.

Option 3 – Lake Blvd, 550 Ft. South of Lake/Kennett

The Option 3 site is located even further south on Lake Blvd, approximately 500 feet south of the Lake/Kennett intersection, see Figure 1. The natural topography in this area creates somewhat of a “bowl” east of Lake Blvd. However, in order to minimize impacts to the natural drainage course and potential wetlands, it is likely the proposed tank will need to shift to the east, into the hillside.

Similar to Option 2, an 8-foot-high concrete retaining wall would be constructed around the earthwork side of the tank to minimize the total volume of cut. A tank at this location would be even taller than the Option 2 tank, necessitating the need for a bolt-down foundation. The maximum water surface in the tank would be about 11 feet lower than the existing tank, which would still allow gravity service to the USBR facilities but only when tank drawdowns are less than about 19 feet.

The proposed tank would be about 87 feet in diameter by 58 feet high, requiring multiple access ladder landings to meet OSHA requirements.

Option 3 requires approximately 24,000 cubic yards of net (cut/fill) earthwork, rendering it the most expensive siting option. Environmental clearance will be the most challenging for this option in navigating permit and mitigation requirements for the seasonal stream and potential wetlands.

COST ESTIMATES

Preliminary project cost estimates were developed for all three siting options. A 20% construction contingency was added to the construction cost. Indirect and engineering costs were estimated for each option based on the relative complexity of environmental clearance, permitting, design, and construction. As indicated in attached Tables 1-3, the estimated project cost for Option 1 is \$3,578,000, Option 2 is \$4,425,000, and Option 3 is \$4,859,000.

RECOMMENDATIONS

Other siting options may exist further south on Lake Blvd.; however, another 10 feet in vertical drop in elevation (below the Option 3 site) would require the need for a booster pump station and pipeline to provide the USBR facilities and Centimudi Boat Launch facility with water service. In order to provide reliable service, the booster pump station would need to have redundant pumps/motors and a standby power generator with an automatic transfer switch. Such a facility would cost in the \$400,000 to \$700,000 range depending on numerous factors such as: siting of facility, type of pumps, station enclosure, indoor/outdoor generator, etc. A pressurized pump station discharge pipeline

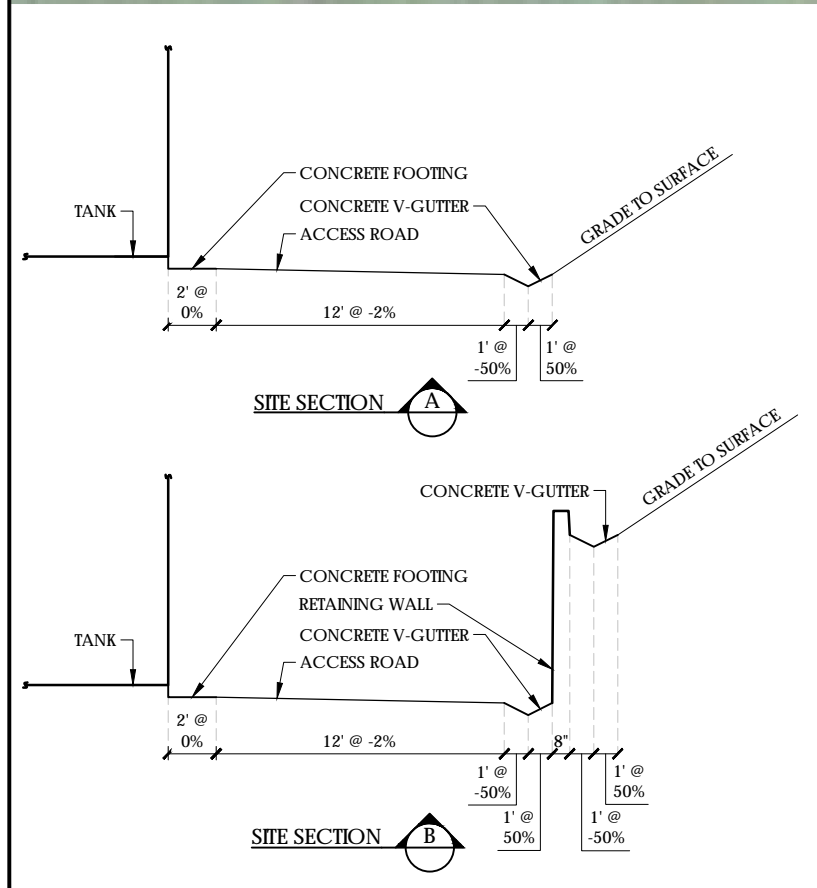
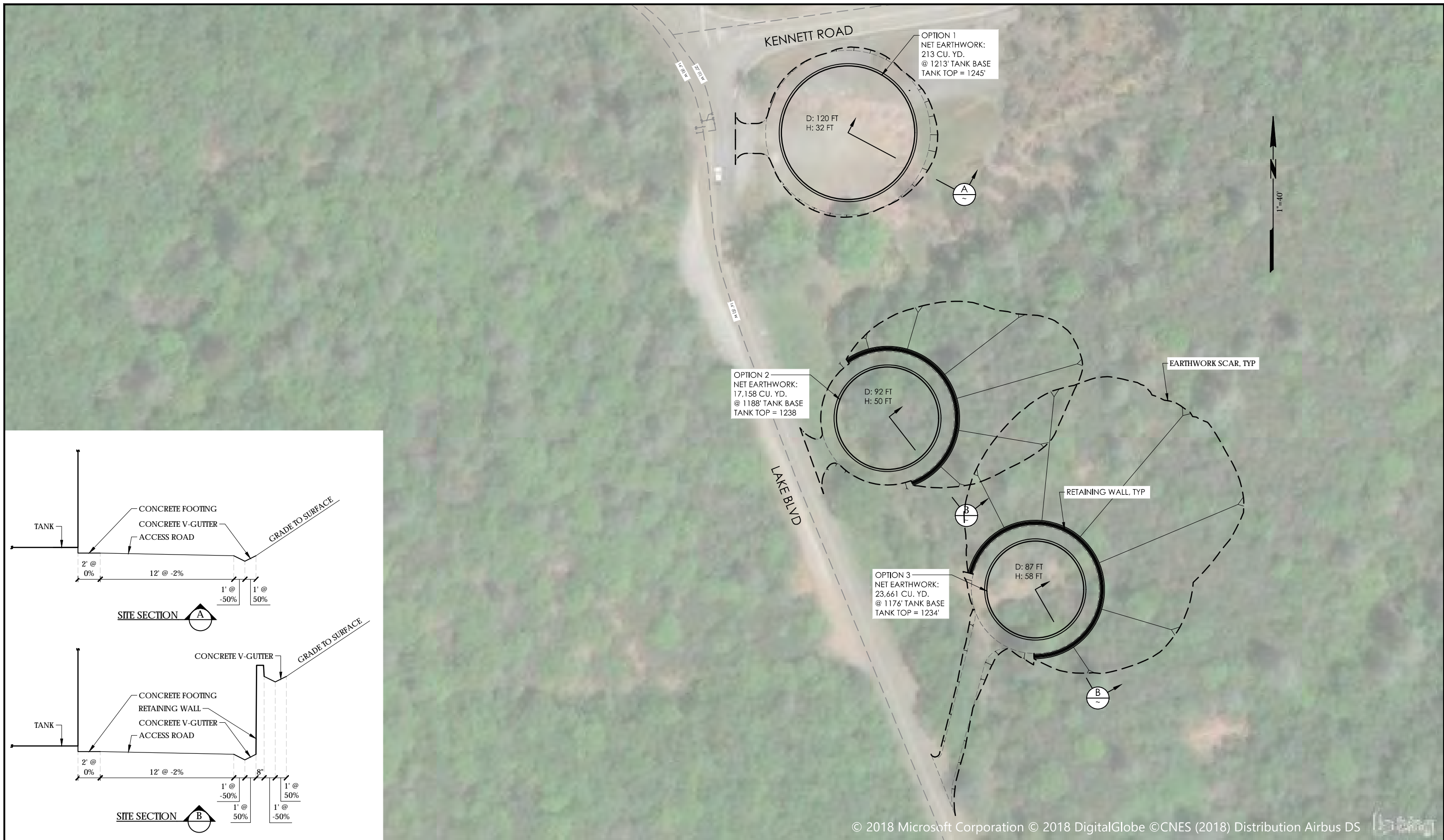
would need to be installed to the various connection points serving the USBR facilities. The size, length(s), and configuration of this pipeline will dictate the cost. The cost range shown above does not reflect any pipeline costs.

The Option 1 site is the least expensive and provides the water system with virtually the same system pressures and similar conditions for maintaining water service to the City's downstream infrastructure, the USBR facilities, and Centimudi Boat Launch facility. In addition, this option does not create an unsightly earthwork scar on the side of the mountain.

The aesthetics of the tank itself could be mitigated by matching the exterior wall paint with local vegetation or painting a mural on the walls resembling the local flora. If painting does not provide adequate aesthetic relief, a line of trees could be planted along the north side of tank. The trees could be redwood or other local species that reach heights of at least 30 feet.

M:\Jobs\0110 City of Shasta Lake\0110.91 Finished Water Storage Tank Siting Options\Tank Siting Alternatives\Tech-Memo-No-1 - REV 1.docx

FIGURES



BAR IS ONE INCH ON ORIGINAL DRAWING
 0" ————— 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

REVISIONS		
NO.	DATE	DESCRIPTION

PACE ENGINEERING
 REDDING, CALIFORNIA

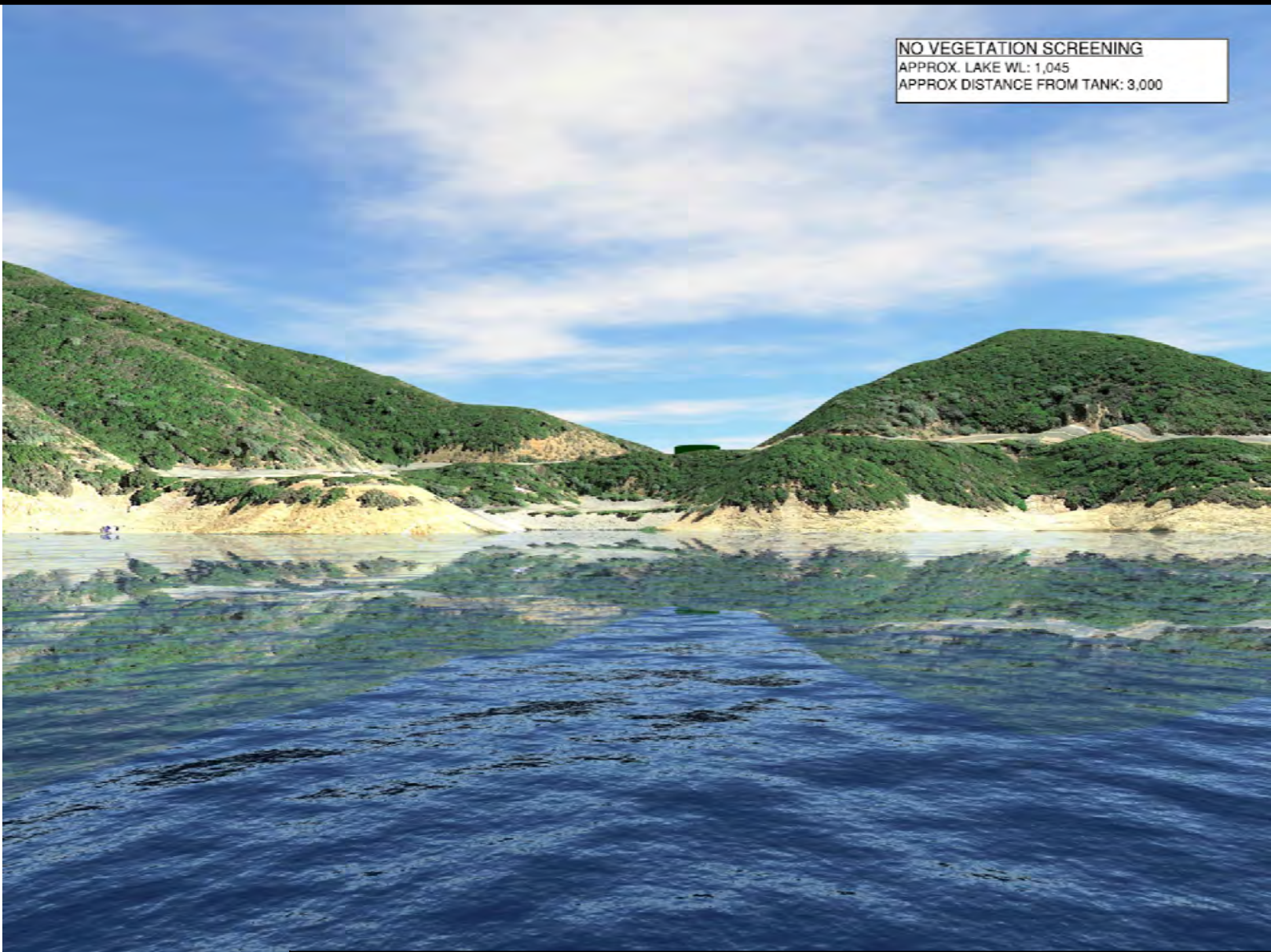
DES	PC	CKD	PJR	JOB NO.
DRN	PC	DATE	11/14/18	110.91

SIGNED
**PRELIMINARY
 NOT FOR
 CONSTRUCTION**

CITY OF SHASTA LAKE
 FINISHED WATER STORAGE TANK SITING OPTIONS

TANK SITING OPTIONS

FIGURE
1

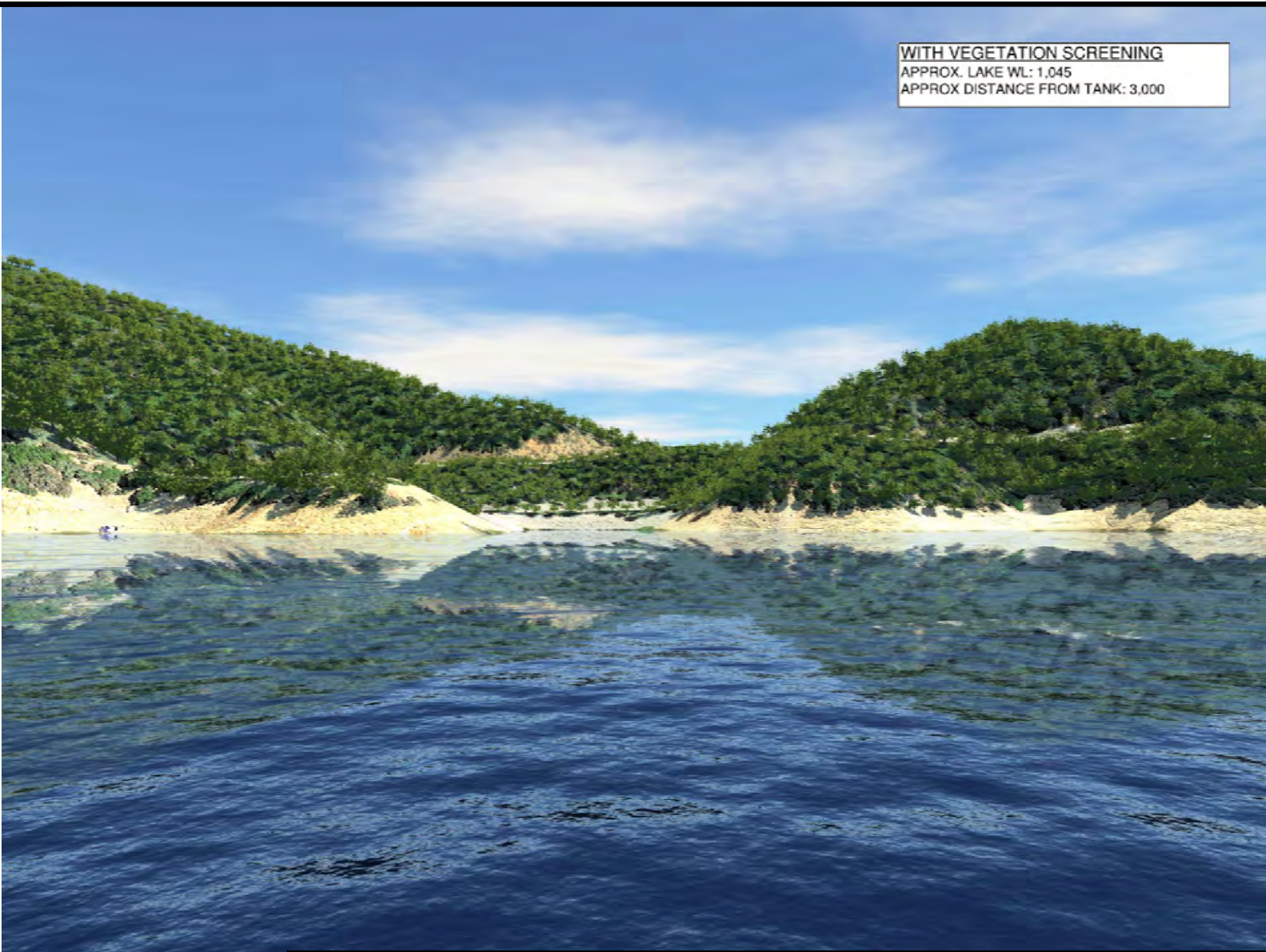


NO VEGETATION SCREENING
APPROX. LAKE WL: 1,045
APPROX DISTANCE FROM TANK: 3,000



**CITY OF SHASTA LAKE
FINISHED WATER STORAGE TANK SITING
OPTIONS**

FIGURE 2
DATE: 11/18
JOB # 110.91



WITH VEGETATION SCREENING
APPROX. LAKE WL: 1,045
APPROX DISTANCE FROM TANK: 3,000



**CITY OF SHASTA LAKE
FINISHED WATER STORAGE TANK SITING
OPTIONS**

FIGURE 3

DATE: 11/18

JOB # 110.91

TABLES

Table 1				
City of Shasta Lake				
Finished Water Storage Tank Siting Options				
Option 1 Tank Site Project Cost Estimate				
DESCRIPTION	QTY	UNITS	UNIT COST	CONTRACT AMOUNTS
Tank Site and Piping Improvements				
16" Water Main w/A1 Backfill	256	LF	\$115	\$29,440
16" Water Main w/A4 Backfill	31	LF	\$85	\$2,635
Overflow Piping w/C Backfill	40	LF	\$75	\$3,000
Overflow Discharge, Energy Dissipator, and Flap Gate	1	LS	\$6,000	\$6,000
Culvert Crossing	1	LS	\$5,000	\$5,000
16" Butterfly Valves	3	EA	\$3,000	\$9,000
Miscellaneous Mechanical Tank Piping	1	EA	\$35,000	\$35,000
Tie to Existing System	1	EA	\$5,000	\$5,000
2.45-MG Tank Improvements				
Foundation, Including Below-Tank Piping	112	CY	\$1,200	\$134,400
Tank Erection and Painting	2,450,000	GAL	\$0.75	\$1,837,500
Electrical/SCADA	1	LS	\$60,000	\$60,000
Electrical Power Conduit	200	LF	\$40	\$8,000
New Electrical Service	1	LS	\$15,000	\$15,000
Clearing and Grubbing	1	LS	\$20,000	\$20,000
Earthwork, Site Work, and Grading	207	CY	\$50	\$10,359
3" Asphalt	7,108	SF	\$4	\$28,432
Agg Base	158	CY	\$100	\$15,800
Fencing	1	LS	\$40,000	\$40,000
Clean Up, Testing, Submittals, Equip Manuals	1	LS	\$30,000	\$30,000
Misc	1	LS	\$30,000	\$30,000
Subtotal Option 1 Tank Improvements:				\$2,324,566
Contingency Allowance @ 20%:				\$460,000
Subtotal Construction Costs (Including Contingency) (2018 Dollars):				\$2,780,000
Inflation to 2020 Dollars at 4%/yr (8% Total):				\$227,000
Total Construction Costs (2020 Dollars):				\$3,007,000
INDIRECT COSTS				
Environmental:				\$65,000
Permitting:				\$10,000
Survey/Mapping/Legal Desc/ROW Acquisition:				\$25,000
Design:				\$241,000
Bidding:				\$20,000
Construction Administration:				\$90,000
Construction Observation:				\$120,000
Total Indirect Costs:				\$571,000
TOTAL ESTIMATED PROJECT COST (2020 Dollars):				\$3,578,000

Table 2				
City of Shasta Lake				
Finished Water Storage Tank Siting Options				
Option 2 Tank Site Project Cost Estimate				
DESCRIPTION	QTY	UNITS	UNIT COST	CONTRACT AMOUNTS
Tank Site and Piping Improvements				
16" Water Main w/A1 Backfill	223	LF	\$115	\$25,645
16" Water Main w/A4 Backfill	0	LF	\$85	\$0
Overflow Piping w/C Backfill	40	LF	\$75	\$3,000
Overflow Discharge, Energy Dissipator, and Flap Gate	1	LS	\$6,000	\$6,000
Culvert Crossing	3	LS	\$5,000	\$15,000
16" Butterfly Valves	6	EA	\$3,000	\$18,000
Miscellaneous Mechanical Tank Piping	1	EA	\$35,000	\$35,000
Tie to Existing System	2	EA	\$5,000	\$10,000
2.45-MG Tank Improvements				
Foundation, Including Below-Tank Piping	86	CY	\$1,200	\$103,200
Retaining Wall	42	CY	\$1,500	\$63,000
Concrete Gutter	212	LF	\$50	\$10,600
Tank Erection and Painting	2,450,000	GAL	\$0.75	\$1,837,500
Electrical/SCADA	1	LS	\$60,000	\$60,000
Electrical Power Conduit	200	LF	\$40	\$8,000
New Electrical Service	1	LS	\$15,000	\$15,000
Clearing and Grubbing	1	LS	\$20,000	\$20,000
Earthwork, Site Work, and Grading	17,158	CY	\$30	\$514,747
3" Asphalt	4,683	SF	\$4	\$18,732
6" Agg Base	104	CY	\$100	\$10,400
Fencing	1	LS	\$40,000	\$40,000
Clean Up, Testing, Submittals, Equip Manuals	1	LS	\$30,000	\$30,000
Misc	1	LS	\$30,000	\$30,000
Subtotal Option 2 Tank Improvements:				\$2,873,823
Contingency Allowance @ 20%:				\$570,000
Subtotal Construction Costs (Including Contingency) (2018 Dollars):				\$3,440,000
Inflation to 2020 Dollars at 4%/yr (8% Total):				\$281,000
Total Construction Costs (2020 Dollars):				\$3,721,000
INDIRECT COSTS				
Environmental:				\$75,000
Permitting:				\$15,000
Survey/Mapping/Legal Desc/ROW Acquisition:				\$35,000
Design:				\$298,000
Bidding:				\$20,000
Construction Administration:				\$112,000
Construction Observation:				\$149,000
Total Indirect Costs:				\$704,000
TOTAL ESTIMATED PROJECT COST (2020 Dollars):				\$4,425,000

Table 3				
City of Shasta Lake				
Finished Water Storage Tank Siting Options				
Option 3 Tank Site Project Cost Estimate				
DESCRIPTION	QTY	UNITS	UNIT COST	CONTRACT AMOUNTS
Tank Site and Piping Improvements				
16" Water Main w/A1 Backfill	320	LF	\$115	\$36,800
16" Water Main w/A4 Backfill	0	LF	\$85	\$0
Overflow Piping w/C Backfill	40	LF	\$75	\$3,000
Overflow Discharge, Energy Dissipator, and Flap Gate	1	LS	\$6,000	\$6,000
Culvert Crossing	3	LS	\$5,000	\$15,000
16" Butterfly Valves	6	EA	\$3,000	\$18,000
Miscellaneous Mechanical Tank Piping	1	EA	\$35,000	\$35,000
Tie to Existing System	2	EA	\$5,000	\$10,000
2.45-MG Tank Improvements				
Foundation, Including Below-Tank Piping	112	CY	\$1,200	\$134,400
Retaining Wall	54	CY	\$1,500	\$81,000
Concrete Gutter	262	LF	\$50	\$13,100
Tank Erection and Painting	2,450,000	GAL	\$0.75	\$1,837,500
Electrical/SCADA	1	LS	\$60,000	\$60,000
Electrical Power Conduit	200	LF	\$40	\$8,000
New Electrical Service	1	LS	\$15,000	\$15,000
Clearing and Grubbing	1	LS	\$20,000	\$20,000
Earthwork, Site Work, and Grading	23,661	CY	\$30	\$709,828
3" Asphalt	6,637	SF	\$4	\$26,549
Agg Base	148	CY	\$100	\$14,800
Fencing	1	LS	\$40,000	\$40,000
Clean Up, Testing, Submittals, Equip Manuals	1	LS	\$30,000	\$30,000
Misc	1	LS	\$30,000	\$30,000
Subtotal Option 3 Tank Improvements:				\$3,143,977
Contingency Allowance @ 20%:				\$630,000
Subtotal Construction Costs (Including Contingency) (2018 Dollars):				\$3,770,000
Inflation to 2020 Dollars at 4%/yr (8% Total):				\$308,000
Total Construction Costs (2020 Dollars):				\$4,078,000
INDIRECT COSTS				
Environmental:				\$85,000
Permitting:				\$20,000
Survey/Mapping/Legal Desc/ROW Acquisition:				\$45,000
Design:				\$326,000
Bidding:				\$20,000
Construction Administration:				\$122,000
Construction Observation:				\$163,000
Total Indirect Costs:				\$781,000
TOTAL ESTIMATED PROJECT COST (2020 Dollars):				\$4,859,000

APPENDIX B

AIR QUALITY AND GHG MODEL RUNS

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

City of Shasta Lake Centimudi Water Storage Tank Project

Shasta County AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.12	1000sqft	0.00	120.00	0
Other Asphalt Surfaces	7.10	1000sqft	0.16	7,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Used default assumptions for Intensity Factor

Land Use - GLI = water tank

OAS = pavement surrounding tank

Construction Phase - No demolition proposed for project.

Off-road Equipment -

Off-road Equipment - Welder's and generators may be used during construction phase.

Off-road Equipment - No demoliton proposed for project.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Q for Marcus--Graders not mentioned in PD. Should they be included?

Trips and VMT - Assumed 10 workers per day. 10 trips needed for grubbing/clearing.

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - Approx 207 cubic yards of disturbed soils.

Vehicle Trips - Assumed two workers once per week

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No city park/golf course in project area.

Landscape Equipment - No landscaping proposed.

Energy Use -

Water And Wastewater - No wastewater or indoor water usage proposed

Solid Waste - No solid waste generated.

Construction Off-road Equipment Mitigation -

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	0.00
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblGrading	MaterialExported	0.00	207.00
tblGrading	MaterialImported	0.00	207.00
tblLandscapeEquipment	NumberSummerDays	180	0
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.40	0.00
tblOffRoadEquipment	LoadFactor	0.37	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblSolidWaste	SolidWasteGenerationRate	0.15	0.00
tblTripsAndVMT	HaulingTripNumber	52.00	10.00
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblTripsAndVMT	WorkerTripNumber	3.00	5.00
tblTripsAndVMT	WorkerTripNumber	18.00	5.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	1.00
tblWater	IndoorWaterUseRate	27,750.00	0.00

2.0 Emissions Summary

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-1-2023	6-30-2023	0.3132	0.3132
2	7-1-2023	9-30-2023	0.3146	0.3146
		Highest	0.3146	0.3146

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3100e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.2282	0.2282	2.0000e-005	0.0000	0.2299
Mobile	6.0000e-005	1.0000e-004	5.2000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.0933	0.0933	1.0000e-005	1.0000e-005	0.0951
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3800e-003	2.2000e-004	6.2000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	2.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3214	0.3214	3.0000e-005	1.0000e-005	0.3250

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3100e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.2282	0.2282	2.0000e-005	0.0000	0.2299
Mobile	6.0000e-005	1.0000e-004	5.2000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.0933	0.0933	1.0000e-005	1.0000e-005	0.0951
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3800e-003	2.2000e-004	6.2000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	2.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3214	0.3214	3.0000e-005	1.0000e-005	0.3250

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2023	4/1/2023	5	0	
2	Site Preparation	Site Preparation	4/2/2023	4/3/2023	5	1	
3	Grading	Grading	4/4/2023	4/5/2023	5	2	

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	4/21/2023	9/7/2023	5	100
5	Paving	Paving	9/7/2023	9/13/2023	5	5
6	Architectural Coating	Architectural Coating	9/14/2023	9/20/2023	5	5

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 180; Non-Residential Outdoor: 60; Striped Parking Area: 426 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

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3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0900e-003	1.9600e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309
Total	2.7000e-004	3.0900e-003	1.9600e-003	0.0000	2.7000e-004	1.1000e-004	3.8000e-004	3.0000e-005	1.0000e-004	1.3000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309

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3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165
Total	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0900e-003	1.9600e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309
Total	2.7000e-004	3.0900e-003	1.9600e-003	0.0000	2.7000e-004	1.1000e-004	3.8000e-004	3.0000e-005	1.0000e-004	1.3000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309

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3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165
Total	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3400e-003	0.0000	5.3400e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	9.3000e-004	0.0102	5.5500e-003	1.0000e-005	5.3400e-003	4.2000e-004	5.7600e-003	2.5700e-003	3.9000e-004	2.9600e-003	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481

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3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	7.0000e-004	1.4000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2864	0.2864	0.0000	5.0000e-005	0.2998
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0327	0.0327	0.0000	0.0000	0.0330
Total	3.0000e-005	7.1000e-004	2.7000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3190	0.3190	0.0000	5.0000e-005	0.3328

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3400e-003	0.0000	5.3400e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	9.3000e-004	0.0102	5.5500e-003	1.0000e-005	5.3400e-003	4.2000e-004	5.7600e-003	2.5700e-003	3.9000e-004	2.9600e-003	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481

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3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	7.0000e-004	1.4000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2864	0.2864	0.0000	5.0000e-005	0.2998
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0327	0.0327	0.0000	0.0000	0.0330
Total	3.0000e-005	7.1000e-004	2.7000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3190	0.3190	0.0000	5.0000e-005	0.3328

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0596	0.5277	0.6222	1.0300e-003		0.0252	0.0252		0.0239	0.0239	0.0000	87.7756	87.7756	0.0185	0.0000	88.2375
Total	0.0596	0.5277	0.6222	1.0300e-003		0.0252	0.0252		0.0239	0.0239	0.0000	87.7756	87.7756	0.0185	0.0000	88.2375

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3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5300e-003	8.0000e-004	1.0000e-005	3.3000e-004	2.0000e-005	3.4000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.0004	1.0004	0.0000	1.5000e-004	1.0439
Worker	7.9000e-004	5.5000e-004	6.4500e-003	2.0000e-005	1.9500e-003	1.0000e-005	1.9600e-003	5.2000e-004	1.0000e-005	5.3000e-004	0.0000	1.6328	1.6328	5.0000e-005	5.0000e-005	1.6484
Total	8.6000e-004	3.0800e-003	7.2500e-003	3.0000e-005	2.2800e-003	3.0000e-005	2.3000e-003	6.1000e-004	3.0000e-005	6.4000e-004	0.0000	2.6332	2.6332	5.0000e-005	2.0000e-004	2.6923

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0596	0.5277	0.6222	1.0300e-003		0.0252	0.0252		0.0239	0.0239	0.0000	87.7755	87.7755	0.0185	0.0000	88.2374
Total	0.0596	0.5277	0.6222	1.0300e-003		0.0252	0.0252		0.0239	0.0239	0.0000	87.7755	87.7755	0.0185	0.0000	88.2374

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3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5300e-003	8.0000e-004	1.0000e-005	3.3000e-004	2.0000e-005	3.4000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.0004	1.0004	0.0000	1.5000e-004	1.0439
Worker	7.9000e-004	5.5000e-004	6.4500e-003	2.0000e-005	1.9500e-003	1.0000e-005	1.9600e-003	5.2000e-004	1.0000e-005	5.3000e-004	0.0000	1.6328	1.6328	5.0000e-005	5.0000e-005	1.6484
Total	8.6000e-004	3.0800e-003	7.2500e-003	3.0000e-005	2.2800e-003	3.0000e-005	2.3000e-003	6.1000e-004	3.0000e-005	6.4000e-004	0.0000	2.6332	2.6332	5.0000e-005	2.0000e-004	2.6923

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5300e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669
Paving	2.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.7400e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669

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3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0824
Total	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0824

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5300e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669
Paving	2.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.7400e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669

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3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0824
Total	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0824

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Total	4.3400e-003	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393

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3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165
Total	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Total	4.3400e-003	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165
Total	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.0000e-005	1.0000e-004	5.2000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.0933	0.0933	1.0000e-005	1.0000e-005	0.0951
Unmitigated	6.0000e-005	1.0000e-004	5.2000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.0933	0.0933	1.0000e-005	1.0000e-005	0.0951

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.12	0.00	0.00	250	250
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.12	0.00	0.00	250	250

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.482564	0.053089	0.187461	0.145748	0.045439	0.009405	0.009312	0.022576	0.000645	0.000157	0.035846	0.001434	0.006323
Other Asphalt Surfaces	0.482564	0.053089	0.187461	0.145748	0.045439	0.009405	0.009312	0.022576	0.000645	0.000157	0.035846	0.001434	0.006323

5.0 Energy Detail

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0956	0.0956	2.0000e-005	0.0000	0.0965
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0956	0.0956	2.0000e-005	0.0000	0.0965
NaturalGas Mitigated	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1326	0.1326	0.0000	0.0000	0.1333
NaturalGas Unmitigated	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1326	0.1326	0.0000	0.0000	0.1333

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	2484	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1326	0.1326	0.0000	0.0000	0.1333
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1326	0.1326	0.0000	0.0000	0.1333

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	2484	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1326	0.1326	0.0000	0.0000	0.1333
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1326	0.1326	0.0000	0.0000	0.1333

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1033.2	0.0956	2.0000e-005	0.0000	0.0965
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0956	2.0000e-005	0.0000	0.0965

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1033.2	0.0956	2.0000e-005	0.0000	0.0965
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0956	2.0000e-005	0.0000	0.0965

6.0 Area Detail

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.9000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3200e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail

7.1 Mitigation Measures Water

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

City of Shasta Lake Centimudi Water Storage Tank Project

Shasta County AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.12	1000sqft	0.00	120.00	0
Other Asphalt Surfaces	7.10	1000sqft	0.16	7,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Used default assumptions for Intensity Factor

Land Use - GLI = water tank

OAS = pavement surrounding tank

Construction Phase - No demolition proposed for project.

Off-road Equipment -

Off-road Equipment - Welder's and generators may be used during construction phase.

Off-road Equipment - No demoliton proposed for project.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Q for Marcus--Graders not mentioned in PD. Should they be included?

Trips and VMT - Assumed 10 workers per day. 10 trips needed for grubbing/clearing.

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - Approx 207 cubic yards of disturbed soils.

Vehicle Trips - Assumed two workers once per week

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No city park/golf course in project area.

Landscape Equipment - No landscaping proposed.

Energy Use -

Water And Wastewater - No wastewater or indoor water usage proposed

Solid Waste - No solid waste generated.

Construction Off-road Equipment Mitigation -

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	0.00
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblGrading	MaterialExported	0.00	207.00
tblGrading	MaterialImported	0.00	207.00
tblLandscapeEquipment	NumberSummerDays	180	0
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.40	0.00
tblOffRoadEquipment	LoadFactor	0.37	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblSolidWaste	SolidWasteGenerationRate	0.15	0.00
tblTripsAndVMT	HaulingTripNumber	52.00	10.00
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblTripsAndVMT	WorkerTripNumber	3.00	5.00
tblTripsAndVMT	WorkerTripNumber	18.00	5.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	1.00
tblWater	IndoorWaterUseRate	27,750.00	0.00

2.0 Emissions Summary

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.2700e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Energy	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Mobile	4.5000e-004	8.5000e-004	4.2200e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004		0.7771	0.7771	6.0000e-005	5.0000e-005	0.7930
Total	7.7900e-003	1.5300e-003	5.5200e-003	1.0000e-005	7.4000e-004	6.0000e-005	8.0000e-004	2.0000e-004	6.0000e-005	2.6000e-004		1.5793	1.5793	8.0000e-005	6.0000e-005	1.6001

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.2700e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Energy	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Mobile	4.5000e-004	8.5000e-004	4.2200e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004		0.7771	0.7771	6.0000e-005	5.0000e-005	0.7930
Total	7.7900e-003	1.5300e-003	5.5200e-003	1.0000e-005	7.4000e-004	6.0000e-005	8.0000e-004	2.0000e-004	6.0000e-005	2.6000e-004		1.5793	1.5793	8.0000e-005	6.0000e-005	1.6001

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2023	4/1/2023	5	0	
2	Site Preparation	Site Preparation	4/2/2023	4/3/2023	5	1	
3	Grading	Grading	4/4/2023	4/5/2023	5	2	
4	Building Construction	Building Construction	4/21/2023	9/7/2023	5	100	
5	Paving	Paving	9/7/2023	9/13/2023	5	5	
6	Architectural Coating	Architectural Coating	9/14/2023	9/20/2023	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 180; Non-Residential Outdoor: 60; Striped Parking Area: 426 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	5.00	0.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	5.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	0.5348	6.1887	3.9239	9.7300e-003	0.5303	0.2266	0.7568	0.0573	0.2084	0.2657		942.4317	942.4317	0.3048		950.0517

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346
Total	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	0.5348	6.1887	3.9239	9.7300e-003	0.5303	0.2266	0.7568	0.0573	0.2084	0.2657	0.0000	942.4317	942.4317	0.3048		950.0517

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346
Total	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3425	0.0000	5.3425	2.5732	0.0000	2.5732			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	5.3425	0.4201	5.7626	2.5732	0.3865	2.9597		1,364.7713	1,364.7713	0.4414		1,375.8062

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0118	0.7187	0.1446	2.9800e-003	0.0876	6.3700e-003	0.0940	0.0240	6.1000e-003	0.0301		315.9380	315.9380	5.5000e-004	0.0497	330.7497
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346
Total	0.0281	0.7308	0.2737	3.3200e-003	0.1287	6.6000e-003	0.1353	0.0349	6.3100e-003	0.0412		350.9030	350.9030	1.7900e-003	0.0508	366.0843

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3425	0.0000	5.3425	2.5732	0.0000	2.5732			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	5.3425	0.4201	5.7626	2.5732	0.3865	2.9597	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0118	0.7187	0.1446	2.9800e-003	0.0876	6.3700e-003	0.0940	0.0240	6.1000e-003	0.0301		315.9380	315.9380	5.5000e-004	0.0497	330.7497
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346
Total	0.0281	0.7308	0.2737	3.3200e-003	0.1287	6.6000e-003	0.1353	0.0349	6.3100e-003	0.0412		350.9030	350.9030	1.7900e-003	0.0508	366.0843

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1926	10.5548	12.4443	0.0205		0.5036	0.5036		0.4780	0.4780		1,935.1212	1,935.1212	0.4073		1,945.3036
Total	1.1926	10.5548	12.4443	0.0205		0.5036	0.5036		0.4780	0.4780		1,935.1212	1,935.1212	0.4073		1,945.3036

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4200e-003	0.0520	0.0164	2.1000e-004	6.7800e-003	3.3000e-004	7.1100e-003	1.9500e-003	3.1000e-004	2.2700e-003		22.0810	22.0810	8.0000e-005	3.2200e-003	23.0415
Worker	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346
Total	0.0178	0.0642	0.1455	5.5000e-004	0.0479	5.6000e-004	0.0484	0.0128	5.2000e-004	0.0134		57.0460	57.0460	1.3200e-003	4.3600e-003	58.3761

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1926	10.5548	12.4443	0.0205		0.5036	0.5036		0.4780	0.4780	0.0000	1,935.1212	1,935.1212	0.4073		1,945.3036
Total	1.1926	10.5548	12.4443	0.0205		0.5036	0.5036		0.4780	0.4780	0.0000	1,935.1212	1,935.1212	0.4073		1,945.3036

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4200e-003	0.0520	0.0164	2.1000e-004	6.7800e-003	3.3000e-004	7.1100e-003	1.9500e-003	3.1000e-004	2.2700e-003		22.0810	22.0810	8.0000e-005	3.2200e-003	23.0415
Worker	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346
Total	0.0178	0.0642	0.1455	5.5000e-004	0.0479	5.6000e-004	0.0484	0.0128	5.2000e-004	0.0134		57.0460	57.0460	1.3200e-003	4.3600e-003	58.3761

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6112	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466		1,036.0878	1,036.0878	0.3018		1,043.6331
Paving	0.0838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.6950	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466		1,036.0878	1,036.0878	0.3018		1,043.6331

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346
Total	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6112	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466	0.0000	1,036.0878	1,036.0878	0.3018		1,043.6331
Paving	0.0838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.6950	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466	0.0000	1,036.0878	1,036.0878	0.3018		1,043.6331

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346
Total	0.0164	0.0121	0.1291	3.4000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		34.9650	34.9650	1.2400e-003	1.1400e-003	35.3346

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.5435					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	1.7351	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2700e-003	2.4300e-003	0.0258	7.0000e-005	8.2100e-003	5.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.9930	6.9930	2.5000e-004	2.3000e-004	7.0669
Total	3.2700e-003	2.4300e-003	0.0258	7.0000e-005	8.2100e-003	5.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.9930	6.9930	2.5000e-004	2.3000e-004	7.0669

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.5435					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	1.7351	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2700e-003	2.4300e-003	0.0258	7.0000e-005	8.2100e-003	5.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.9930	6.9930	2.5000e-004	2.3000e-004	7.0669
Total	3.2700e-003	2.4300e-003	0.0258	7.0000e-005	8.2100e-003	5.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.9930	6.9930	2.5000e-004	2.3000e-004	7.0669

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.5000e-004	8.5000e-004	4.2200e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004		0.7771	0.7771	6.0000e-005	5.0000e-005	0.7930
Unmitigated	4.5000e-004	8.5000e-004	4.2200e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004		0.7771	0.7771	6.0000e-005	5.0000e-005	0.7930

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.12	0.00	0.00	250	250
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.12	0.00	0.00	250	250

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.482564	0.053089	0.187461	0.145748	0.045439	0.009405	0.009312	0.022576	0.000645	0.000157	0.035846	0.001434	0.006323
Other Asphalt Surfaces	0.482564	0.053089	0.187461	0.145748	0.045439	0.009405	0.009312	0.022576	0.000645	0.000157	0.035846	0.001434	0.006323

5.0 Energy Detail

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Natural Gas Mitigated	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Natural Gas Unmitigated	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	6.80548	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.00680548	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.2700e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Unmitigated	7.2700e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.1100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.0800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Total	7.2600e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.1100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.0800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Total	7.2600e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003

7.0 Water Detail

7.1 Mitigation Measures Water

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

**City of Shasta Lake Centimudi Water Storage Tank Project
Shasta County AQMD Air District, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.12	1000sqft	0.00	120.00	0
Other Asphalt Surfaces	7.10	1000sqft	0.16	7,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Used default assumptions for Intensity Factor

Land Use - GLI = water tank

OAS = pavement surrounding tank

Construction Phase - No demolition proposed for project.

Off-road Equipment -

Off-road Equipment - Welder's and generators may be used during construction phase.

Off-road Equipment - No demoliton proposed for project.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Q for Marcus--Graders not mentioned in PD. Should they be included?

Trips and VMT - Assumed 10 workers per day. 10 trips needed for grubbing/clearing.

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - Approx 207 cubic yards of disturbed soils.

Vehicle Trips - Assumed two workers once per week

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No city park/golf course in project area.

Landscape Equipment - No landscaping proposed.

Energy Use -

Water And Wastewater - No wastewater or indoor water usage proposed

Solid Waste - No solid waste generated.

Construction Off-road Equipment Mitigation -

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	0.00
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblGrading	MaterialExported	0.00	207.00
tblGrading	MaterialImported	0.00	207.00
tblLandscapeEquipment	NumberSummerDays	180	0
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.40	0.00
tblOffRoadEquipment	LoadFactor	0.37	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblSolidWaste	SolidWasteGenerationRate	0.15	0.00
tblTripsAndVMT	HaulingTripNumber	52.00	10.00
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblTripsAndVMT	WorkerTripNumber	3.00	5.00
tblTripsAndVMT	WorkerTripNumber	18.00	5.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	1.00
tblWater	IndoorWaterUseRate	27,750.00	0.00

2.0 Emissions Summary

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.2700e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Energy	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Mobile	5.8000e-004	7.5000e-004	4.3600e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004		0.8483	0.8483	5.0000e-005	5.0000e-005	0.8631
Total	7.9200e-003	1.4300e-003	5.6600e-003	1.0000e-005	7.4000e-004	6.0000e-005	8.0000e-004	2.0000e-004	6.0000e-005	2.6000e-004		1.6505	1.6505	7.0000e-005	6.0000e-005	1.6702

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.2700e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Energy	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Mobile	5.8000e-004	7.5000e-004	4.3600e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004		0.8483	0.8483	5.0000e-005	5.0000e-005	0.8631
Total	7.9200e-003	1.4300e-003	5.6600e-003	1.0000e-005	7.4000e-004	6.0000e-005	8.0000e-004	2.0000e-004	6.0000e-005	2.6000e-004		1.6505	1.6505	7.0000e-005	6.0000e-005	1.6702

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2023	4/1/2023	5	0	
2	Site Preparation	Site Preparation	4/2/2023	4/3/2023	5	1	
3	Grading	Grading	4/4/2023	4/5/2023	5	2	
4	Building Construction	Building Construction	4/21/2023	9/7/2023	5	100	
5	Paving	Paving	9/7/2023	9/13/2023	5	5	
6	Architectural Coating	Architectural Coating	9/14/2023	9/20/2023	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 180; Non-Residential Outdoor: 60; Striped Parking Area: 426 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	5.00	0.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	5.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	0.5348	6.1887	3.9239	9.7300e-003	0.5303	0.2266	0.7568	0.0573	0.2084	0.2657		942.4317	942.4317	0.3048		950.0517

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978
Total	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	0.5348	6.1887	3.9239	9.7300e-003	0.5303	0.2266	0.7568	0.0573	0.2084	0.2657	0.0000	942.4317	942.4317	0.3048		950.0517

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978
Total	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3425	0.0000	5.3425	2.5732	0.0000	2.5732			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	5.3425	0.4201	5.7626	2.5732	0.3865	2.9597		1,364.7713	1,364.7713	0.4414		1,375.8062

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.6653	0.1416	2.9800e-003	0.0876	6.3600e-003	0.0940	0.0240	6.0900e-003	0.0301		315.4938	315.4938	5.9000e-004	0.0496	330.2855
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978
Total	0.0321	0.6755	0.2962	3.3700e-003	0.1287	6.5900e-003	0.1353	0.0349	6.3000e-003	0.0412		355.2624	355.2624	1.6900e-003	0.0506	370.3834

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3425	0.0000	5.3425	2.5732	0.0000	2.5732			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	5.3425	0.4201	5.7626	2.5732	0.3865	2.9597	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.6653	0.1416	2.9800e-003	0.0876	6.3600e-003	0.0940	0.0240	6.0900e-003	0.0301		315.4938	315.4938	5.9000e-004	0.0496	330.2855
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978
Total	0.0321	0.6755	0.2962	3.3700e-003	0.1287	6.5900e-003	0.1353	0.0349	6.3000e-003	0.0412		355.2624	355.2624	1.6900e-003	0.0506	370.3834

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1926	10.5548	12.4443	0.0205		0.5036	0.5036		0.4780	0.4780		1,935.1212	1,935.1212	0.4073		1,945.3036
Total	1.1926	10.5548	12.4443	0.0205		0.5036	0.5036		0.4780	0.4780		1,935.1212	1,935.1212	0.4073		1,945.3036

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4900e-003	0.0482	0.0158	2.1000e-004	6.7800e-003	3.3000e-004	7.1100e-003	1.9500e-003	3.1000e-004	2.2600e-003		22.0371	22.0371	8.0000e-005	3.2000e-003	22.9941
Worker	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978
Total	0.0209	0.0584	0.1704	6.0000e-004	0.0479	5.6000e-004	0.0484	0.0128	5.2000e-004	0.0134		61.8057	61.8057	1.1800e-003	4.2100e-003	63.0920

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1926	10.5548	12.4443	0.0205		0.5036	0.5036		0.4780	0.4780	0.0000	1,935.1212	1,935.1212	0.4073		1,945.3036
Total	1.1926	10.5548	12.4443	0.0205		0.5036	0.5036		0.4780	0.4780	0.0000	1,935.1212	1,935.1212	0.4073		1,945.3036

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4900e-003	0.0482	0.0158	2.1000e-004	6.7800e-003	3.3000e-004	7.1100e-003	1.9500e-003	3.1000e-004	2.2600e-003		22.0371	22.0371	8.0000e-005	3.2000e-003	22.9941
Worker	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978
Total	0.0209	0.0584	0.1704	6.0000e-004	0.0479	5.6000e-004	0.0484	0.0128	5.2000e-004	0.0134		61.8057	61.8057	1.1800e-003	4.2100e-003	63.0920

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6112	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466		1,036.0878	1,036.0878	0.3018		1,043.6331
Paving	0.0838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.6950	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466		1,036.0878	1,036.0878	0.3018		1,043.6331

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978
Total	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6112	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466	0.0000	1,036.0878	1,036.0878	0.3018		1,043.6331
Paving	0.0838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.6950	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466	0.0000	1,036.0878	1,036.0878	0.3018		1,043.6331

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978
Total	0.0194	0.0102	0.1546	3.9000e-004	0.0411	2.3000e-004	0.0413	0.0109	2.1000e-004	0.0111		39.7686	39.7686	1.1000e-003	1.0100e-003	40.0978

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.5435					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	1.7351	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8900e-003	2.0400e-003	0.0309	8.0000e-005	8.2100e-003	5.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.9537	7.9537	2.2000e-004	2.0000e-004	8.0196
Total	3.8900e-003	2.0400e-003	0.0309	8.0000e-005	8.2100e-003	5.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.9537	7.9537	2.2000e-004	2.0000e-004	8.0196

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.5435					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	1.7351	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8900e-003	2.0400e-003	0.0309	8.0000e-005	8.2100e-003	5.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.9537	7.9537	2.2000e-004	2.0000e-004	8.0196
Total	3.8900e-003	2.0400e-003	0.0309	8.0000e-005	8.2100e-003	5.0000e-005	8.2600e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.9537	7.9537	2.2000e-004	2.0000e-004	8.0196

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.8000e-004	7.5000e-004	4.3600e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004		0.8483	0.8483	5.0000e-005	5.0000e-005	0.8631
Unmitigated	5.8000e-004	7.5000e-004	4.3600e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004		0.8483	0.8483	5.0000e-005	5.0000e-005	0.8631

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.12	0.00	0.00	250	250
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.12	0.00	0.00	250	250

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.482564	0.053089	0.187461	0.145748	0.045439	0.009405	0.009312	0.022576	0.000645	0.000157	0.035846	0.001434	0.006323
Other Asphalt Surfaces	0.482564	0.053089	0.187461	0.145748	0.045439	0.009405	0.009312	0.022576	0.000645	0.000157	0.035846	0.001434	0.006323

5.0 Energy Detail

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
NaturalGas Unmitigated	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	6.80548	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.00680548	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8006	0.8006	2.0000e-005	1.0000e-005	0.8054

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.2700e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Unmitigated	7.2700e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.1100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.0800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Total	7.2600e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.1100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.0800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003
Total	7.2600e-003	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5800e-003	1.5800e-003	0.0000		1.6800e-003

7.0 Water Detail

7.1 Mitigation Measures Water

City of Shasta Lake Centimudi Water Storage Tank Project - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

APPENDIX C

BIOLOGICAL TECHNICAL REPORT



BIOLOGICAL MEMORANDUM

CENTIMUDI WATER STORAGE TANK

AUGUST 2023

PREPARED FOR:

City of Shasta Lake
4477 Main Street
Shasta Lake, CA 96019

PREPARED BY:

Montrose Environmental
1801 7th Street, Suite 100
Sacramento, CA 95811
(916) 447-3479
www.analyticalcorp.com



BIOLOGICAL MEMORANDUM

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BIOLOGICAL MEMORANDUM

To: Shelby Millingar, Associate Civil Engineer
City of Shasta Lake
4477 Main St.
Shasta Lake, CA 96019

From: Amy Gondran, Biologist (Primary Author)
Cedrick Villasenor, Senior Biologist (Oversight/Peer Review)
Jennifer Scholl, Principal Environmental Professional (Senior Review)
Montrose Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811

Project: City of Shasta Lake – Centimudi Water Storage Tank

Date: 8/22/2023

1.0 INTRODUCTION

This memorandum has been prepared for the City of Shasta Lake (City) Centimudi Water Storage Tank Project (Proposed Project) located northeast of the City in the Shasta-Trinity National Recreation Area at the intersection of Kennett Road and Lake Boulevard (Project Site). The Project Site is located within an area of minimal flood hazard (Zone X) outside the area of the 0.2-percent annual flood chance zone (FEMA, 2022) on the USGS 7.5-minute “Mettler” quadrangle (**Figures 1, 2, and 3**). The Project Site is not within a floodplain. On-site elevations range from 335 to 370 meters above mean sea level. The Project Site is within a municipal watershed as defined by the Forest Service Manual (FSM) Section 2542.05 (USFS, 2007; City of Shasta Lake, 2022), and within a congressionally designated National Recreation Area (USFS, 2014). No inventoried roadless areas or potential wilderness areas are present.

The Proposed Project consists of constructing a new 2.45-million-gallon treated water storage tank to be placed on the southeastern corner of Kennett Road and Lake Boulevard. One partially dead gray pine would necessitate removal, and one sycamore tree would require trimming for installation of the water tank. Because the Proposed Project is located on National Forest System lands, a special use permit is required from the United States Forest Service (USFS), triggering the need to comply with the National Environmental Policy Act (NEPA). The purpose of this assessment is to identify sensitive biological resources that could occur within the area of impact (Project Site), and be affected by the Proposed Project. Sensitive biological resources include federal and state listed species, species proposed for federal listing, critical habitat, and wetlands and waters of the U.S. USFS Management Indicator Species (MIS) and *Survey and Manage species* (USFS, 1995) are also addressed herein.

2.0 METHODOLOGY

The following information was obtained and reviewed:

- Aerial photographs of the Project Site and surrounding area;
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) list, queried January 24, 2023 (**Attachment A**);

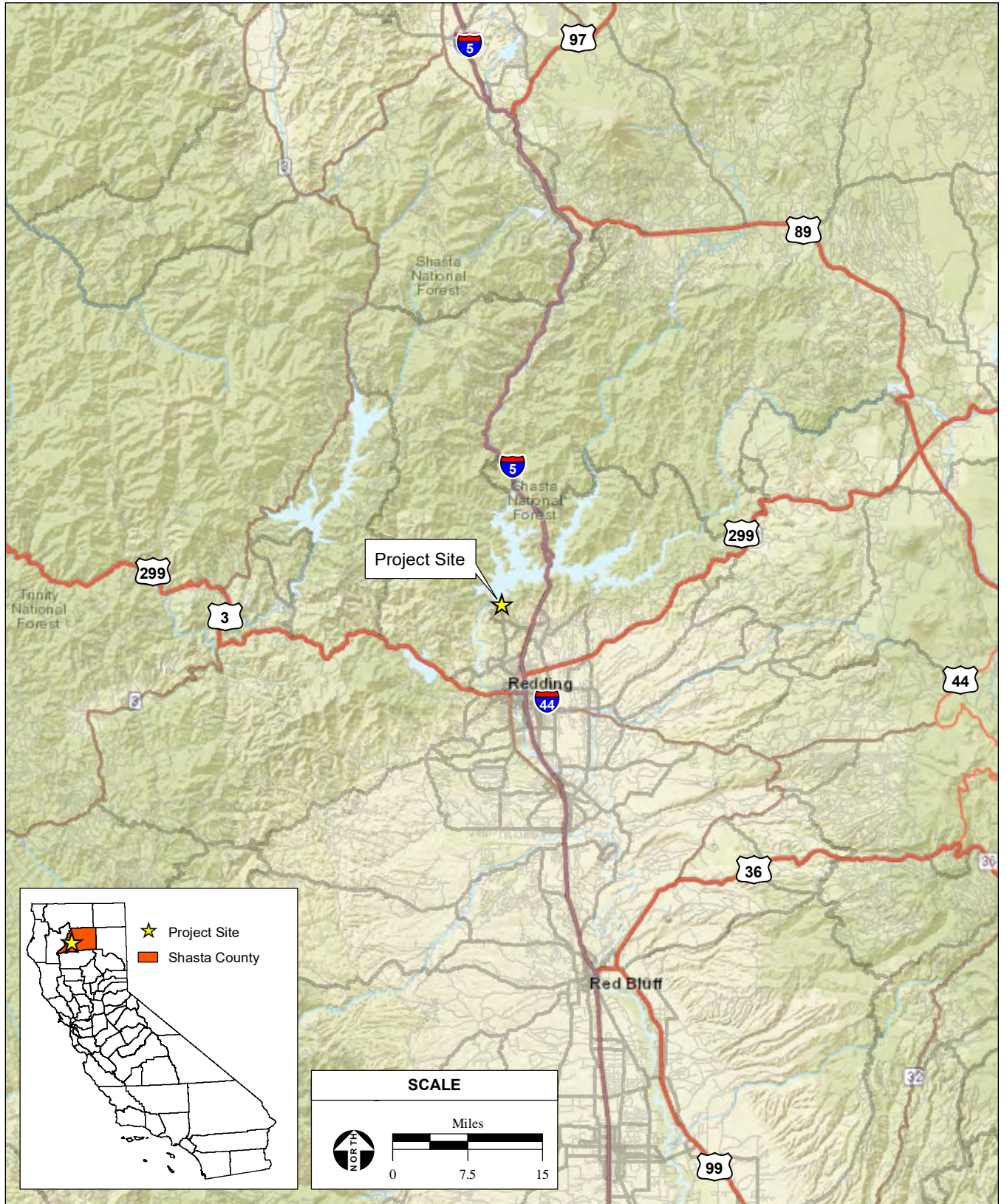
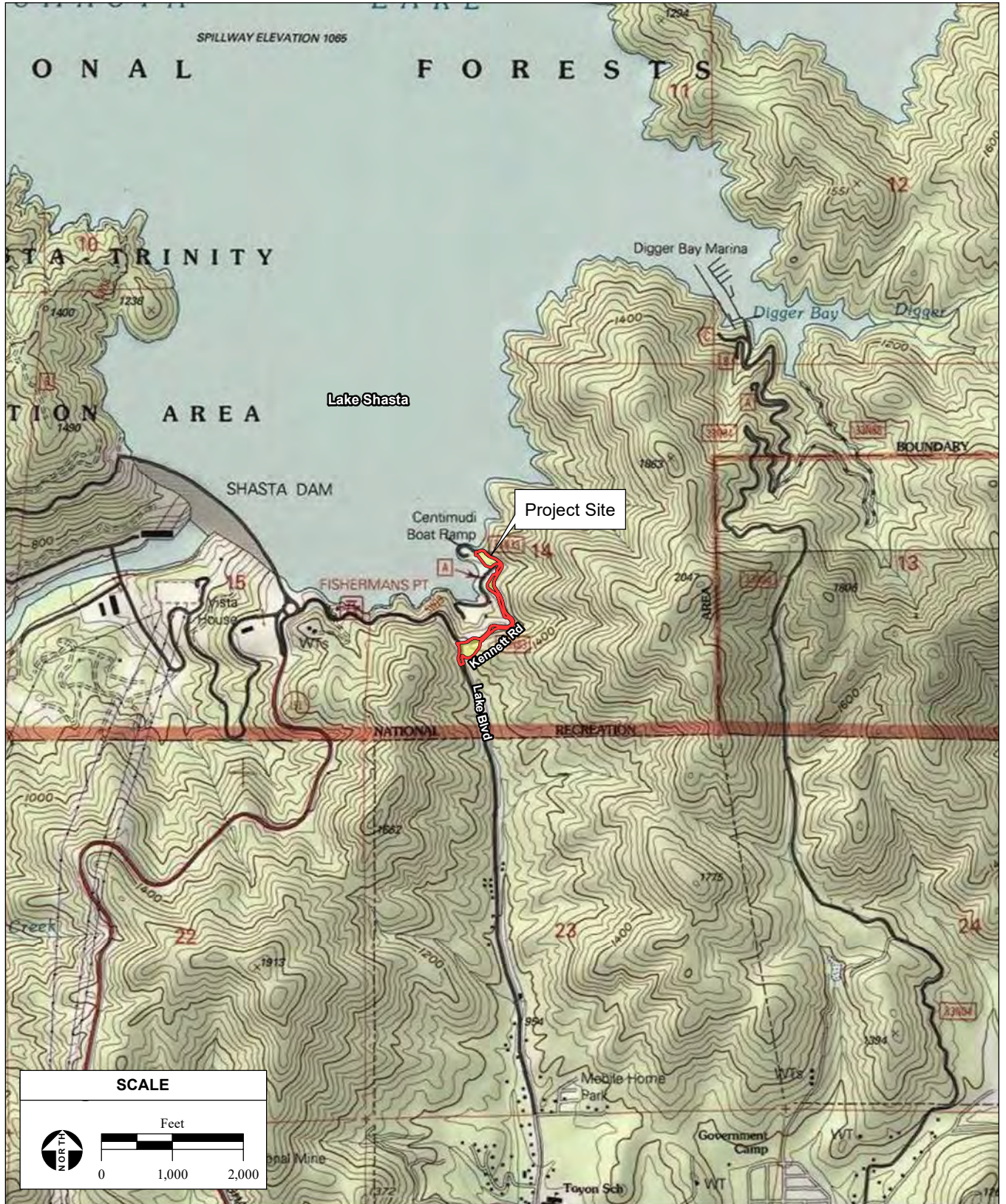


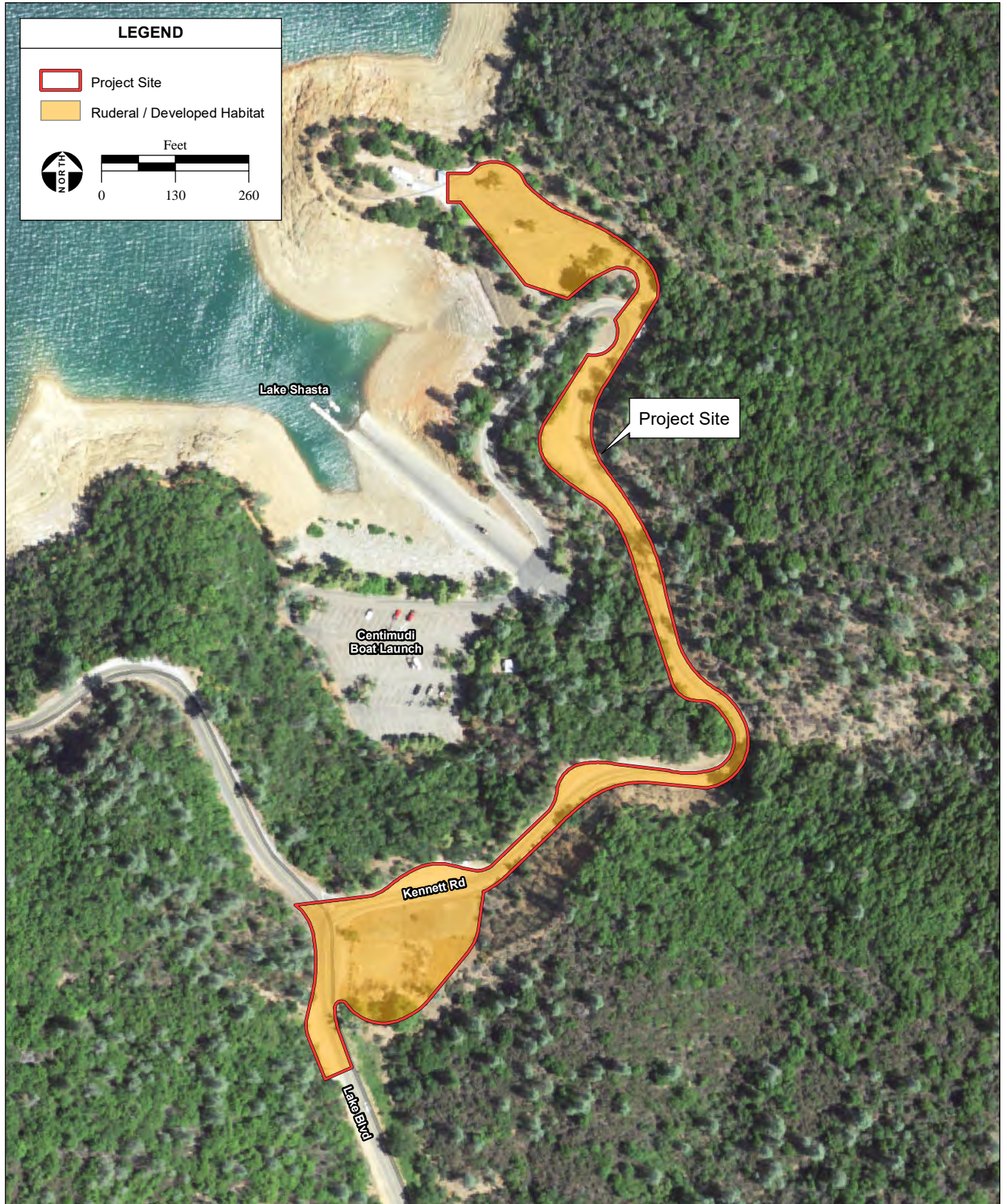
Figure 1
Regional Location



SOURCE: "Shasta Dam, CA" USGS 7.5 Minute Topographic Quadrangle, T33N R5W, Section 14, Mt. Diablo Baseline & Meridian; ESRI 2022; AES-Montrose, 7/8/2022

City of Shasta Lake Centimudi Water Storage Tank Biological Memorandum / 222509 ■

Figure 2
Site and Vicinity



SOURCE: City of Redding aerial photograph, 5/27/2020; USDA NAIP aerial photograph, 7/13/2020; ESRI 2022; AES-Montrose, 7/8/2022

City of Shasta Lake Centimudi Water Storage Tank Biological Memorandum / 222509 ■

Figure 3
Aerial Photograph

- California Natural Diversity Database (CNDDDB) list, queried August 8, 2023 (**Attachment A**);
- California Native Plant Society (CNPS) list, queried August 8, 2023 (**Attachment A**);
- USFS Pacific Southwestern Region Sensitive Animal Sensitive Species List (USFS, 2013a) (**Attachment A**);
- USFS Pacific Southwestern Region Sensitive Plant Sensitive Species List (USFS, 2013b) (**Attachment A**);
- USFWS National Wetlands Inventory (NWI) map of wetland features, queried June 29, 2022 (**Attachment B**);
- Natural Resources Conservation Service (NRCS) custom soils report, queried July 5, 2022 (**Attachment C**);
- USFWS Critical Habitat for Threatened & Endangered Species (**Attachment D**);
- USFS Final Environmental Impact Statement: Land and Resource Management Plan (USFS, 1994); and
- USFS Shasta-Trinity National Forests Land and Resource Management Plan (USFS, 1995).

A biological resources survey was conducted of the Project Site on June 27, 2022 by qualified Montrose Environmental Solutions biologists. The survey was conducted by walking transects throughout the Project Site. Data was collected with GPS and camera. Survey goals consisted of identifying habitat types, sensitive habitats, wetlands, and waters of the U.S, and special-status species. Sensitive habitats include those that are designated by CDFW, considered by local experts to be communities of limited distribution, or likely to be waters of the U.S. or State by the appropriate regulatory agencies. Habitat requirements of special-status species were compared to habitats observed. Habitat types were determined based on aerial photographs, ground-truthing, background data review.

3.0 ENVIRONMENTAL SETTING

3.1 SOIL TYPES

The Project Site is comprised of Boomer very stony clay loam, 50 to 70 percent slopes, severely eroded; Goulding-Holland families association, 40 to 60 percent slopes; and Goulding very rocky loam, 50 to 70 percent slopes, eroded. Boomer very stony clay loam, Goulding-Holland families association, and Goulding very rocky loam are well drained soils, not considered prime farmland, and are non-hydric, suggesting that conditions to support wetland features are not present on the Project Site. A custom soils report can be found in **Attachment C**.

3.2 HABITAT TYPES

Ruderal habitat and developed land comprise the Project Site (**Figure 3**). This includes the gravel lot to serve as the foundation of the water tank and Kennett Road and overflow parking lot for staging equipment. The remainder of the Project Site is comprised of asphalt and unpaved vehicle pull-outs. Site photos are included in **Figure 4**. Review of NWI and NRCS databases do not indicate any wetlands or waters of the U.S., or the presence of hydric soils within the Project Site. Three ephemeral drainages were observed adjacent to the Project Site: 1) one drainage approximately 100 feet due south from the Project site, identified as Churn Creek; 2) a second drainage which crosses under Kennett Road approximately 750 feet from the Project site; and 3) an additional drainage which crosses under Kennett Road approximately 850 feet from the Project site. All three drainages are Class III ephemeral drainages which do not support fish, although Churn Creek may support other aquatic species further downstream from the headwater's region located near the Project Site.



PHOTO 1: Gravel lot where the water storage tank will be installed.



PHOTO 2: Drainage south of Project Site adjacent to Lake Boulevard.



PHOTO 3: Sycamore tree that may require trimming.



PHOTO 4: Gray pine that will be removed.



PHOTO 5: Kennett Road and pull-outs to be used for staging.



PHOTO 6: Centimudi overflow parking lot to be used for staging.

Various piles of wood debris scatter the Project Site. The southern boundary contains a honey locust (*Gleditsia triacanthos*), three sycamores (*Platanus occidentalis*), a cottonwood (*Populus* sp.), and a gray pine (*Pinus sabiniana*) on the eastern boundary. Surrounding habitat is comprised predominantly of mixed chaparral and montane hardwood. Species observed include: gray pine, interior live oak (*Quercus wislizeni*), poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), black oak (*Quercus kelloggii*), St. John's wort (*Hypericum* sp.), yellow star-thistle (*Centaurea solstitialis*), manzanita (*Arctostaphylos* sp.), ornamental oleander (*Nerium oleander*), and Himalayan blackberry (*Rubus armeniacus*).

3.3 SPECIAL-STATUS SPECIES

Background data review and special-status species searches identified 17 special-status plant species, and 27 special-status animal species with the potential to occur in the region of the Project Site (**Attachment A**). The name, regulatory status, distribution, habitat requirements, period of identification, and potential to occur for each species are listed in **Table 1**. The Project Site does not contain suitable habitat to support the identified specific habitats and special-status species habitat requirements for each species that may occur within the vicinity of the Project Site, as listed in **Table 1**. Thus, plant species with no potential to occur on the Project Site were dismissed for further evaluation based upon lack of suitable habitat, soils, elevation, necessary substrate, and negative results if it coincided with the identifiable bloom period. Special-status animal species were not observed during the survey.

In addition to using listed species to determine habitat values, the USFS uses a management indicator approach to identify forest assemblages and select species as management indicators. A management indicator represents the vegetation types, seral stages, and special habitat elements necessary to provide for all wildlife species on USFS lands and indicates the effects of management activities on wildlife populations and wildlife assemblages (USFS, 1994). Table G-3 of Appendix G of the Final Environmental Impact Analysis (FEIS) for the Shasta-Trinity Land Resource and Management Plan lists wildlife species assemblages as management indicators, and recommends species for monitoring (i.e., a MIS). The openings and early seral stage wildlife assemblage best characterize the adjacent habitat surrounding the Project Site (USFS, 1995). MIS for this assemblage include: western screech owl (*Megascops kennicottii*), song sparrow (*Melospiza melodia*), black bear (*Ursus americanus*), elk (*Cervus canadensis*), and mule deer (*Odocoileus hemionus*). Since these species have been identified to indicate the effects of management activities on USFS lands, they are included in the analysis of this document.

The *Shasta-Trinity National Forests Land and Resource Management Plan, Appendix R* (USFS, 1995) includes a list of *Survey and Manage Species* to be protected. These species include those belonging to fungi, lichens, bryophytes, vascular plants, amphibians, birds, mammals, mollusks, arthropods, and bats. Species listed in Appendix R, are further addressed herein.

Along with the USFS Management Plan, the USFS Pacific Southwestern Region maintains a Sensitive Plant and Sensitive Animal Species List. These species are not necessarily federally recognized as threatened or endangered, but the USFS recognizes their sensitivity within specific National Forests and aims to protect them from adverse effects.

TABLE 1 - REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
PLANTS					
<i>Ageratina shastensis</i> Shasta ageratina	--/--/1B.2/--	Occurs in Shasta County, California.	Perennial herb found in rocky, often carbonate soils, in chaparral and lower montane coniferous forest. Elevations range from 400 – 1800 meters.	June – October	No. The Project Site lacks suitable habitat to support this species.
<i>Brodiaea matsonii</i> Sulphur Creek brodiaea	--/--/1B.1/--	Only known to occur along Sulphur Creek in Shasta County, California.	Perennial bulbiferous herb found in rocky, metamorphic amphibolite schist in cismontane woodland (streambanks), and meadows and seeps. Elevation range from 195 – 215 meters.	May – June	No. The Project Site lacks suitable habitat to support this species.
<i>Clarkia borealis ssp. borealis</i>	--/--/4.3/USFS-S	Occurs in Shasta and Trinity counties, California.	Annual herb found in chaparral, cismontane woodland, lower montane coniferous forest, forest margins. Often along roadsides. Elevations range from 400-1,390 meters.	June – September	No. None observed during Project Site survey; conditions are not suitable to support this species.
<i>Cryptantha crinita</i> Silky cryptantha	--/--/1B.2/--	Occurs in Shasta and Tehama counties, California.	Annual herb found in gravelly streambeds in cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, valley and foothill grassland. Elevations range from 61 – 1215 meters.	April – May	No. The Project Site lacks suitable habitat to support this species.
<i>Cypripedium fasciculatum</i> clustered lady's-slipper	--/--/4.2/USFS-S	Occurs in Butte, Del Norte, Glenn, Humboldt, Lassen, Mendocino, Nevada, Plumas, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Tehama, Trinity, Yuba counties, California.	Perennial rhizomatous herb found in mesic to moist, shady lower montane and northern coniferous forests. Elevations range from 100 – 2,435 meters.	March - August	No. The Project Site lacks suitable habitat to support this species.
<i>Cypripedium montanum</i> mountain lady's-slipper	--/--/4.2/USFS-S	Occurs in Amador, Butte, Del Norte, Glenn, Humboldt, Lassen, Madera, Mariposa, Mendocino, Modoc, Plumas, San Mateo, Santa Cruz, Shasta, Siskiyou, Sonoma, Tehama, Trinity, Tuolumne counties, California.	Perennial rhizomatous herb found in moist areas, dry slopes, mixed-evergreen broad-leaved upland forest, cismontane woodland, lower montane and northern coniferous forests. Elevations range from 100 – 2,435 meters.	March - August	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Eriogonum ursinum</i> var. <i>erubescens</i> Blushing wild buckwheat	--/--/1B.3/--	Occurs in Lassen, Shasta, Siskiyou, and Trinity counties, California.	Perennial herb found in rocky, scree, talus soils in montane chaparral and lower montane coniferous forest. Elevations range from 750 – 1900 meters.	June – September	No. The Project Site lacks suitable habitat to support this species.
<i>Erythranthe taylorii</i> Shasta limestone monkeyflower	--/--/1B.1/--	Known only from Shasta County, California.	Annual herb found in cismontane woodland and lower montane coniferous forest, canopy openings, in carbonate crevices and rocky outcrops. Elevations range from 355 – 980 meters.	February – May	No. The Project Site lacks suitable habitat to support this species.
<i>Erythronium shastense</i> Shasta fawn lily	--/--/1B.2/--	Found in Shasta County, California.	Perennial bulbiferous herb found in rocky carbonate, on north-facing or shaded terrain in cismontane woodland and lower montane coniferous forest. Elevations range from 250 – 1020 meters.	February – April	No. The Project Site lacks suitable habitat to support this species.
<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	--/--/1B.1/--	Occurs in Butte, Placer, Shasta and Tehama counties, California.	Annual herb found in vernal mesic soils in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Elevations range from 35 – 1250 meters.	March – June	No. The Project Site lacks suitable habitat to support this species.
<i>Legenere limosa</i> Legenere	--/--/1B.1/--	Known to occur in Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties, California.	Annual herb occurs in wet areas, ponds, and vernal pools. Elevations range from 1– 880 meters.	April – June	No. The Project Site lacks suitable habitat to support this species.
<i>Lewisia cantelovii</i> Cantelow’s lewisia	--/--/1B.2/--	Occurs in Butte, Nevada, Plumas, Shasta, and Sierra counties, California.	Perennial herb found in mesic, granitic, sometimes serpentine seeps in broad-leaved upland forest, chaparral, cismontane woodland, and lower montane coniferous forest. Elevations range from 330 – 1370 meters.	May – October	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Neviusia cliftonii</i> Shasta snow-wreath	--/--/1B.2/--	Occurs in Shasta County, California.	Perennial deciduous shrub often found on streambanks or in carbonate and volcanic soils. Found in cismontane woodland, lower montane coniferous forest, and riparian woodlands. Elevations range from 300 – 590 meters.	April – June	No. The Project Site lacks suitable habitat to support this species.
<i>Orcuttia tenuis</i> Slender Orcutt grass	FT/CE/1B.1/--	Known from Butte, Lake, Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou, and Tehama counties, California.	Annual herb found in gravelly vernal pools from 35 – 1760 meters.	May – October	No. The Project Site lacks suitable habitat to support this species.
<i>Potamogeton epihydrus</i> Nuttall's ribbon-leaved pondweed	--/--/2B.2/--	Known to occur in El Dorado, Madera, Mendocino, Modoc, Mariposa, Placer, Plumas, Shasta, and Tuolumne counties, California.	A perennial rhizomatous herb found in marshes, swamps, and other assorted shallow freshwater. Elevations range from 369 – 2172 meters.	June – September	No. The Project Site lacks suitable habitat to support this species.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	--/--/1B.2/--	Known to occur in Butte, Del Norte, El Dorado, Fresno, Merced, Mariposa, Orange, Placer, Sacramento, San Bernardino, Shasta, San Joaquin, Solano, Tehama, Ventura, and Yuba counties. However, it is presumed extirpated in Orange and Ventura counties, California.	A perennial rhizomatous herb found in marshes, swamps, and other assorted shallow freshwater. Elevations range from 0 – 650 meters.	May – October (November)	No. The Project Site lacks suitable habitat to support this species.
<i>Sedum obtusatum</i> spp. <i>paradisum</i> Canyon Creek stonecrop	--/--/1B.3/--	Occurs in Shasta and Trinity counties, California.	Perennial herb found in granitic, rocky soils in broad-leaved upland forest, chaparral, lower montane coniferous forest, and subalpine coniferous forest. Elevations range from 300 – 1900 meters.	May – June	No. The Project Site lacks suitable habitat to support this species.
<i>Trifolium piorkowskii</i> Maverick Clover	--/--/1B.2/--	Known to occur only in Shasta County, California.	Annual herb found on streambanks, volcanic and clay soils, and in forest openings. Can be found in chaparral cismontane woodland, lower montane coniferous forest, valley and foot hill grassland, and vernal pools. Elevations range from 160 – 680 meters.	April – May	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Vaccinium shastense</i> <i>ssp. shastense</i> Shasta huckleberry	--/--/1B.3/--	Known to occur in Shasta County, California.	Perennial deciduous shrub found in acidic soils, mesic climes, often in streambanks and sometimes seeps, rocky outcrops, roadsides, and disturbed areas. Also found in chaparral, cismontane woodland, lower montane coniferous forest, riparian forest and subalpine coniferous forest. Elevations range from 325 – 1220 meters.	December – May (June – Sept.)	No. The Project Site lacks suitable habitat to support this species.
<i>Viburnum ellipticum</i> oval-leaved viburnum	--/--/2B.3/--	Known to occur in Alameda, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Lake, Mendocino, Mariposa, Napa, Placer, Shasta, Solano, Sonoma, and Tehama counties, California.	Perennial deciduous shrub found in chaparral, cismontane woodland, and lower montane coniferous forest. Elevations range from 215 – 1400 meters.	May – August	No. The Project Site lacks suitable habitat to support this species.
ANIMALS					
Amphibians					
<i>Ascaphus truei</i> Pacific tailed frog	--/CSC/--/--	Known to occur from Mendocino county, north along the coast to Oregon and as far east as Shasta County, California. This species ranges farther north through Oregon, Washington, and British Columbia.	Inhabits cold, clear, perennial rocky streams in wet forests, sometimes in open terrain. Elevations range from 0 – 2560 meters.	April – October (active time depending on locality)	No. The Project Site lacks suitable habitat to support this species.
<i>Hydromantes shastae</i> Shasta salamander	--/CT/--/ USFS-S	Restricted to the Cascade Range near Shasta Lake in Shasta County, California.	Found near cliff faces, vertical cavern walls, and level ground in mixed coniferous forests. Lives in moist caves and rock cracks. Elevations range from 300 – 900 meters.	October – November (hatching period)	No. The Project Site lacks suitable habitat to support this species, however closest records are 1.3-miles southeast and 2.8-miles west of the Project Site and are not expected to be encountered during Project implementation

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Rana boylei</i> foothill yellow-legged frog	--/CE, CSC/-- /USFS-S	Known from California and Oregon.	Requires shallow, flowing water in moderate sized streams with some cobble substrate.	November – March (breeding) June – August (non-breeding)	No. The Project Site lacks suitable habitat to support this species.
<i>Spea hammondi</i> western spadefoot toad	--/CSC/--/--	Known to occur from the north end of California's great central valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California.	Mostly below 3,000 feet in elevation. Their aquatic habitat is vernal pools, temporary wetlands, rivers, creeks, or temporary rain pools. Their terrestrial habitat is typically lowland habitats such as washes, river floodplains, alluvial fans, playas, alkali flats, foothills, or mountains. They prefer sandy or gravelly soil with open vegetation and short grasses (often in valley and foothill grasslands, open chaparral, and pine-oak woodland).	November – March	No. The Project Site lacks suitable habitat to support this species.
Birds					
<i>Agelaius tricolor</i> Tricolored blackbird	--/CT, CSC/--/--	California and Baja California, México.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water.	Year round	No. The Project Site lacks suitable habitat to support this species.
<i>Falco peregrinus anatum</i> American peregrine falcon	FD/CD; FP/--/--	Active nesting sites known along the coast north of Santa Barbara and other mountains in northern California.	Breeds mostly in woodland, forest, and coastal habitats near water on high cliffs or banks. Will nest on man-made structures and in the hollows of old trees or open tops of cypress, sycamore or cottonwood trees 50-90 feet above the ground.	Year round (migration)	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Haliaeetus leucocephalus</i> bald eagle	FD/CE, FP/-- /USFS-S	The State's breeding territories are in northern California, but the eagles also nest in scattered locations in the central and southern Sierra Nevada mountains and foothills, in several locations from the central coast range to inland southern California, and on several California islands. Winters throughout most of California.	Found in mountain and foothill forests and woodlands near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually less than 2 km to water that offers foraging opportunities. Suitable foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	Year round	No. The Project Site lacks suitable habitat to support this species; however, there is a potential for off-site impacts from construction activities. Nearest CNDDB observations located 1.6 miles from Project Site.
<i>Riparia riparia</i> bank swallow	--/CT/--/--	About 50-60 colonies remain along the middle Sacramento River and 15-25 colonies occur along lower Feather River where the rivers meanders still in a mostly natural state. Other colonies persist along the central coast from Monterey to San Mateo counties, and northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc counties, California.	Colonial nester; nests primarily in riparian scrub, riparian woodland, and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Year round	No. The Project Site lacks suitable habitat to support this species.
<i>Strix occidentalis caurina</i> northern spotted owl	FT/CT/--/--	Geographic range extends from British Columbia to northwestern California south to San Francisco. The breeding range includes the Cascade Range, North Coast Ranges, and the Sierra Nevada. Some breeding populations also occur in the Transverse Ranges and Peninsular Ranges.	Resides in mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2,300 meters. Appears to prefer old-growth forests, but use of managed (previously logged) lands is not uncommon. Owls do not appear to use logged habitat until approximately 60 years after logging unless larger trees or snags remain after logging. Nesting habitat is a tree or snag cavity, or the broken top of a large tree. Requires a nearby, permanent source of water. Foraging habitat consists of forest habitat with sufficient prey (e.g. flying squirrels, mice, and voles).	Year round	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Coccyzus americanus</i> yellow-billed cuckoo	FT/CE/--/--	Known to occur throughout much of the eastern and central US. They winter in South America east of the Andes, and migrate through Central America. In the West, much of the Cuckoo's riparian habitat has been developed, leading to possible extirpation of cuckoos from British Columbia, Washington, Oregon, and Nevada.	Prefer isolated woodland riparian corridors surrounded by extensive arid uplands habitat including low, scrubby vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. Nests and seeks cover in dense foliage, deciduous trees and shrubs.	May – Sept.	No. The Project Site lacks suitable habitat to support this species.
Fish					
<i>Acipenser medirostris</i> Green sturgeon (Southern DPS)	FT/--/--/--	The green sturgeon ranges from Mexico to at least Alaska in marine waters, and is observed in bays and estuaries up and down the west coast of North America. Green sturgeon are believed to spawn in the Sacramento River.	Green sturgeon are believed to spend the majority of their lives in nearshore oceanic waters, bays, and estuaries. Younger green sturgeon reside in fresh water, with adults returning to freshwater to spawn. Adults live in oceanic waters, bays, and estuaries when not spawning.	Consult Agency	No. The Project Site lacks suitable habitat to support this species.
<i>Oncorhynchus mykiss irideus pop. 11</i> Steelhead (Central Valley DPS)	FT/--/--/--	Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta and Bay Area, California.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	Consult Agency	No. The Project Site lacks suitable habitat to support this species.
<i>Oncorhynchus tshawytscha pop. 11</i> Chinook salmon (Central Valley spring-run ESU)	FT/CT/--/--	Central Valley spring-run Chinook Salmon ESU includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and its tributaries in California, including Churn Creek.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	Consult Agency	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Oncorhynchus tshawytscha</i> pop. 7 Chinook salmon (Sacramento River winter-run ESU)	FE/CE/--/--	The Sacramento River winter-run Chinook salmon ESU includes winter-run spawning activities naturally in the Sacramento River and its tributaries, as well as, winter-run Chinook salmon that are part of the conservation hatchery program at the Livingston Stone National Fish Hatchery.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	Consult Agency	No. The Project Site lacks suitable habitat to support this species.
Invertebrates					
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE/--/--/--	The species is currently known from several disjunct populations in northern California: Vina Plains in Tehama County, south of Chico in Butte County and Sacramento National Wildlife Refuge in Glenn County.	Endemic to the northern two-thirds of the Central Valley. Found in vernal pools, seasonally ponded areas within vernal swales, rock outcrop ephemeral pools, playas, and alkali flats. Require ephemeral habitats that pool in the winter or spring.	December – May	No. The Project Site lacks suitable habitat to support this species.
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	FT/--/--/--	Vernal pool fairy shrimp are known from a total of 32 populations located in an area extending from Shasta County through most of the length of the Central Valley to Tulare County, and along the central coast range from northern Solano County to Pinnacles in San Benito County, California.	Vernal pools in the Central Valley, coast ranges, and a limited number of sites in the Transverse Ranges and Riverside County, California.	December – May	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Danus plexippus</i> Monarch butterfly	FC/--/--	Known to occur in Mexico and north America. Populations that occur where winter conditions are not suitable travel along well-established migratory routes to overwintering areas. Overwintering sites are known to occur in Mexico and coastal California.	Migratory populations begin migration in the fall and can be found along established migratory routes where nectar sources are available. During breeding (typically February to March), monarch butterflies require milkweed to lay their eggs on. Overwintering monarchs require sites with sufficient roosts for the population (such as eucalyptus trees) that provide appropriate sunlight and shelter from the wind. Where climate is suitable for year-round habitation, monarchs are found in areas with nectar sources and milkweed as breeding can occur year-round.	Year round	No. The Project Site lacks suitable habitat to support this species. Host plant not present.
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	FT/--/--	Restricted to the Central Valley from Redding to Bakersfield. Counties include Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties, California; 0-762 meters elevation.	Riparian forest communities. Exclusive host plant is elderberry (<i>Sambucus</i> species), which must have stems \geq 1-inch diameter for the beetle.	Year round	No. The Project Site lacks suitable habitat to support this species.
<i>Lanx patelloides</i> kneecap lanx	--/--/--USFS-S	This species was formerly widespread in the Sacramento system in California. Now found at scattered sites in the McCloud and Pit and large limnocrenes tributary to the latter; few sites left in Sacramento proper, California.	Species of freshwater snails associated with freshwater habitat. Individuals can grow to 11 mm. They have sexual reproduction.	Year round	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	FE/--/--	Known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, also from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont, California.	Life cycle within vernal pools and valley foothill grassland swales.	December – May	No. The Project Site lacks suitable habitat to support this species.
<i>Monadenia troglodytes</i> Shasta sideband	--/--/--/USFS-S	Known to occur only in Shasta County in certain locations surrounding Shasta Lake, California.	Typically found near limestone and pine-oak woodlands, especially in caves and other rocky areas.	Year Round	No. The Project Site lacks suitable habitat to support this species.
<i>Monadenia troglodytes wintu</i> Wintu sideband	--/--/--/USFS-S	Known to occur only in Shasta County in certain locations surrounding Shasta Lake, California.	Typically found near limestone and pine-oak woodlands, especially in caves and other rocky areas.	Year Round	No. The Project Site lacks suitable habitat to support this species.
<i>Trilobopsis roperi</i> Shasta chaparral	--/--/--/USFS-S	Known to occur only in Shasta County, California.	Deeply shaded limestone rock slabs or caves, with a cover of shrubs or oak.	Year Round	Likely. None observed during survey and site lacks suitable habitat. One 2010 record 0.3-miles west of Project Site.
<i>Vespericola shasta</i> Shasta hesperian	--/--/--/USFS-S	Known to occur only in the Klamath River area, Oregon.	Moist bottom lands such as riparian zones, marshes, or mouths of caves.	Year Round	No. The Project Site lacks suitable habitat to support this species.
Mammals					
<i>Antrozous pallidus</i> pallid bat	--/CSC/--/USFS-S	Locally common species at low elevations. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County.	Habitats occupied include grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, under exfoliating bark, and under bridges.	Year round	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	--/CSC/--/USFS-S	Known to occur throughout California, excluding subalpine and alpine habitats. Its range extends through Mexico to British Columbia and the Rocky Mountain states. Also occurs in several regions of the central Appalachians.	Requires caves, mines, tunnels, buildings, or other cave analog structures such as hallowed out redwoods for roosting. Hibernation sites must be cold, but above freezing.	Year round	No. The Project Site lacks suitable habitat to support this species.
<i>Lasiurus frantzii</i> western red bat	--/CSC/--/--	Occurs from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts.	The winter range includes western lowlands and coastal regions south of San Francisco Bay. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Roosts primarily in trees (less often in shrubs) along the edge of habitats adjacent to streams, fields or urban areas. Foraging habitats occurs in open areas. They may be found in unusual habitats during migration.	Year Round (spring migrations March to May; autumn migrations September to October)	No. The Project Site lacks suitable habitat to support this species.
<i>Pekania pennanti</i> fisher	--/CSC/--/USFS-S	Known to occur along the Sierra Nevada, Cascades, and Klamath mountains and in a few areas in the North Coast Ranges.	Found in intermediate to dense mature stands of trees (contiguous interior coniferous and hardwood forest) and deciduous riparian habitats with a high percent canopy closure. Utilizes cavities in large trees, snags, logs, rock areas, or shelters provided by slash or brush piles.	Year round	No. The Project Site lacks suitable habitat to support this species.
<i>Canus lupus</i> gray wolf	FE/CE/--/--	Known from Arizona, Colorado, Illinois, Indiana, Iowa, Missouri, New Mexico, North Dakota, Ohio, Oregon, South Dakota, Utah, and Washington	Found in temperate forests, mountains, tundra, taiga, and grasslands. Territory ranges from 100 to 10,000s of square kilometers. Breeds from February to March. Gestates for two months. Pups remain in the den until they are 8 to 10 weeks old. Young and parents vacate the den when young are about 3 months old.	Year round	No. The Project Site lacks suitable habitat to support this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
<i>Gulo gulo luscus</i> North American wolverine	FC/CT-FP/-- /USFS-S	Known to occur in the northern Cascades in Washington and the northern Rocky Mountains in Idaho, Montana, Oregon (Wallowa Range), and Wyoming. Individual wolverines have also moved into historic range in the Sierra Nevada Mountains of California and the Southern Rocky Mountains of Colorado, but have not established breeding populations in these areas.	Home ranges of wolverines are large and vary greatly depending on availability of food and habitat. Wolverine inhabits high elevation habitats with near-arctic conditions. Wolverine are dependent on deep year-round snow cover for successful denning.	Breeding late fall to early spring	No. The Project Site lacks suitable habitat to support this species.
Reptiles					
<i>Emys marmorata</i> western pond turtle	--/CSC/--/USFS-S	Distribution ranges from Washington to northern Baja California.	Inhabit rivers, streams, lakes, ponds, reservoirs, stock ponds, and permanent wetland habitats with basking sites.	Year round	No. The Project Site lacks suitable habitat to support this species.

SOURCE: Attachment A

STATUS CODES

Federal:

U.S. Fish and Wildlife Service

- FE Federally Endangered
- FT Federally Threatened
- FC Candidate for Federal Listing

USDA Forest Service

- USFS-S United States Forest Service Sensitive

State: California Department of Fish and Game

- CE California Listed Endangered
- CT California Listed Threatened
- CSC California Species of Special Concern

CNPS: California Native Plant Society

- 1A Plants Presumed Extinct in California
- 1B Plants Rare, Threatened, or Endangered in California and Elsewhere
- 2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

CNPS Threat Ranks:

- 0.1 – Seriously Threatened in California
- 0.2 – Fairly Threatened in California

3.4 WILDLIFE MOVEMENT

Wildlife movement is currently restricted to the north by Shasta Dam and Lake Shasta. Open space, predominately forested land, occurs to the south, east, and west of the Project Site. The Project Site occurs on contiguous shrubland and forested space unbound by large development, fencing, or other barriers; thus, it may support wildlife movement.

3.5 CRITICAL HABITAT

No designated critical habitat occurs on the Project Site (**Attachment A**). The nearest critical habitat is for slender Orcutt grass (*Orcuttia tenuis*) approximately 12-miles southeast of the Project Site (**Attachment D**).

4.0 RESULTS AND RECOMENDATIONS

4.1 SENSITIVE HABITAT

The Project Site is entirely ruderal habitat and developed land. The area of impact consists of a gravel lot, Kennett Road, and Centimudi overflow parking lot. There are no wetlands or waters of the U.S. within the Project Site and therefore, the Proposed Project would not directly impact wetlands and waters of the U.S., or other sensitive habitats. Since there will be no direct impacts to wetlands and waters of the U.S., require Clean Water Act (CWA) Section 401 or 404 permitting is not required.

Construction work could have indirect impacts to off-site wetlands and waters of the U.S. These include three drainages and surrounding riparian vegetation. Stormwater pollution best management practices (BMPs) would be implemented to reduce erosion, sedimentation, and contamination that could indirectly impact these features. Standard precautions would be employed by the construction contractor to prevent the accidental release of fuel, oil, lubricant, or other hazardous materials or sediment associated with construction activities into off-site features. **Minimization Measure 1** is recommended to reduce potential indirect impacts to these off-site features.

Minimization Measure 1

- To the extent feasible, construction activities, including, but not limited to, earthmoving and staging activities within 50 feet of watercourses shall be conducted during the dry season to minimize impacts related to erosion, water quality, and aquatic resources.
- Stormwater BMPs, such as straw wattles, silt fencing, and track in/track out control measures, shall be installed to prevent indirect impacts off-site.
- Standard precautions shall be employed to prevent accidental release of fuel, oil, lubricant, or other hazardous materials.

The Proposed Project would necessitate the removal of a gray pine in poor condition and trimming of a sycamore tree. Trimming conducted by a certified arborist would ensure the sycamore is not adversely affected by the Proposed Project. Under City of Shasta Lake Code of Ordinances, Chapter 12.36 – Tree Conservation, gray pine is not considered a protected species, and thus does not require a tree removal permit from the City. **Minimization Measure 2** would ensure that trees are appropriately trimmed and/or removed in compliance with local ordinances. The Proposed Project would not adversely affect sensitive trees.

Minimization Measure 2

- Removal of gray pine does not require a permit underneath City ordinance. Any USFS permit conditions for tree removal would be adhered to, if applicable.
- Tree trimming shall be conducted by a certified arborist to ensure proper pruning.

4.2 NESTING MIGRATORY BIRDS

Migratory birds and their nests are protected from “take” by the Migratory Bird Treaty Act (16 U.S.C. 703-711), which makes it unlawful to “...pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess or any part, nest, or egg of any such bird...” (50 CFR 10). Potentially occurring nesting migratory birds within 500 feet of the Project Site could be affected if vegetation removal or loud noise-producing activities associated with construction occur during the general nesting season (February 15 through September 15). Additionally, bald eagles are protected by the Bald and Golden Eagle Protection Act, which prohibits take, possession, and commerce of bald and golden eagles and associated parts, feathers, nests, or eggs with limited exceptions (16 USC Subsection 668-668). Bald eagle nests have been observed within two-miles of the Project Site and potentially active nests may be affected by construction activities. **Minimization Measure 3** is recommended to reduce potential impacts to nesting migratory birds and bald eagle.

Minimization Measure 3

- If construction activities (e.g., building, grading, ground disturbance, removal of vegetation) are scheduled to occur during the bald eagle nesting season (January 1 through July 31), which includes the general nesting season (February 15 - September 15), a preconstruction nesting bird survey shall be conducted by a qualified biologist throughout accessible areas of suitable habitat within 500 feet of proposed construction activity for nesting birds and extended to 660 feet for nesting bald eagles. The survey shall occur no more than 7-days prior to the scheduled onset of construction. If construction is delayed or halted for more than 7-days, another preconstruction survey for nesting bird species shall be conducted. If no nesting birds are detected during the preconstruction survey, no additional surveys or mitigation measures are required.
- If nesting bird species are observed within 500 feet, or 660 feet for bald eagle, of construction areas during the survey, appropriate “no construction” buffers shall be established. The size and scale of nesting bird buffers shall be determined by a qualified biologist and in consultation with CDFW and/or USFWS. Buffers shall be established around active nest locations. The nesting bird buffers shall be completely avoided during construction activities. The buffers may be removed when the qualified wildlife biologist confirms that the nest(s) is no longer occupied and all birds have fledged.

4.3 SPECIAL-STATUS SPECIES

Based on survey observations and site characteristics, the Project Site does not contain suitable habitat to support special-status species. The Project Site is ruderal habitat and developed land consisting primarily of asphalt and a gravel lot. No special-status species were observed during the survey.

USFS management indicator species applicable to the Proposed Project include: western screech owl, song sparrow, black bear, elk, and mule deer. These species have been identified to indicate the effects of management activities on USFS lands. As the Project Site provides minimal habitat value, it is anticipated the aforementioned species are likely to use the Project Site in a transitory capacity only.

Noise generated from construction activities may affect potential wildlife movement of black bear, elk, and mule deer in the vicinity of the Project Site; however, these effects would be temporary.

Minimization **Measure 3** would reduce potential impacts to western screech owl and song sparrow. There would be a less-than-significant impact to management indicator species.

Survey and Manage Species

Survey and Manage Species are included in Appendix R of the *Shasta-Trinity National Forests Land and Resource Management Plan* (USFS, 1995). Species belonging to fungi, lichens, and bryophytes are largely suspected to occur on forest land. Eight species of false truffles, *Nivatogastrium nubigenum*, *Rhizopogon abietis*, *R. brunneiniger*, *R. evadens* var. *sublapinus*, *R. flavofibrillosus*, *Gautieria magnicellaris*, *Thaxterogaster pingue*, and *Sedecula pulvinata* are known to occur on forest land. An undescribed taxon, *Gastrosullus* sp. nov. #Trappe 7516, is also known to occur on forest land. Survey strategies for these species include managing known sites, and conducting extensive surveys and subsequently managing high priority sites.

Six species of vascular plants are suspected or known to occur on forest land. Species known to occur include *Allotropa virgate*, *Cypripedium fasciculatum*, and *C. montanum*. Survey strategies for all vascular plants include managing known sites and surveying prior to ground-disturbing activities.

Five amphibians are suspected or known to occur on forest land. Larch Mountain salamander (*Plethodon larselli*), Shasta salamander (*Hydromantes shastae*), and Van Dyke's salamander (*Plethodon vandykei*) are known to occur on forest land. Survey strategies for all amphibians include managing known sites and surveying prior to ground-disturbing activities.

Great gray owl (*Strix nebulosi*) is the only bird species suspected to occur on forest land. Survey strategies include managing known sites and surveying prior to ground-disturbing activities.

Seven mammal species are suspected or known to occur on forest land. The red tree vole (*Arborimus longicaudus*) and lynx are both known to occur on forest land. Red tree vole requires surveying prior to ground-disturbing activities; and the survey strategy for lynx includes conducting extensive surveys and subsequently managing high priority sites for this species. Bat species known to occur on forest land include long-eared myotis (*Myotis evotis*) and pallid bat (*Antrozous pallidus*). Survey strategies for all bats include managing known sites, and surveying prior to ground-disturbing activities.

As previously discussed, the Project Site is ruderal/developed habitat consisting primarily of asphalt and a gravel lot. The Project Site does not provide suitable habitat to support the fungi, lichens, bryophytes, or vascular plants identified in Appendix R. Amphibian species (salamanders) are also unlikely to occur due to the lack of shelter and foraging habitat, such as water or moist ground and forest floor cover. The Project Site also does not provide suitable habitat to support great gray owl or red tree vole. Great gray owl forages primarily in open spaces such as meadows, and roosts in dense forest stands. Red tree vole generally is found in mature and old-growth conifer and mixed-conifer forest, or in conifer or conifer-dominant mixed-hardwood forest stands. Red tree vole nests require suitable woody structures, such as large limbs, palmate branch clusters, developed crowns, cavities, or forked trunks (Huff et al., 2012). The Project Site lacks these specific habitat requirements to support these species. Lynx may occur on the Project Site, but in a transitory capacity only. The Project Site does not have suitable habitat to provide cover and foraging opportunities for lynx.

Additionally, five bat species are identified in Appendix R, two of which are known to occur on forest land. Bats require suitable roost sites, which may consist of abandoned buildings, hollows or loose bark of trees, rock crevices and outcrops, and/or large snags depending on a specific species preference. Noise generated from construction activities could affect maternal roosting sites of special-status bats. However, the Project Site lacks suitable maternity roost site features, and thus is unlikely to support bat colonies. Further, the proposed Project Site also does not contain any known management sites for the aforementioned survey and manage species. Thus, impacts to these species are not anticipated; there would be a less than significant impact to fungi, lichens, bryophytes, vascular plants, amphibians, birds, and mammals identified as *Survey and Manage Species* by the USFS.

4.4 WILDLIFE MOVEMENT

Areas surrounding the Project Site primarily consist of mixed chaparral and montane hardwood habitats. Although the surrounding habitat may facilitate wildlife movement, the Proposed Project would not encroach on forest habitat and thus would not significantly impede potential wildlife movement. As previously discussed, noise generated from construction activities may affect potential wildlife movement; however, these effects would be temporary. There would be a less-than-significant impact to wildlife movement.

5.0 CONCLUSION

The Project Site is located within an area of minimal flood hazard (Zone X) outside the area of the 0.2-percent annual flood chance (FEMA, 2022) on the USGS 7.5-minute “Mettler” quadrangle (**Figures 1, 2, and 3**) and is not within a floodplain. The Project Site is located within a municipal watershed, and within a congressionally designated National Recreation Area. No inventoried roadless areas or potential wilderness areas are present. No floodplains or wetlands are present.

The Project Site is entirely ruderal/developed and does not contain suitable habitat to support special-status species, nor is it located within designated critical habitat. No special-status, USFS MIS, USFS *Pacific Southwest Region Sensitive Animal and Plant Species* or *Survey and Manage Species* were observed during the survey. Three ephemeral drainages are located adjacent to the Project Site. Recommended construction-related BMPs include: **Minimization Measure 1** to reduce potential indirect impacts to off-site watercourses; **Minimization Measure 2** for tree protection and environmental compliance; and, **Minimization Measure 3** to reduce potential impacts to nesting migratory birds should construction occur during the nesting season (February 15 - September 15) and potential impacts to nesting bald eagles should construction occur during the bald eagle nesting season (January 1 - July 31). **Minimization Measure 3** would additionally reduce potential impacts to song sparrow, western screech owl, should they be nesting within 500 feet of construction activities, and bald eagle, should they be nesting within 660 feet of construction activities. Construction activities associated with the Proposed Project may generate noise which may affect potential wildlife movement; however, these effects would be temporary. There would be a less-than-significant impact to special-status species, migratory birds, aquatic resources, and wildlife movement.

6.0 REFERENCES

California Department of Fish and Wildlife (CDFW), 2023. California Natural Diversity Database (CNDDDB) RareFind 5. USGS quadrangles Enterprise, Shasta Dam, Schell Mtn., Bohemotash Mtn., O'Brien, Igo, Project City, Redding, and Whiskeytown. Available online:

- <https://wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>. Accessed January 2023.
- California Native Plant Society (CNPS), 2023. Inventory of Rare and Endangered Plants. USGS quadrangles Enterprise, Shasta Dam, Schell Mtn., Bohemotash Mtn., O'Brien, Igo, Project City, Redding, and Whiskeytown. Available online: <https://www.cnps.org/>. Accessed January 2023.
- City of Shasta Lake, 2022. Water Treatment. Available online: [https://www.cityofshastalake.org/913/Water-Treatment#:~:text=The%20source%20of%20raw%20\(untreated,cleanest%20\(lowest%20turbidity\)%20water](https://www.cityofshastalake.org/913/Water-Treatment#:~:text=The%20source%20of%20raw%20(untreated,cleanest%20(lowest%20turbidity)%20water). Accessed July 2022.
- Federal Emergency Management Agency (FEMA). 2022. FEMA Flood Map Service Center: Search By Address. Available online at: <https://msc.fema.gov/portal/search?AddressQuery=kennett%20road%20shasta%20lake#searchresultsanchor>. Accessed June 2022.
- Huff, R., K. Van Norman, C. Hughes, R. Davis and K. Mellen-Mclean, 2012. Survey Protocol for the Red Tree Vole, Version 3.0. Portland, OR. U.S. Department of the Interior, Bureau of Land Management, Oregon/Washington, and U.S. Department of Agriculture, Forest Service Regions 5 and 6. Available online at: <https://www.blm.gov/or/plans/surveyandmanage/files/sp-RedTreeVole-v3-0-2012-11.pdf>. Accessed January 2023.
- Natural Resources Conservation Service (NRCS), 2022. Web Soil Survey Custom Soils Report. Available online at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed July, 2022.
- U.S. Forest Service (USFS), 1994. Final Environmental Impact Statement: Land and Resource Management Plan. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5209393.pdf. Accessed July 2022.
- USFS, 1995. *Shasta-Trinity National Forests Land and Resource Management Plan*. Available online at: <https://www.fs.usda.gov/detailfull/stnf/landmanagement/planning/?cid=stelprdb5108815&width=full>. Accessed July 2022.
- USFS, 2007. Forest Service Manual. FSM 2500 – *Watershed and Air Management*. Chapter 2540 – *Water Uses and Development*. Available online: <https://winapps.umd.edu/winapps/media2/wilderness/toolboxes/documents/water-rights/FSM%202540.pdf>. Accessed July 2022.
- USFS, 2013a. 2013 Pacific Southwestern Region of the U.S. Forest Service Sensitive Animal Species List by Forest. Available online: <https://www.fs.usda.gov/main/r5/plants-animals/plants>. Accessed August 2023.
- USFS, 2013b. 2013 Pacific Southwestern Region of the U.S. Forest Service Sensitive Plant Species List. Available online: <https://www.fs.usda.gov/main/r5/plants-animals/wildlife> Accessed August 2023.
- USFS, 2014. Management Guide: Shasta and Trinity Units. Whiskeytown-Shasta-Trinity National Recreation Area. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3790610.pdf. Accessed 2022.

U.S. Fish and Wildlife Service (USFWS), 2023. Information for planning and consultation (IPaC). Yreka Fish and Wildlife Office. Official Species List. Available online: <https://ipac.ecosphere.fws.gov/>. Accessed January 24, 2022.

USFWS, 2022a. National Wetlands Inventory map. Available online: <https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper>. Accessed June 2022.

USFWS, 2022b. Critical Habitat for Threatened and Endangered Species. Available online: <https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77>. Accessed July 2022.

ATTACHMENT A

SPECIAL-STATUS SPECIES LISTS



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Yreka Fish And Wildlife Office
1829 South Oregon Street
Yreka, CA 96097-3446
Phone: (530) 842-5763 Fax: (530) 842-4517

In Reply Refer To:

August 09, 2023

Project Code: 2023-0114203

Project Name: City of Shasta Lake – Centimudi Water Storage Tank

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Yreka Fish And Wildlife Office

1829 South Oregon Street

Yreka, CA 96097-3446

(530) 842-5763

PROJECT SUMMARY

Project Code: 2023-0114203
Project Name: City of Shasta Lake – Centimudi Water Storage Tank
Project Type: Terrestrial Sources of Water Creation/Improvement
Project Description: Water Storage Tank
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.714577899999995,-122.40459952373777,14z>



Counties: Shasta County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf <i>Canis lupus</i> Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is final critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered
North American Wolverine <i>Gulo gulo luscus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

BIRDS

NAME	STATUS
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Shasta Lake city
Name: Cedrick Villasenor
Address: 1801 7th Street, Suite 100
City: Sacramento
State: CA
Zip: 95811
Email: cvillasenor@montrose-env.com
Phone: 9164473479

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Shasta Lake city



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: Quad (Shasta Dam (4012264) OR Enterprise (4012253) OR Schell Mtn. (4012275) OR Bohemotash Mtn. (4012274) OR O'Brien (4012273) OR Igo (4012255) OR Project City (4012263) OR Redding (4012254))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAD09030	<i>Hydromantes shastae</i> Shasta salamander	None	Threatened	G3	S3	
AAABA01010	<i>Ascaphus truei</i> Pacific tailed frog	None	None	G4	S3S4	SSC
AAABF02020	<i>Spea hammondi</i> western spadefoot	None	None	G2G3	S3S4	SSC
AAABH01051	<i>Rana boylei pop. 1</i> foothill yellow-legged frog - north coast DPS	None	None	G3T4	S4	SSC
ABNGA04040	<i>Ardea alba</i> great egret	None	None	G5	S4	
ABNKC10010	<i>Haliaeetus leucocephalus</i> bald eagle	Delisted	Endangered	G5	S3	FP
ABNKD06071	<i>Falco peregrinus anatum</i> American peregrine falcon	Delisted	Delisted	G4T4	S3S4	
ABPAU08010	<i>Riparia riparia</i> bank swallow	None	Threatened	G5	S3	
ABPBXB0020	<i>Agelaius tricolor</i> tricolored blackbird	None	Threatened	G1G2	S2	SSC
AFCAA01031	<i>Acipenser medirostris pop. 1</i> green sturgeon - southern DPS	Threatened	None	G2T1	S1	
AFCHA0205B	<i>Oncorhynchus tshawytscha pop. 7</i> chinook salmon - Sacramento River winter-run ESU	Endangered	Endangered	G5T1Q	S2	
AFCHA0205L	<i>Oncorhynchus tshawytscha pop. 11</i> chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	G5T2Q	S2	
AFCHA0209K	<i>Oncorhynchus mykiss irideus pop. 11</i> steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	
AMACC01020	<i>Myotis yumanensis</i> Yuma myotis	None	None	G5	S4	
AMACC01070	<i>Myotis evotis</i> long-eared myotis	None	None	G5	S3	
AMACC02010	<i>Lasionycteris noctivagans</i> silver-haired bat	None	None	G3G4	S3S4	
AMACC05080	<i>Lasiurus frantzii</i> western red bat	None	None	G4	S3	SSC
AMACC08010	<i>Corynorhinus townsendii</i> Townsend's big-eared bat	None	None	G4	S2	SSC
AMACC10010	<i>Antrozous pallidus</i> pallid bat	None	None	G4	S3	SSC



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMAJF01020	<i>Pekania pennanti</i> Fisher	None	None	G5	S2S3	SSC
ARAAD02030	<i>Emys marmorata</i> western pond turtle	None	None	G3G4	S3	SSC
CTT61410CA	<i>Great Valley Cottonwood Riparian Forest</i> Great Valley Cottonwood Riparian Forest	None	None	G2	S2.1	
CTT61430CA	<i>Great Valley Valley Oak Riparian Forest</i> Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
CTT63410CA	<i>Great Valley Willow Scrub</i> Great Valley Willow Scrub	None	None	G3	S3.2	
ICBRA03030	<i>Branchinecta lynchi</i> vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	<i>Linderiella occidentalis</i> California linderiella	None	None	G2G3	S2S3	
ICBRA10010	<i>Lepidurus packardii</i> vernal pool tadpole shrimp	Endangered	None	G3	S3	
IICOL48011	<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	Threatened	None	G3T3	S3	
IICOL49010	<i>Anthicus sacramento</i> Sacramento anthicid beetle	None	None	G4	S4	
IICOL49020	<i>Anthicus antiochensis</i> Antioch Dunes anthicid beetle	None	None	G3	S3	
IICOL58010	<i>Atractelmis wawona</i> Wawona riffle beetle	None	None	G3	S1S2	
IIHYM24260	<i>Bombus pensylvanicus</i> American bumble bee	None	None	G3G4	S2	
IMBIV27020	<i>Margaritifera falcata</i> western pearlshell	None	None	G4G5	S1S2	
IMGASA2030	<i>Trilobopsis roperi</i> Shasta chaparral	None	None	G2	S1	
IMGASA4070	<i>Vespericola shasta</i> Shasta hesperian	None	None	G3	S3	
IMGASC2280	<i>Helminthoglypta hertleini</i> Oregon shoulderband	None	None	G3Q	S1S2	
IMGASC7010	<i>Monadenia churchi</i> Klamath sideband	None	None	G2G3	S3	
IMGASC7091	<i>Monadenia troglodytes troglodytes</i> Shasta sideband	None	None	G1G2T1T2	S2	
IMGASC7092	<i>Monadenia troglodytes wintu</i> Wintu sideband	None	None	G1G2T1T2	S2	
IMGASL7030	<i>Lanx patelloides</i> kneecap lanx	None	None	G2?	S2	



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
NBMUS80010	<i>Anomobryum julaceum</i> slender silver moss	None	None	G5?	S2	4.2
PDASTBX0R0	<i>Ageratina shastensis</i> Shasta ageratina	None	None	G3	S3	1B.2
PDBOR0A0Q0	<i>Cryptantha crinita</i> silky cryptantha	None	None	G2	S2	1B.2
PDCAM0C010	<i>Legenere limosa</i> legenere	None	None	G2	S2	1B.1
PDCPR07080	<i>Viburnum ellipticum</i> oval-leaved viburnum	None	None	G4G5	S3?	2B.3
PDCRA0A0U3	<i>Sedum paradisum ssp. paradisum</i> Canyon Creek stonecrop	None	None	G3G4T3	S3	1B.3
PDERI181Z1	<i>Vaccinium shastense ssp. shastense</i> Shasta huckleberry	None	None	G4T3	S3	1B.3
PDFAB25101	<i>Lathyrus sulphureus var. argillaceus</i> dubious pea	None	None	G5T1T2Q	S1S2	3
PDFAB40410	<i>Trifolium piorkowskii</i> maverick clover	None	None	G2	S2	1B.2
PDLAM1X1A0	<i>Stachys pilosa</i> hairy marsh hedge-nettle	None	None	G5	S3	2B.3
PDONA05062	<i>Clarkia borealis ssp. borealis</i> northern clarkia	None	None	G3T4	S4	4.3
PDPGN08632	<i>Eriogonum ursinum var. erubescens</i> blushing wild buckwheat	None	None	G3G4T3	S3	1B.3
PDPHR01080	<i>Erythranthe taylorii</i> Shasta limestone monkeyflower	None	None	G2	S2	1B.1
PDPOR04020	<i>Lewisia cantelovii</i> Cantelow's lewisia	None	None	G3	S3	1B.2
PDR0S14020	<i>Nevisia cliftonii</i> Shasta snow-wreath	None	Threatened	G2	S2	1B.2
PMALI040Q0	<i>Sagittaria sanfordii</i> Sanford's arrowhead	None	None	G3	S3	1B.2
PMJUN011L2	<i>Juncus leiospermus var. leiospermus</i> Red Bluff dwarf rush	None	None	G2T2	S2	1B.1
PMLILO0C0H0	<i>Brodiaea matsonii</i> Sulphur Creek brodiaea	None	None	G1	S1	1B.1
PMLILO0U0V0	<i>Erythronium shastense</i> Shasta fawn lily	None	None	G2	S2	1B.2
PMPOA040K0	<i>Agrostis hendersonii</i> Henderson's bent grass	None	None	G2Q	S2	3.2
PMPOA4G050	<i>Orcuttia tenuis</i> slender Orcutt grass	Threatened	Endangered	G2	S2	1B.1



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PM POT03080	<i>Potamogeton epihydrus</i> Nuttall's ribbon-leaved pondweed	None	None	G5	S2S3	2B.2
PM SMIO10D0	<i>Smilax jamesii</i> English Peak greenbrier	None	None	G3G4	S3S4	4.2

Record Count: 63

CNPS Rare Plant Inventory



Search Results

38 matches found. Click on scientific name for details

Search Criteria: Quad is one of [4012253:4012264:4012275:4012274:4012273:4012255:4012263:4012254]

▲ SCIENTIFIC NAME	COMMON NAME	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	OTHER STATUS
<i>Adiantum shastense</i>	Shasta maidenhair fern	None	None	G3	S3	4.3	
<i>Ageratina shastensis</i>	Shasta ageratina	None	None	G3	S3	1B.2	SB_UCSC
<i>Agrostis hendersonii</i>	Henderson's bent grass	None	None	G2Q	S2	3.2	
<i>Allium sanbornii</i> var. <i>sanbornii</i>	Sanborn's onion	None	None	G4T4?	S3S4	4.2	
<i>Anomobryum julaceum</i>	slender silver moss	None	None	G5?	S2	4.2	
<i>Arctostaphylos malloryi</i>	Mallory's manzanita	None	None	G3	S3	4.3	SB_UCSC
<i>Arnica venosa</i>	Shasta County arnica	None	None	G3	S3	4.2	
<i>Astragalus pauperculus</i>	depauperate milk-vetch	None	None	G4	S4	4.3	
<i>Brodiaea matsonii</i>	Sulphur Creek brodiaea	None	None	G1	S1	1B.1	BLM_S; SB_BerrySB
<i>Bulbostylis capillaris</i>	thread-leaved beakseed	None	None	G5	S3	4.2	IUCN_LC
<i>Clarkia borealis</i> ssp. <i>borealis</i>	northern clarkia	None	None	G3T4	S4	4.3	BLM_S; SB_UCSC; USFS_S
<i>Cryptantha crinita</i>	silky cryptantha	None	None	G2	S2	1B.2	BLM_S; USFS_S
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	None	None	G4	S4	4.2	BLM_S; IUCN_VU; USFS_S
<i>Cypripedium montanum</i>	mountain lady's-slipper	None	None	G4G5	S4	4.2	BLM_S; IUCN_VU; USFS_S
<i>Eriogonum congdonii</i>	Congdon's buckwheat	None	None	G4	S4	4.3	
<i>Eriogonum tripodum</i>	tripod buckwheat	None	None	G4	S4	4.2	USFS_S
<i>Eriogonum ursinum</i> var. <i>erubescens</i>	blushing wild buckwheat	None	None	G3G4T3	S3	1B.3	SB_UCSC; USFS_S
<i>Erythranthe taylorii</i>	Shasta limestone monkeyflower	None	None	G2	S2	1B.1	
<i>Erythronium shastense</i>	Shasta fawn lily	None	None	G2	S2	1B.2	SB_UCSC
<i>Iris bracteata</i>	Siskiyou iris	None	None	G4G5	S3	3.3	
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	None	None	G2T2	S2	1B.1	BLM_S; USFS_S
<i>Lathyrus sulphureus</i> var. <i>argillaceus</i>	dubious pea	None	None	G5T1T2Q	S1S2	3	
<i>Legenere limosa</i>	legenere	None	None	G2	S2	1B.1	BLM_S; SB_UCBG
<i>Leptosiphon latisectus</i>	broad-lobed leptosiphon	None	None	G4	S4	4.3	
<i>Lewisia cantelovii</i>	Cantelow's lewisia	None	None	G3	S3	1B.2	BLM_S; SB_UCSC; USFS_S
<i>Lilium rubescens</i>	redwood lily	None	None	G3	S3	4.2	SB_CalBG/RSABG; SB_USDA
<i>Neviusia cliftonii</i>	Shasta snow-wreath	None	CT	G2	S2	1B.2	SB_CalBG/RSABG; USFS_S
<i>Orcuttia tenuis</i>	slender Orcutt grass	FT	CE	G2	S2	1B.1	SB_UCBG

<u><i>Penstemon filiformis</i></u>	thread-leaved beardtongue	None	None	G4	S4	4.2	SB_UCSC
<u><i>Potamogeton epihydrus</i></u>	Nuttall's ribbon-leaved pondweed	None	None	G5	S2S3	2B.2	IUCN_LC
<u><i>Sagittaria sanfordii</i></u>	Sanford's arrowhead	None	None	G3	S3	1B.2	BLM_S
<u><i>Sedum paradisum</i> ssp. <i>paradisum</i></u>	Canyon Creek stonecrop	None	None	G3G4T3	S3	1B.3	BLM_S; SB_UCSC; USFS_S
<u><i>Sidalcea celata</i></u>	Redding checkerbloom	None	None	G2G3	S2S3	3	
<u><i>Smilax jamesii</i></u>	English Peak greenbrier	None	None	G3G4	S3S4	4.2	
<u><i>Stachys pilosa</i></u>	hairy marsh hedge-nettle	None	None	G5	S3	2B.3	
<u><i>Trifolium piorkowskii</i></u>	maverick clover	None	None	G2	S2	1B.2	
<u><i>Vaccinium shastense</i> ssp. <i>shastense</i></u>	Shasta huckleberry	None	None	G4T3	S3	1B.3	BLM_S; SB_UCSC
<u><i>Viburnum ellipticum</i></u>	oval-leaved viburnum	None	None	G4G5	S3?	2B.3	

Showing 1 to 38 of 38 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 9 August 2023].

USDA Forest Service, Pacific Southwest Region

Sensitive Animal Species by Forest

6/30/2013; Updated 9/9/2013

Scientific Name	Common Name	Shasta-Trinity
BIRDS (12)		
<i>Accipiter gentilis</i>	Northern goshawk	X
<i>Coturnicops noveboracensis</i>	Yellow rail	X
<i>Empidonax traillii</i>	Willow flycatcher	X
<i>Haliaeetus leucocephalus</i>	Bald eagle	X
MAMMALS (13)		
<i>Antrozous pallidus</i>	Pallid bat	X
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	X
<i>Gulo gulo luscus</i>	North American wolverine	X
<i>Martes caurina</i>	Pacific marten	X
<i>Pekania pennanti</i>	Fisher	X
<i>Myotis thysanodes</i>	Fringed myotis	X
AMPHIBIANS (21)		
<i>Hydromantes shastae</i>	Shasta salamander	X
<i>Rana aurora aurora</i>	Northern red-legged frog	X
<i>Rana boylei</i>	Foothill yellow-legged frog	X
<i>Rana cascadae</i>	Cascade frog	X
<i>Rhyacotriton variegatus</i>	Southern torrent salamander	X
REPTILES (12)		
<i>Emys marmorata</i>	Western pond turtle	X
INVERTEBRATES, TERRESTRIAL (24)		
<i>Bombus occidentalis</i>	Western bumble bee	X
<i>Monadenia troglodytes troglodytes</i>	Shasta sideband snail	X
<i>Monadenia troglodytes wintu</i>	Wintu sideband snail	X
<i>Trilobopsis roperi</i>	Shasta chaparral snail	X
<i>Trilobopsis tehamana</i>	Tehama chaparral snail	X
<i>Vespericola pressleyi</i>	Big Bar hesperian snail	X
<i>Vespericola shasta</i>	Shasta hesperian snail	X
INVERTEBRATES, AQUATIC - Mollusks (13)		
<i>Anodonta californiensis</i>	California floater (freshwater mussel)	X
<i>Fluminicola seminalis</i>	Nugget pebblesnail	X
<i>Juga nigrina</i>	Black juga (snail)	X
<i>Juga (Calibasis) occata</i>	Scalloped juga (snail)	X
<i>Lanx patelloides</i>	Kneecap lanx (limpet)	X
<i>Pisidium (Cyclocalyx) ultramontanum</i>	Montane peaclam	X
FISHES (22)		
<i>Entosphenus tridentatus</i>	Pacific lamprey	X
<i>Mylopharodon conocephalus</i>	Hardhead	X
<i>Oncorhynchus mykiss</i>	Steelhead - Klamath Mountains Province	X
<i>Oncorhynchus mykiss</i> pop 7	McCloud River redband trout	X
<i>Oncorhynchus tshawytscha</i>	Upper Klamath-Trinity chinook ESU	X

2013 FS R5 RF Sensitive Plant Species List

Shasta-Trinity NF

Anisocarpus scabridus (scabrid alpine tarplant)	X
Boletus pulcherrimus (red-pored bolete)	X
Botrychium crenulatum (scalloped moonwort)	X
Botrychium minganense (mingan moonwort)	X
Botrychium pinnatum (northwestern moonwort)	X
Botrychium pumicola (pumice moonwort)	X
Buxbaumia viridis (buxbaumia moss)	X
Calochortus greenei (Greene's mariposa-lily)	X
Calochortus longebarbatus var. longebarbatus (long-haired star-tulip)	X
Campanula shetleri (Castle Crags harebell)	X
Campanula wilkinsiana (Wilkin's harebell)	X
Chaenactis suffrutescens (Shasta chaenactis)	X
Clarkia borealis ssp. borealis (northern clarkia)	X
Collomia larsenii (talus collomia)	X
Cordylanthus tenuis ssp. pallescens (pallid bird's-beak)	X
Cudonia monticola (mountain cudonia)	X
Cypripedium fasciculatum (clustered lady's-slipper)	X
Cypripedium montanum (mountain lady's-slipper)	X
Dendrocollybia racemosa (branched collybia)	X
Draba carnosula (Mt. Eddy draba)	X
Epilobium oreganum (Oregon fireweed)	X
Eriastrum tracyi (Tracy's eriastrum)	X
Eriogonum alpinum (Trinity buckwheat)	X
Eriogonum ursinum var. erubescens (blushing wild buckwheat)	X
Eucephalis vialis (wayside aster)	X
Frasera umpquaensis (Umpqua green-gentian)	X
Fritillaria eastwoodiae (Butte County fritillary)	X
Harmonia doris-nilesiae (Niles' harmonia)	X
Harmonia stebbinsii (Stebbins' harmonia)	X
Iliamna latibracteata (California globe mallow)	X
Ivesia longibracteata (Castle Crags ivesia)	X
Ivesia pickeringii (Pickering's ivesia)	X
Leptosiphon nuttallii ssp. howellii (Mt. Tedoc leptosiphon)	X
Lewisia cantelovii (Cantelow's lewisia)	X
Lewisia kelloggii ssp. hutchisonii (Hutchison's lewisia)	X
Meesia uliginosa (broad-nerved hump-moss)	X
Mielichhoferia elongata (elongate copper moss)	X
Minuartia rosei (peanut sandwort)	X
Minuartia stolonifera (Scott Mountain sandwort)	X
Neviusia cliffonii (Shasta snow-wreath)	X
Ophioglossum pusillum (northern adder's tongue)	X
Parnassia cirrata var. intermedia (Cascade grass-of-Parnassus)	X
Peltigera gowardii (veined water lichen)	X
Penstemon tracyi (Tracy's beardtongue)	X
Phacelia cookei (Cooke's phacelia)	X
Phacelia greenei (Scott Valley phacelia)	X

Phaeocollybia olivacea (olive phaeocollybia)	X
Pinus albicaulis (whitebark pine)	X
Polemonium chartaceum (Mason's sky pilot)	X
Raillardella pringlei (showy raillardella)	X
Rorippa columbiae (Columbia yellow cress)	X
Sedum obtusatum ssp. paradisum (Canyon Creek stonecrop)	X
Silene salmonacea (Klamath Mountain catchfly)	X
Streptanthus oblancoolatus (Trinity River jewel-flower)	X
Sulcaria badia (bay horsehair lichen)	X

ATTACHMENT B

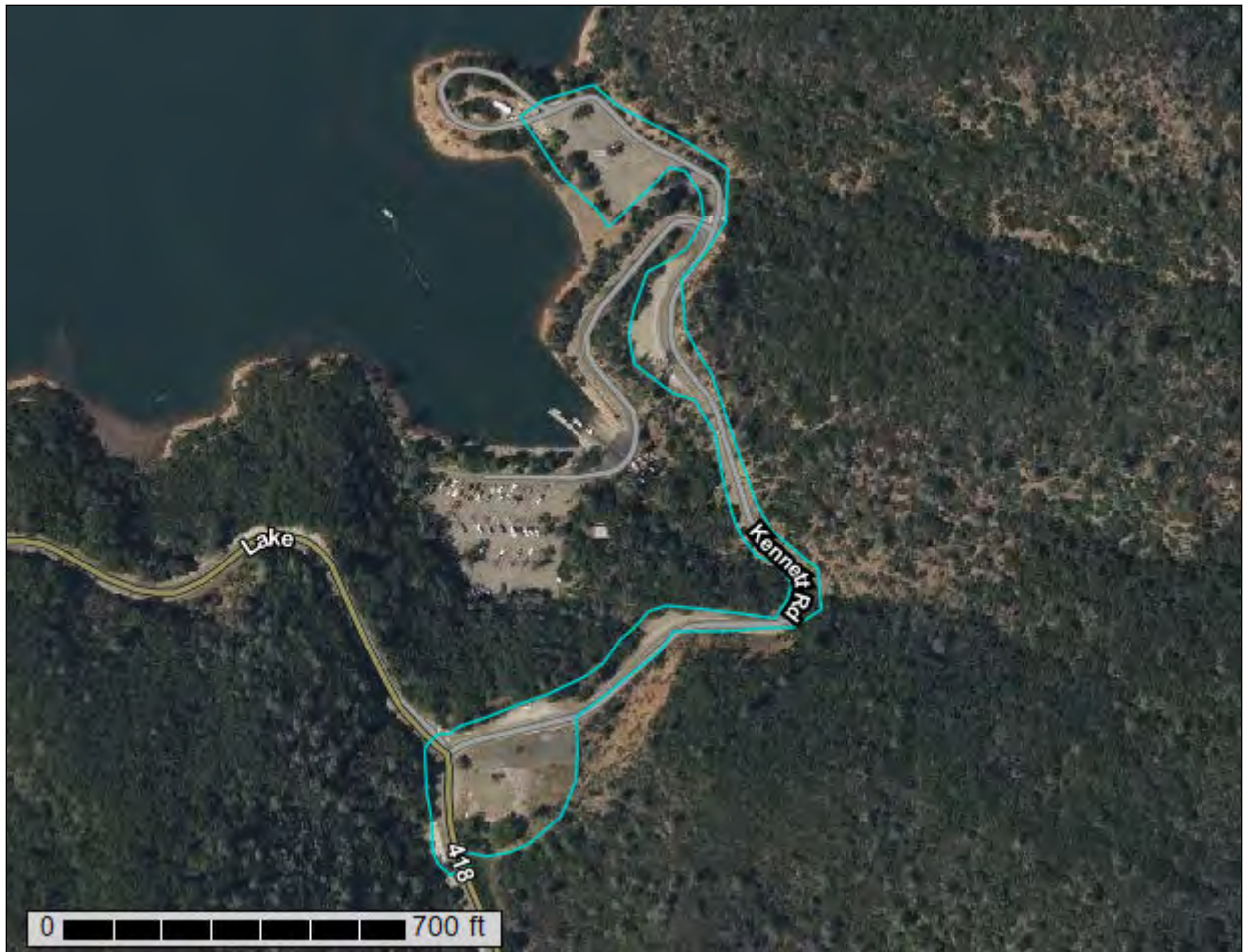
NATIONAL WETLANDS INVENTORY



ATTACHMENT C

NRCS CUSTOM SOILS REPORT

Custom Soil Resource Report for Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California



Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

Custom Soil Resource Report

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

Soil Map

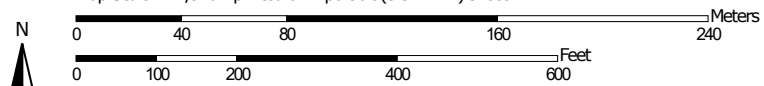
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.


Map Scale: 1:2,870 if printed on A portrait (8.5" x 11") sheet.



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

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California
 Survey Area Data: Version 11, Sep 6, 2021

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

Date(s) aerial images were photographed: May 8, 2019—Jun 21, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
82	Goulding-Holland families association, 40 to 60 percent slopes.	2.2	42.2%
BoF3sh	Boomer very stony clay loam, 50 to 70 percent slopes, severely eroded	2.6	50.4%
GeF2sh	Goulding very rocky loam, 50 to 70 percent slopes, eroded	0.4	7.4%
W	Water	0.0	0.1%
Totals for Area of Interest		5.2	100.0%

Map Unit Descriptions

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

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

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

Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California

82—Goulding-Holland families association, 40 to 60 percent slopes.

Map Unit Setting

National map unit symbol: hss7
Elevation: 2,000 to 4,580 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 130 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Goulding family and similar soils: 50 percent
Holland family and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Goulding Family

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from metavolcanics and/or residuum weathered from metasedimentary rock

Typical profile

H1 - 0 to 7 inches: very gravelly loam
H2 - 7 to 15 inches: very gravelly loam
H3 - 15 to 19 inches: unweathered bedrock

Properties and qualities

Slope: 40 to 60 percent
Depth to restrictive feature: 15 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F005XZ014CA - Mesic Mountains <40"ppt
Hydric soil rating: No

Description of Holland Family

Setting

Landform: Mountains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Residuum weathered from granite and/or residuum weathered from metavolcanics and/or residuum weathered from metasedimentary rock

Typical profile

H1 - 0 to 3 inches: gravelly loam

H2 - 3 to 26 inches: gravelly clay loam

H3 - 26 to 30 inches: weathered bedrock

Properties and qualities

Slope: 40 to 60 percent

Depth to restrictive feature: 26 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Marpa family

Percent of map unit: 10 percent

Hydric soil rating: No

Neuns family

Percent of map unit: 5 percent

Hydric soil rating: No

Rock outcrop, metamorphic

Percent of map unit: 5 percent

Hydric soil rating: No

**BoF3sh—Boomer very stony clay loam, 50 to 70 percent slopes,
severely eroded**

Map Unit Setting

National map unit symbol: 20q4q
Elevation: 600 to 5,500 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 120 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Boomer

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from metavolcanics

Typical profile

H1 - 0 to 1 inches: very stony clay loam
H2 - 1 to 20 inches: stony sandy clay loam
H3 - 20 to 30 inches: stony clay loam
H4 - 30 to 40 inches: weathered bedrock

Properties and qualities

Slope: 50 to 70 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: 30 to 49 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e

Custom Soil Resource Report

Hydrologic Soil Group: C
Ecological site: F015XY015CA - Loamy Mountains >40"ppt
Hydric soil rating: No

Minor Components

Neuns

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Goulding

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Stonyford

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

GeF2sh—Goulding very rocky loam, 50 to 70 percent slopes, eroded

Map Unit Setting

National map unit symbol: 20q6n
Elevation: 1,500 to 5,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 150 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Goulding and similar soils: 65 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Goulding

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from greenstone

Typical profile

H1 - 0 to 5 inches: very stony loam
H2 - 5 to 16 inches: gravelly loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 50 to 70 percent
Depth to restrictive feature: 16 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R018XD076CA - SHALLOW LOAMY
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from greenstone

Typical profile

H1 - 0 to 10 inches: unweathered bedrock

Properties and qualities

Depth to restrictive feature: 0 to 4 inches to lithic bedrock
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Low to very high (0.01 to 19.98 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

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Hydric soil rating: No

Minor Components

Auburn

Percent of map unit: 10 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: No

Diamond springs

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

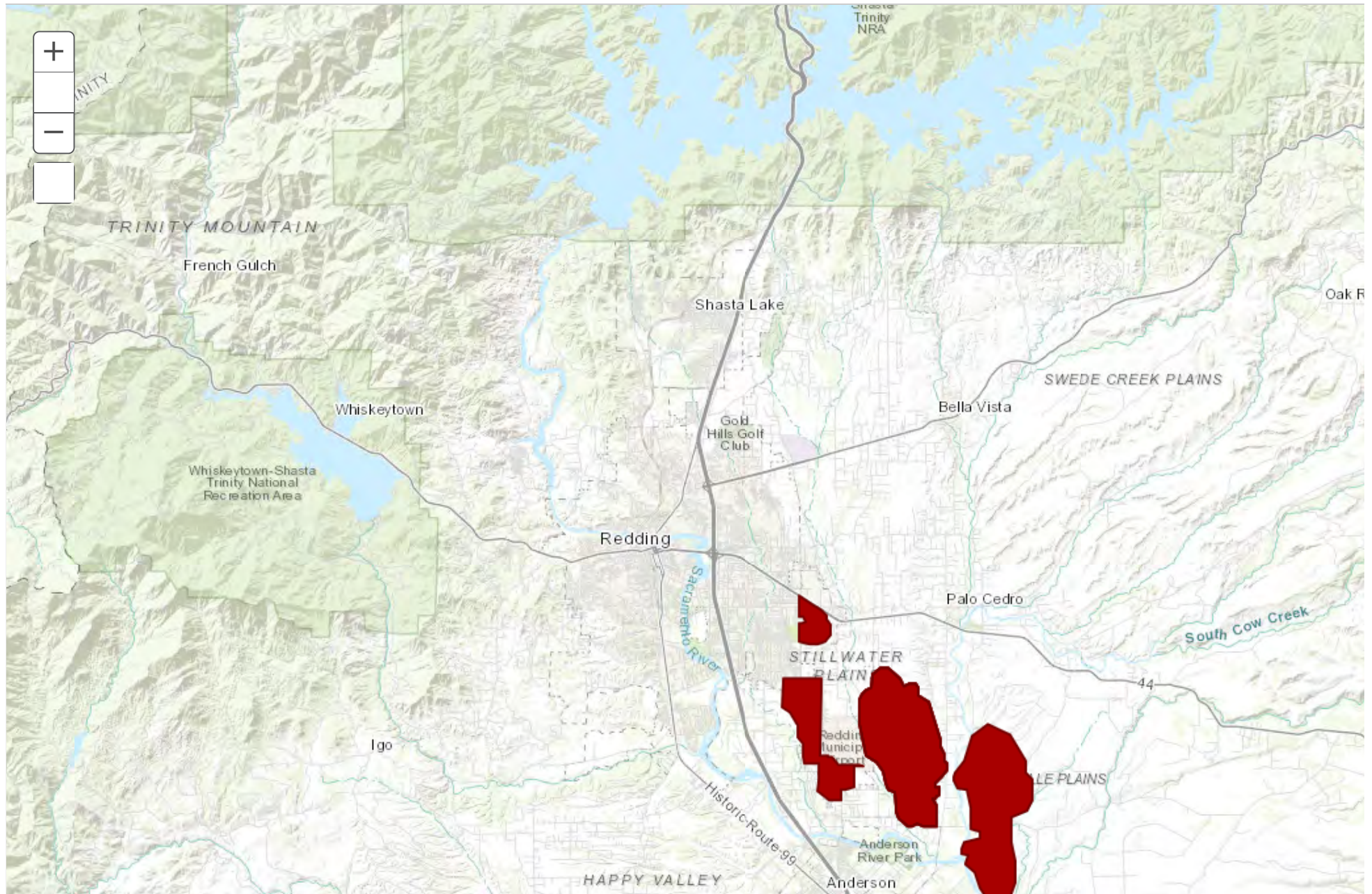
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

ATTACHMENT D

CRITICAL HABITAT

Home ▾ Critical Habitat for Threatened & Endangered Species [USFWS]

Details | Basemap |



APPENDIX D

CULTURAL RESOURCES STUDY



CULTURAL RESOURCES STUDY

CENTIMUDI WATER STORAGE TANK

JANUARY 2023

PREPARED FOR:

City of Shasta Lake
4477 Main Street
Shasta Lake, CA 96019

PREPARED BY:

Montrose Environmental
1801 7th Street, Suite 100
Sacramento, CA 95811
(916) 447-3479
www.analyticalcorp.com



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CULTURAL RESOURCES STUDY

CITY OF SHASTA LAKE CENTIMUDI WATER STORAGE TANK PROJECT, SHASTA COUNTY, CA

EXECUTIVE SUMMARY

The City of Shasta Lake (City) proposes to construct a new 2.45-million-gallon treated water storage tank to replace two existing water tanks located on the north side of Fisherman’s Point Water Treatment Plant (WTP) (Proposed Project). The existing water tanks at the WTP have reached/exceeded their useful lives and were recommended for demolition/replacement as part of the City’s 2016-2026 Water Master Plan (City of Shasta Lake, 2016). Demolition of the existing tanks is not part of the Proposed Project. Because the Project Site is located on National Forest System lands in the Shasta-Trinity National Recreation Area, the Proposed Project is required to comply with the National Environmental Policy Act and the California Environmental Quality Act, defining the Proposed Project as an undertaking subject to the provisions of Section 106 of the National Historic Preservation Act. This cultural resource study has been prepared in support of the Proposed Project.

The Proposed Project includes constructing a water tank on a level pad at the intersection of Kennett Road and Lake Boulevard, south of the Centimudi Boat Launch and connecting the water tank to existing infrastructure within Lake Boulevard. Construction staging and material stockpiles would be located in the Centimudi Boat Launch overflow parking lot. The clearing where the water tank would be placed has been leveled, with leftover earth placed along the northern edge where it forms a berm. An archaeological survey was completed on June 27, 2022. At the time of the survey, brushy debris was stockpiled along the edges of the cleared construction area. The survey included the pad, the road edges down to the parking lot/staging area, and the staging area edges. No resources were identified. Therefore, Montrose Environmental Solutions recommends a finding of *No Historic Properties Affected/No Historical Resources Impacted* for the Proposed Project.

STATEMENT OF CONFIDENTIALITY

As nonrenewable resources, archaeological sites may be impacted by disturbances that can affect their cultural, scientific, and artistic values. Disclosure of site information to the public may be a violation of both federal and state laws. To discourage damage resulting from vandalism and artifact looting, cultural resources locations should be kept confidential and report distribution restricted. Applicable U.S. laws include, but are not be limited to, Section 304 of the National Historic Preservation Act (16 U.S. Code [USC] 470w-3) and the Archeological Resources Protection Act of 1979, as amended (Public Law [PL] 96-95; 93 Stat. 721; 16 USC 470aa et seq.). California state laws that apply include, but are not be limited to, Government Code §§ 6250 et seq. and 6254 et seq.

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- Appendix B AB 52 Letter to the Wintu Tribe

1.0 INTRODUCTION

The City of Shasta Lake (City) proposes to construct a new 2.45-million-gallon treated water storage tank to replace two existing water tanks located on the north side of Fisherman’s Point Water Treatment Plant (WTP) (Proposed Project). The WTP is located approximately 0.35 miles west of the Project Site, was completed in 1989 and serves the City’s population of approximately 10,000. The WTP supplies potable water to a gravity water distribution system with approximately 3,800 connections. The WTP’s maximum output is approximately 6.7 million gallons per day. Raw water from Lake Shasta is sourced from several intakes inside Shasta Dam and pumped to the WTP via a pump station located at the base of the Dam. The WTP site contains a 150,000-gallon raw water storage tank, a 220,000-gallon treated water storage tank, and a 330,000-gallon treated water storage tank (City of Shasta Lake, 2022).

Section 6.2 of the City’s 2016-2026 Water Master Plan (Water Master Plan) (City of Shasta Lake, 2016) describes existing, near-term (2036), and build-out water system deficiencies pertaining to treated and raw water storage capacity. The Water Master Plan indicates the City currently has a 0.68-million-gallon City-wide water storage deficit. In addition, it is recommended the City increase its raw water storage. Both of the treated water tanks at the WTP have exceeded their useful lives. To correct the WTP’s storage deficit, the Water Master Plan recommends constructing a new raw water storage tank at the WTP, as well as construction of a new finished water storage tank offsite near the intersection of Lake Boulevard and Kennett Road, as there is not adequate room at the WTP to construct both. Firefighting efforts near the City related to the 2018 Carr Fire nearly drained the system’s storage; correcting its current storage deficit would provide additional storage capacity for fire protection in the future. The Proposed Project would not lead to an increase in water consumption; it would only allow the water system to utilize additional storage to meet peak hour and maximum day demands, fire flow storage, and emergency storage needs.

The Project Site was selected because of its ground elevations within a few feet of the existing treated water storage tanks, which would ensure that current system pressures are maintained, and would require minimal grading. The Project Site is on lands managed by the Shasta-Trinity National Forest, on a flat cleared area that has historically been used for storage and disposal of driftwood removed from the Centimudi Boat Ramp.

1.1 PREPARER’S QUALIFICATIONS

Charlane Gross, M.A., RPA conducted the archaeological survey and wrote this report. Ms. Gross has been a professional archaeologist for over 30 years and meets the Secretary of the Interior’s Standards for Archaeology. Ms. Gross’ experience includes work that has been completed in compliance with local ordinances, the National Environmental Policy Act, and Section 106 requirements. Her professional affiliations include the Society for California Archaeology and the Register of Professional Archaeologists.

1.2 PROJECT DESCRIPTION

1.2.1 Tank Design

The proposed tank would measure 120 feet in diameter by 32 feet in height. The building material of the tank has not yet been determined. The tank would be constructed of either welded steel or reinforced pre-stressed concrete and would include a concrete footing foundation and a concrete v-gutter around the tank to allow drainage. The tank would be visible from Lake Shasta; however, mitigation measures would be implemented, in consultation with U.S. Forest Service (USFS) Landscape Architecture staff to provide a visual barrier. To fill the tank, water would be pumped from the clear well at the WTP to the tank via an existing 16-inch water transmission main located on Lake Boulevard directly west of the Project Site.

1.2.2 Construction Activities

Minimal grading and earthwork would be required, as the Project Site is relatively flat. It is estimated that approximately 207 cubic yards of soil would be disturbed during earthwork and grading. Approximately 112 cubic yards of concrete would be poured to create the foundation, including below-tank piping. Trenching would occur across Lake Boulevard to connect the existing 16-inch water transmission main to the proposed tank. Valves would also be installed at the existing water transmission main for future shut-offs. Trenching to install this water line would result in no more than 7 feet of vertical disturbance and 40 inches of horizontal disturbance. When complete, the trench would be back filled with aggregate base.

Electrical components would be installed for the supervisory control and data acquisition system controls, water tank mixers, and exterior security lighting. The Proposed Project would tie into existing electric facilities adjacent to the Project Site at the southeast corner of Lake Boulevard and Kennett Road. A 6-foot tall chain link security fence with barbed wire on top would be installed around the perimeter of the Project Site, and three trees would be removed to accommodate construction.

1.2.3 Operation and Maintenance Activities

Periodic maintenance of the water storage tank would be required after the Proposed Project becomes operational. Pumps, piping, valves, and appurtenances structures would be checked and maintained regularly and replaced as necessary. City staff would inspect components of the Proposed Project regularly and would replace equipment that has reached the end of its lifetime or failed during use. Existing City staff would provide general maintenance for the tank; it is not anticipated that additional staff would be required to serve the Proposed Project.

1.3 PROJECT LOCATION AND AREA OF POTENTIAL EFFECTS

As noted previously, the Project Site is located at the intersection of Kennett Road and Lake Boulevard in Shasta County, California, approximately 0.2 miles north of the City limits (**Figures 1 and 2**). The Project Site is depicted on the Shasta Dam, CA U.S. Geological Survey topographic quadrangle within Section 14 of Township 33 North, Range 5 West. The Proposed Project location is within the Shasta-Trinity National Forest.

The approximately 3.91-acre Area of Potential Effects (APE) is depicted on **Figure 3** and includes all potential areas of disturbance associated with the Proposed Project. This includes:

- A staging area in the Centimudi Boat Ramp overflow parking area at the northern end of the APE that measures approximately 325 feet northwest to southeast by 130 feet northeast to southwest;
- An approximately 1,700-foot long portion of Kennett Road which connects the staging area with Lake Boulevard and which extends up to 20 feet to each side of the roadway;
- The approximately 195-foot (north to south) by 260-foot (east to west) water tank construction pad in the southwestern corner of the intersection of Kennett Road and Lake Boulevard,
- And the approximately 200-foot-long waterline trench that will run from the water tank to connect with extant infrastructure on the west side of Lake Boulevard.

Construction would not exceed 7 feet in depth, to allow for the water line connection and tank construction.

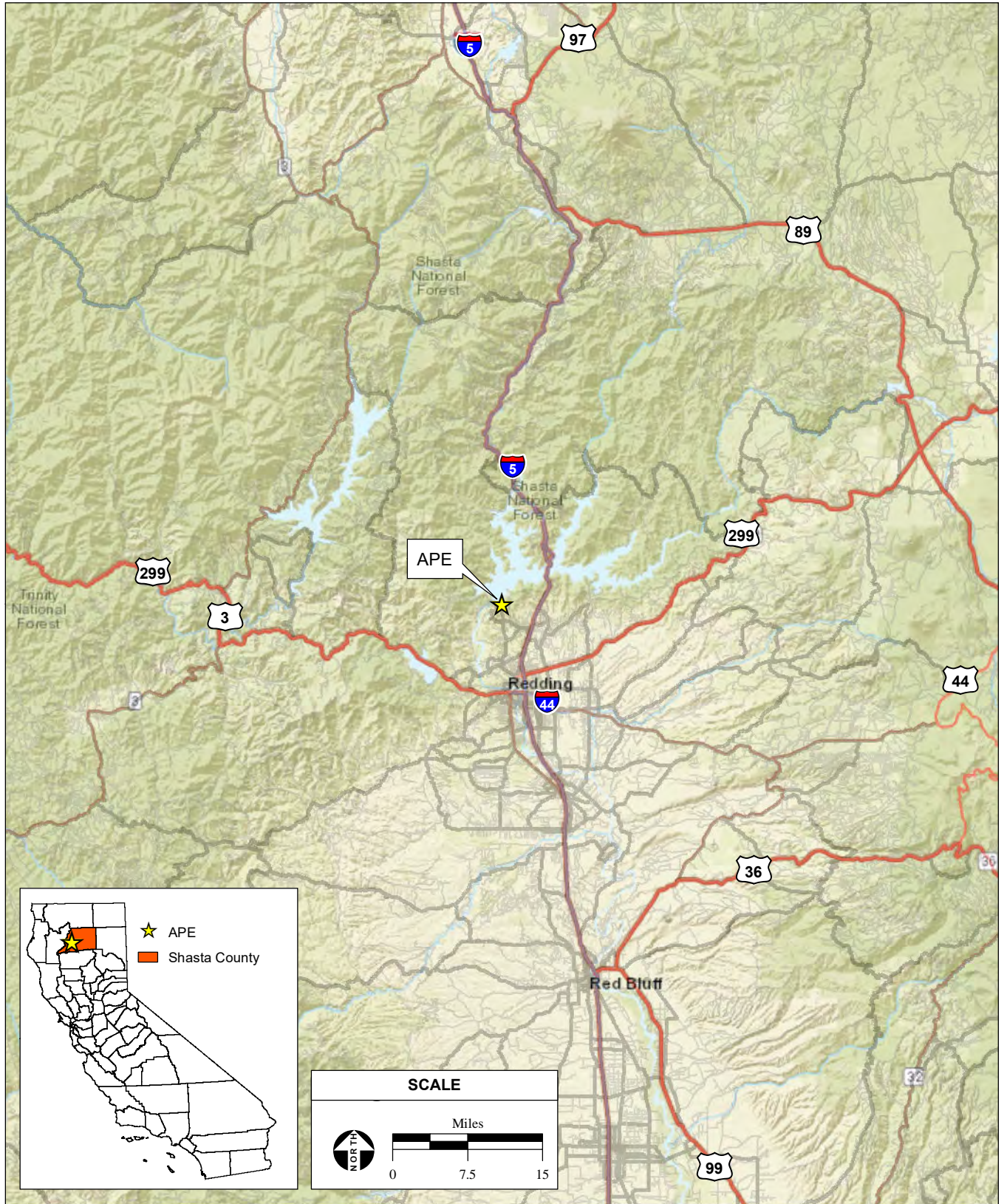
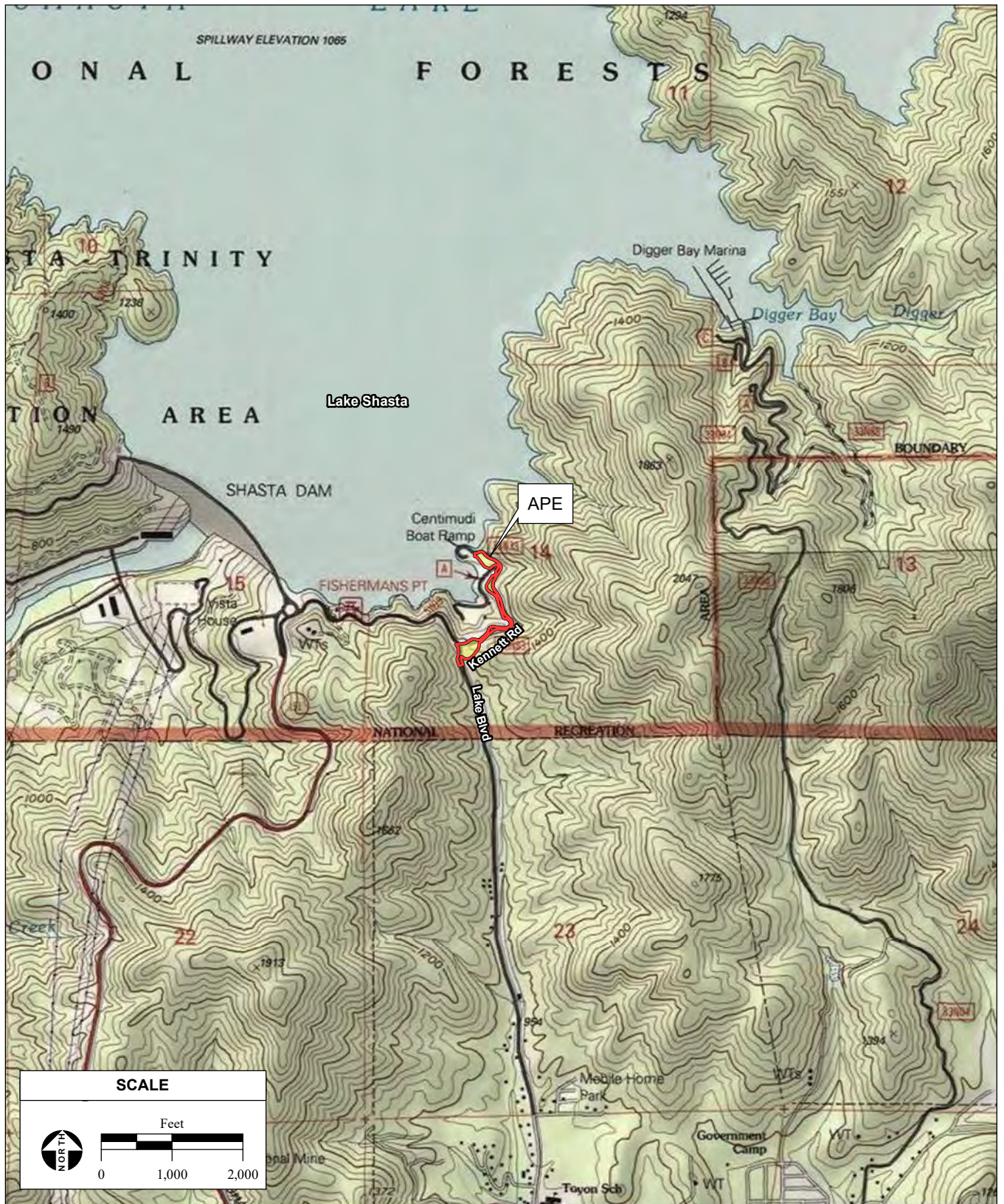


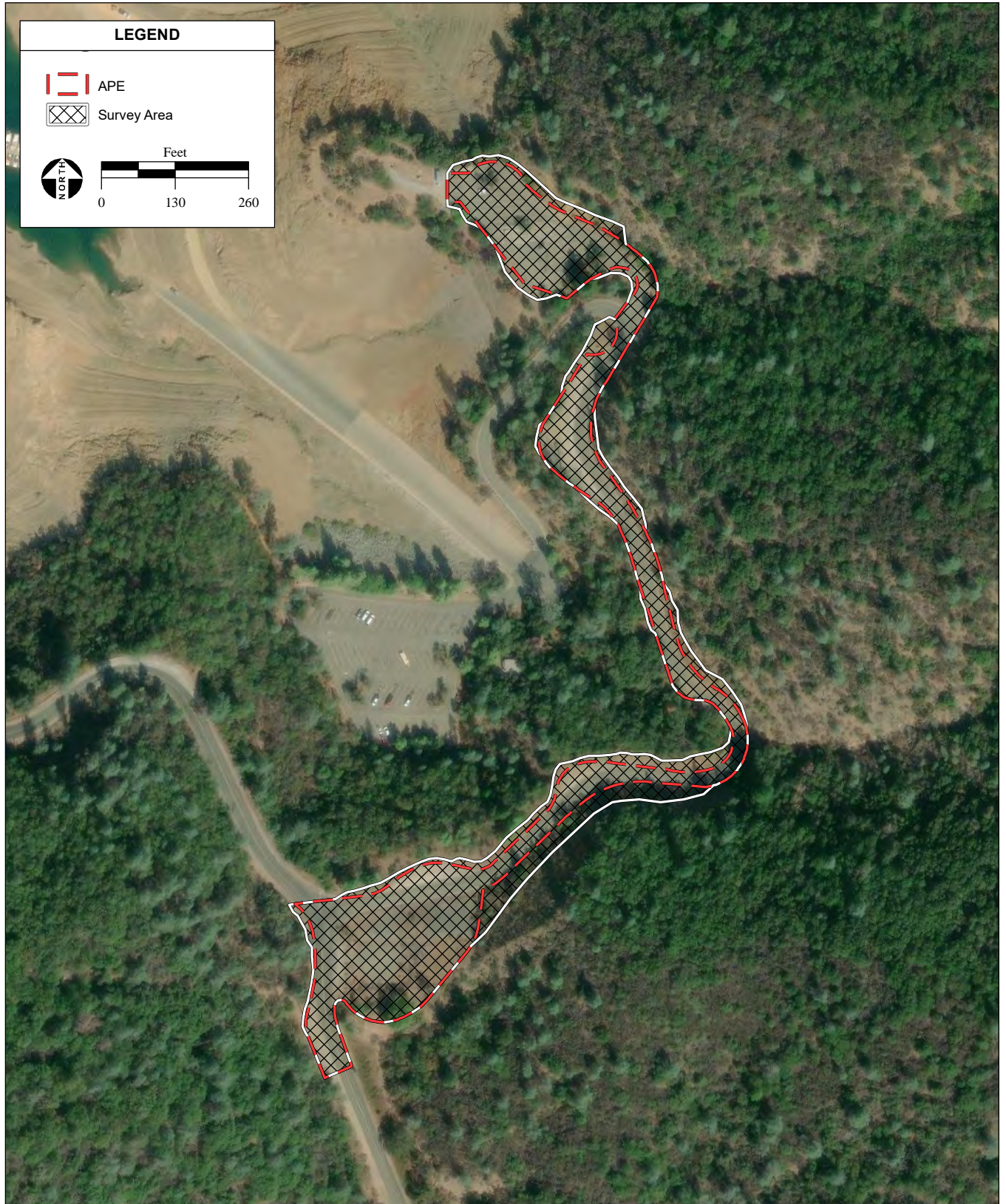
Figure 1
Regional Location



SOURCE: "Shasta Dam, CA" USGS 7.5 Minute Topographic Quadrangle, T33N R5W, Section 14, Mt. Diablo Baseline & Meridian; ESRI 2022; AES-Montrose, 5/19/2022

City of Shasta Lake Centimudi Water Storage Tank Cultural Resources Study / 222509 ■

Figure 2
Site and Vicinity



SOURCE: City of Redding aerial photograph, 5/27/2020
ESRI 2022; AES-Montrose, 7/18/2023

City of Shasta Lake Centimudi Water Storage Tank Cultural Resources Study / 222509 ■

Figure 3
Area of Potential Effects

2.0 REGULATORY SETTING

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, and/or scientific importance. Numerous laws, regulations, and statutes at the federal level govern archaeological and historic resources deemed to have scientific, historic, or cultural value. The pertinent regulatory framework, as it applies to the Proposed Project, is summarized below.

2.1 NATIONAL HISTORIC PRESERVATION ACT

Section 106 of the National Historic Preservation Act (NHPA) as amended, and its implementing regulations found in 36 Code of Federal Regulations (CFR) Part 800, require federal agencies to identify cultural resources that may be affected by actions involving federal lands, funds, or permitting. The significance of the resources must be evaluated using established criteria outlined in 36 CFR 60.4, as described below.

If a resource is determined to be a historic property, Section 106 of the NHPA requires that effects of the federal undertaking on the resource be determined. A historic property is defined as:

...any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and material remains related to such a property (NHPA Sec. 301[5]).

Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a historic property, as defined in 36 CFR 800.5. An impact is considered adverse when prehistoric or historic archaeological sites, structures, or objects that are listed or are eligible for listing in the NRHP are subjected to the following:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property that causes its deterioration; and
- Transfer, lease, or sale of the property out of federal control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

If the historic property will be adversely affected by development, then prudent and feasible measures to avoid or reduce adverse impacts must be taken. The State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO), when one exists, must be provided an opportunity to review and comment on these measures prior to implementation of the project.

2.1.1 National Register of Historic Places

Section 106 of the NHPA as amended, and its implementing regulations found in 36 CFR Part 800, require federal agencies to take into consideration the potential effects of proposed undertakings on cultural resources listed on or determined potentially eligible for inclusion in the National Register of Historic Places (NRHP), and to allow the Advisory Council on Historic Preservation the opportunity to comment on the proposed undertaking.

The NHPA authorizes the Secretary of the Interior to maintain and expand a National Register of districts, sites, buildings, structures, and objects of significance in American history, architecture, archaeology, engineering, and culture. A property may be eligible for listing in the NRHP if it meets criteria for evaluation as defined in 36 CFR 60.4, as follows:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history;
- B. That are associated with the lives of persons significant in our past;
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded, or may be likely to yield, information important in prehistory or history.

Additionally, the SHPO advocates that all historical resources over 45 years old be recorded for inclusion in the SHPO filing system, although professional judgment is urged in determining whether a resource warrants documentation. Sites younger than 50 years, unless of exceptional importance, are not eligible for listing in the NRHP. In addition to meeting at least one of the criteria outlined above, the property must also retain enough integrity to enable it to convey its historic significance. The National Register recognizes seven aspects or qualities that, in various combinations, define integrity. These seven elements of integrity are location, design, setting, materials, workmanship, feeling, and association. To retain integrity, a property will always possess several, and usually most, of these aspects.

While most historic buildings and many historic archaeological properties are significant because of their association with important events, people, or styles (Criteria A, B, and C), the significance of most prehistoric and historic-period archaeological properties is usually assessed under Criterion D. This criterion stresses the importance of the information contained in an archaeological site, rather than its intrinsic value as a surviving example of a type or its historical association with an important person or event. It places importance not on physical appearance, but rather on information potential.

2.1.2 Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979 (ARPA) (PL 96-95; 16 USC 470aa-mm), provides for the protection of archaeological resources and sites which are on public and Indian lands, and fosters increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before October 31, 1979. ARPA also provides penalties for noncompliance and illegal trafficking.

2.1.3 Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) is a federal law passed in 1990. NAGPRA provides a process for museums and federal agencies to return certain Native American cultural items—human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants, and culturally affiliated Indian tribes and Native Hawaiian organizations. NAGPRA includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American burials and cultural items on federal and tribal lands, and penalties for noncompliance and illegal trafficking.

2.1.4 Paleontological Resources Preservation Act

The Paleontological Resources Preservation subtitle of the Omnibus Public Land Management Act, 16 USC 470aaa to 470aaa-11 requires the U.S. Department of Agriculture and the U.S. Department of the Interior to issue implementation regulations to provide for the preservation, management, and protection of paleontological resources on federal lands, and ensure that these resources are available for current and future generations to enjoy as part of America's national heritage.

Paleontological resources are defined as the traces or remains of prehistoric plants and animals. Such remains often appear as fossilized or petrified skeletal matter, imprints or endocasts, and reside in sedimentary rock layers. Fossils are important resources, due to their scientific and educational value. Fossil remains of vertebrates are considered significant. Invertebrate fossils are considered significant if they function as index fossils. Index fossils are those that appear in the fossil record for a relatively short and known period of time, allowing geologists to interpret the age range of the geological formations in which they are found.

Significance Criteria

Significance for Paleontological Resources is reflected in terms of compliance with the Antiquities Act of 1906 (PL 59-209; 16 USC 431 et seq.; 34 Stat. 225), which calls for the protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal land. Additional provisions appear in the Archaeological and Historic Data Preservation Act of 1974, as amended, for the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data, in such cases wherein this type of data might be otherwise destroyed or irrecoverably lost as a result of federal projects.

2.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) requires that, for projects financed by or requiring the discretionary approval of public agencies in California, the effects that a project has on historical and unique archaeological resources be considered (Public Resources Code [PRC] § 21083.2). Historical resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance (PRC § 50201). The CEQA Guidelines (§ 15064.5) define three cases in which a property may qualify as a historical resource for the purpose of CEQA review:

- The resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR).
- The resource is included in a local register of historic resources, as defined in PRC § 5020.1(k), or is identified as significant in a historical resources survey that meets the requirements of PRC § 5024.1(g) (unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant).
- The lead agency determines that the resource may be a historical resource as defined in PRC §§ 5020.1(j), 5024.1, or significant as supported by substantial evidence in light of the whole record. Section 5024.1 defines eligibility requirements and states that a resource may be eligible for inclusion in the CRHR if it:
 - 1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
 - 2) Is associated with the lives of persons important in our past;
 - 3) Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or
 - 4) Has yielded, or may be likely to yield, information important in prehistory or history.

Resources must retain integrity to be eligible for listing on the CRHR. Resources that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR, and thus are significant historical resources for the purposes of CEQA (PRC § 5024.1(d)(1)).

PRC § 21083.2 governs the treatment of a unique archaeological resource, which is defined as “an archaeological artifact, object, or site about which it can be clearly demonstrated” that it meets any of the following criteria:

- It contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.
- It has a special and particular quality such as being the oldest of its type or the best example of its type.
- It is directly associated with a scientifically recognized important prehistoric or historic event or person.

3.0 ENVIRONMENTAL SETTING

3.1 NATURAL SETTING

The project region lies in the intermediary valley zone between the Klamath Mountains to the west, the Siskiyou Mountains to the northwest, and the southern Cascade Range to the east, providing access to multiple floral and faunal environments, as well as the natural resources (e.g., obsidian and basalt) created by volcanic activity. Shasta Lake lies immediately adjacent to the Project Site.

The underlying geology of the region consists of Devonian era metavolcanic rocks (Strand, 1962). Soils in the APE include Goulding-Holland families association (40% to 60% slopes) and Boomer very stony clay loam (50% to 70% slopes, severely eroded) (Natural Resources Conservation Service, 2019). These are soils found on mountain flanks and consist of residuum weathered from metavolcanics or metasedimentary rock.

Regionally, the average annual temperature ranges from a low of 40 degrees Fahrenheit (°F) in December/January to a high of 95°F in July. The average annual rainfall is 65.8 inches which occurs mostly in December, January, and February (U.S. Climate Data, 2022).

3.2 PREHISTORIC SETTING

The earliest known and least understood occupation of California occurred during the Late Pleistocene and Early Holocene eras (10,000 to 8000 years before the present day [BP]). Early Holocene populations were highly mobile hunter-gatherers. The tool technology of California during the Paleo-Indian period is delineated by fluted projectile points similar to Clovis projectile point types found to the east in the Great Basin, and Clovis-type points have been found as close as the McCloud River in Shasta County and the Alkali Basin in southern Oregon (Crawford, 2007).

Greater indications of occupation occur during the Archaic periods (8000 BP to the historic era). Regional activities focused on exploitation of seasonably available resources such as deer, elk, mountain sheep, rabbit, quail, salmon, acorns, grasses, roots, berries, etc. (Hamusek-McGann et al., 1998). The Archaic has been divided into several different patterns reflective of changing cultural groups and technologies, including the following:

Borax Lake Pattern (8000 BP–5000 BP)

This post-Pleistocene period marked the entry of Hokan speakers into the region. Temperatures were warmer during this pattern than today, displacing vegetation types (and the attendant fauna) upwards to higher altitudes than the present day. During this time people made extensive use of grass seeds, and so the tool kit is partially represented by milling stones. Other Borax Lake Pattern artifacts include large, wide-stemmed projectile points, manos, and grinding stones. Subsistence likely depended on a combination of big-game hunting supplemented with plant gathering, practiced by small, mobile groups exploiting broad geographic areas (Sundahl, 1992).

Squaw Creek Pattern (5000 BP–3000 BP)

During this time, there was increasing dependence on foraging and a broader tool kit reflecting a more stable hunting/gathering strategy accessing seasonally available resources from a base camp. Stone tools from this pattern included Squaw Creek Contracting Stem and leaf-shaped projectile points, McKee unifaces, manos, cobble spalls, and the introduction of mortar/pestle technology. Inter- and intra-site patterning suggests more intensive habitations, with multiple obsidian sources utilized. This period was coeval with the Windmill period farther south in the Central Valley (Sundahl, 1992).

Whiskeytown Pattern (3000 BP–1700 BP)

The environment became similar to the present day during this period. The tool kit was characterized by large- and medium-sized side- and corner-notched points, manos and millings, mortars and pestles, and notched pebble net weights. There was an emphasis on riverine resources, but seasonal foraging in the foothills was still clearly practiced. Basketry cooking was likely introduced in this period (Sundahl, 1992).

Shasta Complex (1700 BP–100 BP)

The Shasta Complex (also known as the Shasta Aspect of the Augustine Pattern) is the best understood period in the region, typified by sedentary villages focused on major rivers and tributaries. Site testing has defined a pattern of recent occupation typified by small projectile points used for bow and arrow (Gunther Series, Desert Side-Notched), drills, large chert blades, shaft smoothers, hopper mortars, bone fishing tools, charmstones, spire-topped Olivella beads, and pine-nut beads. This assemblage dates within the past 1,500 years, and appears to represent the migration into northern California of the ethnographic Wintu (Sundahl, 1992).

3.3 ETHNOGRAPHIC SETTING

Three different ethnographic groups occupied the Proposed Project region, including the Wintu in the immediate vicinity, the Yana to the east, and the Nomlaki to the south. As each occupied a slightly different environment, their subsistence strategies and tool kits varied, though overall lifeways were similar.

The distribution of ethnic groups coupled with linguistic studies indicates that the Wintu were a dynamic population, rapidly increasing in numbers, establishing new villages, and expanding their territory. A study of the organization of Wintu villages suggests a comparatively recent expansion eastward by the Wintu into former Yana territory, resulting in a shifting of boundaries. Yana populations were small, and disappeared rapidly after the beginning of the historic era. Jerald Johnson has suggested that the Yana were dwindling as the result of eastward expansions by the Wintu and Nomlaki and probably would have disappeared completely even if the pressure from Anglo-Americans had not hastened the event (Moratto, 1984).

The Wintu spoke a Penutian language, whereas surrounding tribes spoke Hokan languages; the Wintu may have pushed into the region from the south approximately 1,200–1,300 years ago (Sundahl, 1992). They were a semi-sedentary, foraging group occupying permanent villages near rivers and streams. The availability of resources allowed the Wintu to live in dense settlements, politically organized into

independent tribelets, with the largest villages containing about 250 people. Settlements would contain conical bark houses or temporary brush shelters in the summer, with domed brush sweathouses and roundhouses for gatherings.

The Wintu diet would have included deer, rabbits, and other small mammals; fish including salmon, steelhead, Sacramento sucker, freshwater shellfish, and lamprey; grasshoppers, salmon flies, and other insects; acorns, pine nuts, and buckeye, manzanita and other berries, and bulbs, clovers, miner's lettuce, other greens, and grass seeds; and migratory waterfowl (Moratto, 1984).

The Wintun tool kit included grinding implements, digging sticks, fishing equipment, and basketry. Mortars and pestles were used to grind seeds, acorns, pigment, and soften meat. Manos and metates were also used. Bone was used as awls for basketry, harpoons and hooks, and wedges for wood cutting, as well as digging sticks for root retrieval, house excavation, and grave digging made from sharpened hardwood. Soaproot fibers were used for acorn meal brushes, paintbrushes, and hair brushes. Rope and cordage were usually made from iris fibers. Materials such as hazel, skunkbrush, willow, grapevine, redbud, pine root, poison oak, maidenhair fern, porcupine quills, and some grasses were used to create baskets and traps, including sifters, seed beaters, trays, bowls, hats, dippers, hoppers, cooking baskets, burden baskets, storage, and fish traps. Logs were used as bridges; rafts of lashed-together logs were poled across streams, and at several locations along major tributaries, bridges lashed together by grapevines could be found (Crawford, 2007).

3.4 HISTORIC SETTING

3.4.1 Shasta County

Shasta was one of California's original 27 counties, and originally included parts of present Siskiyou, Modoc, Lassen, Plumas, and Tehama counties. "Shasta" is apparently a corruption of the name of an Indian tribe living in the vicinity of Mount Shasta. The County seat was originally at Reading's Ranch, moved to Shasta in 1851 during the gold mining boom, and finally moved to Redding in 1888 (Marvin, 2019).

Redding, named for Pierson B. Reading, for many years the land agent for the Central Pacific Railroad, was founded in the summer of 1872 as the temporary railhead of the line and remained so until 1883; by 1887, the year the city was incorporated, the railroad was connected to Portland, Oregon. Because of its central location on roads heading north and south and east and west, Redding has always been the center of trade and transportation, not only for Shasta County but for much of Northern California (Marvin, 2019).

3.4.2 Shasta-Trinity National Forest

Shasta-Trinity National Forest is the largest National Forest in California and was established by President Theodore Roosevelt's proclamation of 1905. Initially, there were two forests: the Trinity (headquartered in Weaverville) and the Shasta (headquartered in Mt. Shasta City). The two forests were combined into one in 1954. Natural elements of the Shasta-Trinity National Forest include Mount Shasta, Shasta Lake, Medicine Lake Highlands, the McCloud River, and Castle Crags (USFS, 2022). Shasta Lake is the largest man-made reservoir in California. When full, the lake has 370 miles of shoreline, which

exceeds that of San Francisco Bay. Shasta Lake contains 30,000 surface acres and holds 4,550,000 acre-feet of water. Shasta Lake lies behind Shasta Dam, which is the second largest (after Grand Coulee Dam) and second tallest concrete dam (after Hoover Dam) in the United States.

3.4.3 Shasta Dam/City of Shasta Lake

Construction of Shasta Dam, the keystone of the Central Valley irrigation project, was approved by Congress, and initial funds were appropriated in 1935. Years before actual dam construction began in 1938, prospective workers poured into the area. Many were crew from the Bureau of Reclamation and construction workers from previous government projects in other states, while others were men who had not had jobs for years. Shasta County's economy, already in a slump with the closing of the copper smelters after World War I, was hard hit by the Great Depression; and many of Shasta County's businesses and labor force were struggling to get by. Men were attracted to the excitement of the boomtowns and the prospect of government construction jobs. Other jobless men were migrant mid-West farm workers from the Dust Bowl (Marvin, 2019).

Many workers stayed on until the dam was dedicated and filled in 1950. While some quickly sold their homes and left the area, others remained and found employment in Shasta County's growing lumber industry. The nationwide post-war building boom and the popularity of plywood and particleboard as new building materials brought new economic prosperity to Shasta County. Several new lumber mills were built, and lumber-related businesses were established; the automobile and better roads allowed workers to commute to jobs in the mills in Redding and Anderson. Government water projects, Pacific Gas & Electric, and a growing recreation industry offered a more diverse economic base for the Central Valley and its neighbors (Marvin, 2019).

4.0 METHODOLOGY

4.1 NATIVE AMERICAN CONSULTATION

As the federal lead agency, the Shasta-Trinity National Forest will conduct Native American consultation; because of the location, Montrose Environmental (Montrose) completed an ARPA permit application prior to the survey, and received a Permit for Archaeological Investigations with Authorization ID: SLK1074 (**Appendix A**). Separately, Montrose sent a request to the Native American Heritage Commission (NAHC) on June 2, 2022 asking for a search of the Sacred Lands File and for a list of individuals who might have information regarding the Proposed Project vicinity; a reply was received dated July 14, 2022. In their reply, the NAHC stated that the Sacred Lands File search was positive, and recommended contacting the Winnemem Wintu Tribe. The information was forwarded to the City and the National Forest, and Montrose sent contact letters to every party listed by the NAHC, including the Winnemem Wintu Tribe, on July 15, 2022.

On June 3, 2022 and again on July 15, 2022 the City sent notifications to Chairperson Gary Rickard of the Wintu Tribe of Northern California, Chief Caleen Sisk of the Winnemem Wintu Tribe, THPO Mark Miyoshi of the Winnemem Wintu Tribe, and Chairman Jack Potter of Redding Rancheria. In a telephone conversation on July 15, 2022, Chairman Rickard stated that a cultural monitor would be required during ground disturbing activities. The USFS also conducted tribal consultation in compliance with Section 106 of the NHPA. A copy of the City's letter to the Wintu Tribe is included in **Appendix B**.

4.2 RECORDS AND LITERATURE SEARCH

4.2.1 Archaeological Resources

Montrose consulted with Shasta-Trinity USFS archaeologist Peter Schmidt regarding cultural resource surveys and sites within the APE. Mr. Schmidt stated that no archaeological surveys had been previously completed and no archaeological resources were known within the APE, and that as the property managers, the USFS was the appropriate repository for background information.

A review of historic maps (Bureau of Land Management [BLM], 2022) included the 1870 General Land Office (GLO) plat map, which shows high mountains in the general APE vicinity and Churntown to the southwest, in the general location of the City. The 1882 GLO plat indicates Ravens Ditch in the Proposed Project vicinity. A number of focused plat maps from the last two decades of the 19th century depict individual mining claims to the west and southwest of the APE; the next full GLO available is from 1939 and shows roadways in the Proposed Project vicinity. The 1901 Redding quadrangle indicates general development, including a railroad in the region, with increasing development visible on the 1944 Redding map sheet, and the 1956 Shasta Dam topographic quadrangle indicates that the roadway in the APE is already in existence.

Land Patent records for 1893 (BLM, 2022) show a 160-acre Indian Allotment made to Elijah Timmons, a member of the Wintu Tribe, and as an Indian Fee Patent in 1911. Allotments were made and "trust" patents were issued by the GLO, which kept the land in trust for the individual for a period of up to 25 years after which he could sell the land for himself. Prior to that time, he/she could petition the

Secretary of the Interior to release him/her from guardianship and allow him/her to sell the land. The landowner would be issued a “fee” patent that gave him/her the right to sell the land:

At the expiration of the trust period and when the lands have been conveyed to the Indians by patent in fee, as provided in section 348 of this title, then each and every allottee shall have the benefit of and be subject to the laws, both civil and criminal, of the State or Territory in which they may reside; and no Territory shall pass or enforce any law denying any such Indian within its jurisdiction the equal protection of the law: Provided, That the Secretary of the Interior may, in his discretion, and he is authorized, whenever he shall be satisfied that any Indian allottee is competent and capable of managing his or her affairs at any time to cause to be issued to such allottee a patent in fee simple, and thereafter all restrictions as to sale, incumbrance, or taxation of said land shall be removed and said land shall not be liable to the satisfaction of any debt contracted prior to the issuing of such patent: Provided further, That until the issuance of fee-simple patents all allottees to whom trust patents shall be issued shall be subject to the exclusive jurisdiction of the United States: And provided further, That the provisions of this Act shall not extend to any Indians in the former Indian Territory (Feb. 8, 1887, ch. 119, § 6, 24 Stat. 390; May 8, 1906, ch. 2348, 34 Stat. 182.).

Documentation included papers that were filed with both the GLO and the Bureau of Indian Affairs (BIA). Both the “trust” patent and the “fee” patent were issued by and recorded by the GLO. Applications for a fee patent went from the BIA Commissioner to the GLO Commissioner. Correspondence concerning the process was filed in the GLO by a letter number.

4.3 PALEONTOLOGICAL RESOURCES

A search of the online archives of the University of California Museum of Paleontology (2022) shows that 11,053 fossil specimens have been recorded in Shasta County, largely from Potter Creek Cave and Samwell Cave, north of the APE and on the other side of Shasta Lake.

5.0 SURVEY METHODS AND RESULTS

5.1 ARCHAEOLOGICAL SURVEY METHODS AND RESULTS

The archaeological survey was completed on June 27, 2022. Representatives of the City were present, to ensure that the details of construction were conveyed. According to the City, the overflow parking lot would be used for construction staging, all of which would take place on already-paved areas. The stretch of Kennett Road between the overflow parking lot and the tank pad would be used for transportation, but no modifications of the road would be required. All construction would take place on the leveled pad at the intersection of Kennett Road and Lake Boulevard, with the exception of a waterline connection that would run underneath Kennett Road and connect to existing water line infrastructure directly opposite to the water tank. The tank pad area has been leveled, with extraneous dirt built up in a berm around the northern edge. City personnel have used the edges of the pad as a place to deposit organic waste, including pine needles, driftwood, and branches. The central portion of the pad is open, with a thin ring of trees to the south, a steeply sloping hillside to the east, the berm to the north, and Lake Boulevard to the west. Pedestrian transects were walked back and forth across the pad at 15-meter intervals; except where the debris had been piled, ground surface visibility was almost 100%. The western edge of Kennett Boulevard was examined with a single pedestrian transect; the eastern edge has been cut into an extremely steep slope. Another pedestrian transect was walked around the outside circumference of the overflow parking lot. No archaeological or paleontological resources were identified.

5.2 POTENTIAL FOR BURIED ARCHAEOLOGICAL DEPOSITS

The potential for buried archaeological deposits is very low because the pad where the water tank would be constructed consists of cleared, leveled land, and prior to the construction of Shasta Lake, the area was one of very steep and rugged terrain, non-conductive to prehistoric settlement and occupation.

5.3 RECOMMENDATIONS

No archaeological resources have been identified in the APE, and no further archaeological investigation is recommended.

5.4 INADVERTENT DISCOVERIES

If unusual amounts of bone, stone, shell, glass, building materials, or other artifacts are uncovered during construction of the Proposed Project, all work within 50 feet of the find should be halted and the City and the USFS should be notified; a professional archaeologist (or paleontologist if the find is of a paleontological nature) should be retained to assess the find and recommend appropriate treatment measures. Construction should not resume until appropriate assessment and treatment of the find has been completed.

If human remains are discovered during demolition, all Proposed Project-related ground disturbances within 100 feet of the find should be halted until the county coroner has been notified. If the coroner determines that the remains are Native American, compliance with the provisions of NAGPRA would be required.

6.0 SUMMARY

While the general region around the APE has a long history, no register-eligible archaeological or architectural resources were detected either through background research or field surveys. There is little likelihood of significant prehistoric, historic-era, or paleontological resources being uncovered during the demolition phase of the Proposed Project and a finding of *No Historic Properties Affected/No Significant Impacts* is recommended.

7.0 REFERENCES

Bureau of Land Management

2022 GLO Records. Available at: <http://www.glorerecords.blm.gov/default.aspx>. Accessed June 2022.

City of Shasta Lake

2016 City of Shasta Lake 2016-2026 Water Master Plan. October 2016. Available online at: <https://www.cityofshastalake.org/1105/Documents>. Accessed June 2022.

City of Shasta Lake

2022 Water Treatment. Available online at: [https://www.cityofshastalake.org/913/Water-Treatment#:~:text=The%20Fishermen%20Point%20Treatment%20Plant,gallons%20per%20day%20\(MGD\)](https://www.cityofshastalake.org/913/Water-Treatment#:~:text=The%20Fishermen%20Point%20Treatment%20Plant,gallons%20per%20day%20(MGD)). Accessed June 2022.

Crawford, Kristina

2007 Strawberry Fields Study Area. Archaeological Resources Reconnaissance Investigation of 225.86 ± acre, Shasta County, California. Report prepared for Redding Rancheria.

Hamusek-McGann, B., E. Ritter, and J. Burcell

1998 Living on the Edge: Archaeological Signatures of the Eastern Shasta Valley Foothills, Siskiyou County, California. *Articles of the SCA Proceedings* 11:102-111.

Marvin, Judith

2019 *Architectural Resources Study Toyon Water Treatment Plant CA-030-1916 City of Shasta Lake Shasta County, California*. Report prepared for Analytical Environmental Services.

Moratto, Michael J.

1984 *California Archaeology*. Academic Press, Inc. New York.

Natural Resources Conservation Service

2019 Web Soil Survey. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed June 2022.

Strand, Rudolph G.

1962 Geologic Map of California Redding Sheet.

Sundahl, Elaine

1992 Cultural Patterns and Chronology in the Northern Sacramento River Drainage. *Proceedings of the Society for California Archaeology* Vol. 5:89-112.

University of California Museum of Paleontology

2022 Specimen Database. Available at: <http://ucmpdb.berkeley.edu/>. Accessed June 2022.

U.S. Climate Data

2022 Climate Data for Shasta Lake, CA. Available at: <https://www.usclimatedata.com/climate/shasta-lake/california/united-states/usca2163>. Accessed June 2022.

U.S. Forest Service

2022 Shasta-Trinity National Forest History & Culture. Available online at: <https://www.fs.usda.gov/main/stnf/learning/history-culture#:~:text=Shasta%2DTrinity%20National%20Forest%20is,Shasta%20City>). Accessed June 2022.

APPENDICES

APPENDIX A

ARPA PERMIT

**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE**

PERMIT FOR ARCHAEOLOGICAL INVESTIGATIONS

Authority:
The Antiquities Act of 1906, 16 U.S.C. 431-433
The Organic Act of 1897, 16 U.S.C. 551

1. Holder Charlane Gross	2. Date of corresponding application 05/19/2022
3. Address 1801 7 th Street, Suite 100 Sacramento, CA 95811	4. Telephone numbers Office – 916-447-3479s15804 Cell – 530-919-1975
	5. Email addresses cgross@montrose-env.com
6. Name of authorized officer Rachel Birkey Forest Supervisor Shasta-Trinity NF	7. Name of principal investigators Charlane Gross, M.A., RPA Telephone numbers Office – 916-447-3479s15804 Cell – 530-919-1975 Email addresses cgross@montrose-env.com
8. Name of field directors authorized to carry out field projects Charlane Gross, M.A., RPA	
9. Activities authorized <ul style="list-style-type: none">• Consulting: Project-specific• Non-ground-disturbing activities (such as surveys)	
10. Description of National Forest System lands authorized for use (hereinafter referred to as “the permit area”) The Class III inventory would occur in Shasta County, CA in the City of Shasta Lake, east of Shasta Dam. The site is depicted on the Shasta Dam USGS 7.5' quadrangle in Township 33 North, Range 5 West, Section 14.	
11. Permit term From date of fully executable permit to 12/31/2026	
12. Name and address of the curatorial facility in which collections, records, data, photographs, and other documents resulting from activities conducted under this permit shall be deposited for permanent preservation on behalf of the United States Government Shasta-Trinity NF Forest Headquarters, 3644 Avtech Parkway, Redding, CA 96002	

TERMS AND CONDITIONS

I. GENERAL TERMS

A. AUTHORITY. This permit is issued pursuant to 36 CFR Part 251, Subpart B, 36 CFR Part 296, the Uniform Rules and Regulations of the Antiquities Act of 1906, 43 CFR Part 3, and applicable Forest Service policies and procedures and is subject to their provisions.

B. AUTHORIZED OFFICER. The authorized officer for this permit is the Forest Supervisor or a subordinate officer with delegated authority.

C. ANNUAL REVIEW. If this permit is issued for more than one year, it shall be reviewed annually by the authorized officer.

D. RENEWAL AND EXTENSION. This permit is not renewable. The holder may request an extension of this permit for a limited, specified period to complete activities authorized under this permit. Requests for an extension must be submitted in writing at least one month before expiration of this permit.

E. AMENDMENT. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the authorized officer, such action is deemed necessary or desirable to incorporate new terms that may be required by law, regulation, the applicable land management plan, or projects and activities implementing a land management plan pursuant to 36 CFR Part 215. Any amendments to individuals named in or activities authorized by this permit that are needed by the holder must be approved by the authorized officer in writing.

F. COMPLIANCE WITH LAWS, REGULATIONS, AND OTHER LEGAL REQUIREMENTS. In exercising the privileges granted by this permit, the holder shall comply with all present and future federal laws and regulations and all present and future state, county, and municipal laws, regulations, and other legal requirements that apply to the permit area, to the extent they do not conflict with federal law, regulations, or policy. The Forest Service assumes no responsibility for enforcing laws, regulations, and other legal requirements that fall under the jurisdiction of other governmental entities.

G. NON-EXCLUSIVE USE. The use and occupancy authorized by this permit are not exclusive. The Forest Service reserves the right of access to the permit area, including a continuing right of physical entry to the permit area for inspection, monitoring, or any other purpose consistent with any right or obligation of the United States under any law or regulation. The holder shall allow the authorized officer or the authorized officer's representative full access to the permit area at any time the holder is in the field for purposes of examining the permit area and any recovered materials and related records. The Forest Service reserves the right to allow others to use the permit area in any way that is not inconsistent with the holder's rights and privileges under this permit, after consultation with all parties involved.

H. ASSIGNABILITY. This permit is not assignable or transferable.

II. OPERATIONS

A. OPERATING PLAN. The application corresponding to this permit is incorporated as the operating plan for this permit and is attached as **Appendix 2**. The authorized officer may supplement the information contained in the application as appropriate or necessary.

B. REQUIRED PERMITS. The holder shall obtain all other permits required for conducting the activities authorized by this permit.

C. QUALIFIED INDIVIDUALS. Archaeological project design, literature review, development of regional historical contexts, site evaluation, conservation and protection measures, and recommendations for subsequent investigations shall be developed with direct involvement of an individual who meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation. Fieldwork shall be overseen by an individual who meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation.

D. CONDITION OF OPERATIONS. The holder shall maintain the authorized improvements and permit area to standards

of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer and consistent with other provisions of this permit. Standards are subject to periodic change by the authorized officer.

E. PROHIBITION ON USE OF MECHANIZED EQUIPMENT IN WILDERNESS AREAS. The holder shall not use mechanized equipment in wilderness areas and shall not use mechanized equipment in proposed or potential wilderness areas without prior written approval from the authorized officer.

F. PROHIBITION ON FLINT KNAPPING AND LITHIC REPLICATION EXPERIMENTS. The holder shall not conduct any flint knapping or lithic replication experiments at any archaeological site, aboriginal quarry source, or non-archaeological site that might be mistaken for an archaeological site as a result of such experiments.

G. PROHIBITION ON IMPEDING OR INTERFERING WITH OTHER USES. The holder shall perform the activities authorized by this permit so as not to impede or interfere with administrative or other authorized uses of National Forest System lands.

H. RESTRICTION ON MOTOR VEHICLE USE. The holder shall restrict motor vehicle use to designated roads, trails, and areas, unless specifically provided otherwise in the operating plan.

I. MINIMIZING GROUND DISTURBANCE. The holder shall keep ground disturbance to a minimum consistent with the nature and purpose of the authorized fieldwork.

J. RESOURCE PROTECTION. The holder shall conduct all activities so as to prevent or minimize scarring, erosion, littering, and pollution of National Forest System lands, water pollution, and damage to watersheds. In addition, the holder shall take precautions at all times to prevent wildfire. The holder may not burn debris without prior written approval from the authorized officer.

K. PREVENTION OF INJURY. The holder shall take precautions to protect livestock, wildlife, the public, and other users of National Forest System lands from accidental injury at any excavation site.

L. DESTRUCTION AND REMOVAL OF TREES. The holder shall not destroy or remove any trees on National Forest System lands without prior written approval from the authorized officer.

M. RESOURCE MANAGEMENT FACILITIES. The holder shall not disturb resource management facilities, such as fences, reservoirs, and other improvements, within the permit area without prior written approval from the authorized officer. Where disturbance of a resource management facility is necessary, the holder shall return it to its prior location and condition.

N. BACKFILLING. The holder shall backfill all subsurface test and excavation sites as soon as possible after recording the results and shall restore subsurface test and excavation sites as closely as possible to their original contour.

O. REMOVAL OF STAKES AND FLAGGING. The holder shall remove temporary stakes and flagging installed by the holder upon completion of fieldwork.

P. SITE RESTORATION. The holder shall restore all camp and work areas to their original condition before vacating the permit area. Refuse shall be carried out and deposited in disposal areas approved by the authorized officer.

Q. TITLE TO ARTIFACTS AND ASSOCIATED DOCUMENTATION. Archaeological and historical artifacts excavated or removed from National Forest System lands and any associated documentation shall remain the property of the United States.

R. NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION (NAGPRA). If excavation is authorized and human remains are discovered, the holder shall immediately notify the forest archaeologist and shall coordinate with the forest archaeologist to follow the procedures outlined in the permit application and NAGPRA action plan regarding discovery and treatment of human remains. In other cases, if the holder inadvertently discovers human remains, funerary objects, sacred objects, or objects of cultural patrimony on federal or tribal lands, the holder shall immediately cease work in the area of the discovery and shall make a reasonable effort to protect and secure the items. The holder shall immediately notify the forest archaeologist by telephone of the discovery and shall follow up with written confirmation of the discovery. The activity that resulted in the inadvertent discovery may not resume until 30 days after the forest archaeologist certifies receipt of the written confirmation, if resumption of the activity is otherwise lawful, except that a

recovery plan adopted as a binding agreement between the Forest Service and the affected Indian tribes may provide for earlier resumption of the activity.

S. ADDITIONAL REQUIREMENTS. Prior to beginning any fieldwork under the authority of this permit, the holder shall contact the authorized officer responsible for administering the lands involved to obtain further instructions regarding current land and resource conditions.

III. REPORTING REQUIREMENTS

A. PRELIMINARY REPORT. The holder shall submit a preliminary report to the authorized officer within **45 days** of completion of the first stage of fieldwork. The preliminary report shall enumerate what was done during the first stage of fieldwork, how it was done, by whom, where, and with what results, including maps, global positioning satellite data, an approved site form for each newly recorded archaeological site, and the holder's professional recommendations regarding resource significance, as appropriate. Depending on the scope, duration, and nature of the work, the authorized officer may require progress reports periodically for the duration of the authorized activities.

B. DRAFT FINAL REPORT. Within **45 days** of completion of fieldwork, the holder shall submit an edited draft final report to the authorized officer for review to ensure conformance with applicable laws, regulations, policies, and procedures and the terms and conditions of this permit.

C. FINAL REPORT. The holder shall submit the original final report and at least two copies to the authorized officer within **60 days** after completion of fieldwork.

D. BLANKET SURVEY CONSULTING PERMIT. If this is a multi-year survey consulting permit, at the end of each calendar year, the holder shall submit to the authorized officer a report enumerating all activities conducted under this permit.

E. DEPOSIT OF MATERIALS AND DOCUMENTS WITH A CURATORIAL FACILITY. Within 90 days of the date the final report is submitted to the authorized officer, the holder shall deposit all artifacts, samples, and collections and original or clear copies of all records, data, photographs, and other documents resulting from activities authorized by this permit with the curatorial facility named in block 12.

F. CATALOGUE AND EVALUATION OF DEPOSITED MATERIALS. The holder shall provide the authorized officer with a catalogue and evaluation of all materials deposited with the curatorial facility named in block 12, including the facility's accession or catalogue numbers, and confirmation, signed by an authorized curatorial facility official, that artifacts, samples, and collections were deposited with the approved curatorial facility. The confirmation shall include the date the materials were deposited and the type, number, and condition of the deposited materials.

G. CONFIDENTIALITY OF SENSITIVE RESOURCES. The holder agrees to keep the specific location of sensitive resources confidential. Sensitive resources include but are not limited to threatened, endangered, and rare species; archaeological sites; caves; fossil sites; minerals; commercially valuable resources; and traditional cultural properties.

H. CONFIDENTIALITY OF INFORMATION IDENTIFYING ARCHAEOLOGICAL SITES. Without the authorized officer's prior written approval, the holder shall not publish any locational or other information identifying archaeological sites that could compromise their protection and management by the federal government.

I. IDENTIFICATION OF FOREST SERVICE PERMIT. Any published article, paper, or book containing results of work conducted under this permit shall specify that the work was performed in the Shasta-Trinity National Forest under a Forest Service permit.

J. SUBMISSION OF WRITTEN MATERIALS. The holder shall submit a copy of any published or unpublished report, article, paper, or book resulting from the authorized activities (other than reports required by clauses III.A, B, and C) to the authorized officer and the appropriate official of the curatorial facility named in block 12. The holder shall submit tabular and spatial data to the authorized officer in the format specified in **Appendix 1**.

IV. RIGHTS AND LIABILITIES

A. LEGAL EFFECT OF THE PERMIT. This permit, which is revocable and terminable, is not a contract or a lease, but rather a federal license. The benefits and requirements conferred by this authorization are reviewable solely under the

procedures set forth in 36 CFR Part 251, Subpart C, and 5 U.S.C. 704. This permit does not constitute a contract for purposes of the Contract Disputes Act, 41 U.S.C. 601. The permit is not real property, does not convey any interest in real property, and may not be used as collateral for a loan.

B. VALID OUTSTANDING RIGHTS. This permit is subject to all valid outstanding rights. Valid outstanding rights include those derived from mining and mineral leasing laws of the United States. The United States is not liable to the holder for the exercise of any such right.

C. ABSENCE OF THIRD-PARTY BENEFICIARY RIGHTS. The signatories of this permit do not intend to confer any rights on any third party as a beneficiary under this permit.

D. DAMAGE TO UNITED STATES PROPERTY. The holder has an affirmative duty to protect from damage the land, property, and other interests of the United States. Damage includes but is not limited to fire suppression costs, and all costs and damages associated with or resulting from the release or threatened release of a hazardous material occurring during or as a result of activities of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees on, or related to, the lands, property, and other interests covered by this permit. For purposes of clause IV.F, "hazardous material" shall mean any hazardous substance, pollutant, contaminant, hazardous waste, oil, and/or petroleum product, as those terms are defined under any federal, state, or local laws or regulations.

E. INDEMNIFICATION. The holder shall indemnify, defend, and hold harmless the United States for any costs, damages, claims, liabilities, and judgments arising from past, present, and future acts or omissions of the holder in connection with the use and occupancy authorized by this permit. This indemnification and hold harmless provision includes but is not limited to acts and omissions of the holder or the holder's family, guests, invitees, heirs, assignees, agents, employees, contractors, or lessees in connection with the use and occupancy authorized by this permit which result in (1) violations of any laws and regulations which are now or which may become applicable; (2) judgments, claims, demands, penalties, or fees assessed against the United States; (3) costs, expenses, and damages incurred by the United States; or (4) the release or threatened release of any solid waste, hazardous waste, hazardous substance, pollutant, contaminant, oil in any form, or petroleum product into the environment. The authorized officer may prescribe terms that allow the holder to replace, repair, restore, or otherwise undertake necessary curative actions to mitigate damages in addition to or as an alternative to monetary indemnification.

F. CONTINUATION OF LIABILITY BEYOND EXPIRATION. The holder shall not be released from requirements of this permit until all outstanding obligations have been satisfied, regardless of whether the permit has expired.

V. LAND USE FEE. The land use fee for this permit is waived pursuant to 36 CFR 251.57(b)(2).

VI. REVOCAION, SUSPENSION, AND TERMINATION

A. REVOCAION AND SUSPENSION. The authorized officer may revoke or suspend this permit in whole or in part:

1. For noncompliance with federal, state or local law.
2. For noncompliance with the terms and conditions of this permit.
3. For abandonment or other failure of the holder to exercise the privileges granted.
4. With the consent of the holder.
5. For specific and compelling reasons in the public interest.

Prior to revocation or suspension, other than immediate suspension under clause C, the authorized officer shall give the holder written notice of the grounds for revocation or suspension. In the case of revocation or suspension based on clause VI.A.1, 2, or 3, the authorized officer shall give the holder a reasonable period, not to exceed 90 days, to cure any noncompliance.

B. RELINQUISHMENT OF ARTIFACTS AND DOCUMENTS. Within 30 days of revocation or suspension of this permit, the holder shall deliver to the Forest Service all artifacts and originals of all photographs, negatives, catalogues, field notes, analysis sheets, reports in any stage of preparation, computer files, and any other records resulting from any activity conducted under this permit.

C. IMMEDIATE SUSPENSION. The authorized officer may immediately suspend this permit in whole or in part when necessary to protect public health or safety or the environment. The suspension decision shall be in writing. The holder may request an on-site review with the authorized officer's supervisor of the adverse conditions prompting the

suspension. The authorized officer's supervisor shall grant this request within 48 hours. Following the on-site review, the authorized officer's supervisor shall promptly affirm, modify, or cancel the suspension.

D. APPEALS AND REMEDIES. Written decisions made by the authorized officer relating to administration of this permit are subject to appeal pursuant to 36 CFR Part 251, Subpart C, as amended. Revocation or suspension of this permit shall not give rise to any claim for damages by the holder against the Forest Service.

E. TERMINATION. This permit shall terminate when by its terms a fixed or agreed upon condition, event, or time occurs without any action by the authorized officer. Examples include but are not limited to expiration of the permit by its terms on a specified date. Termination of this permit is not subject to administrative appeal and shall not give rise to any claim for damages by the holder against the Forest Service.

VII. MISCELLANEOUS PROVISIONS

A. MEMBERS OF CONGRESS. No member of or delegate to Congress or Resident Commissioner shall benefit from this permit either directly or indirectly, except to the extent the authorized use provides a general benefit to a corporation.

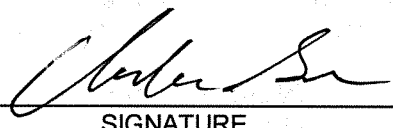
B. SUPERIOR CLAUSES. If there is any conflict between any of the preceding clauses and any subsequent clauses or appendices, the preceding clauses shall control.

THIS PERMIT IS ACCEPTED SUBJECT TO ALL ITS TERMS AND CONDITIONS.

BEFORE ANY PERMIT IS ISSUED TO AN ENTITY, DOCUMENTATION MUST BE PROVIDED TO THE AUTHORIZED OFFICER OF THE AUTHORITY OF THE SIGNATORY FOR THE ENTITY TO BIND IT TO THE TERMS AND CONDITIONS OF THE PERMIT.

ACCEPTED:

CHARLANE GROSS, M.A., RPA

 6/7/22

HOLDER NAME, PRECEDED BY NAME AND TITLE OF PERSON SIGNING ON BEHALF OF HOLDER, IF HOLDER IS AN ENTITY

SIGNATURE

DATE

APPROVED:

RACHEL BIRKEY, FOREST SUPERVISOR
or KARI OTTO, DEPUTY FOREST SUPERVISOR

NAME AND TITLE OF AUTHORIZED OFFICER

SIGNATURE

DATE

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (800) 975-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

APPENDIX B

AB 52 LETTER TO WINTU TRIBE



City of Shasta Lake
Public Works Department
4477 Main Street, Shasta Lake, CA 96019
530.275.7400

June 3, 2022

Wintu Tribe of Northern California
Chairperson Gary Rickard
14840 Bear Mountain Road
Redding, CA 96099

SUBJECT: Centimudi Water Storage Tank Project Initial Study/Mitigated Negative Declaration

Dear Chairperson Rickard,

The City of Shasta Lake (City) intends to initiate environmental review of the Centimudi Water Storage Tank Project (Proposed Project) in accordance with the requirements of the California Environmental Quality Act (CEQA). This notification is being forwarded to Native American tribes that are understood to be traditionally, culturally, and/or geographically affiliated with the project area pursuant to the statutory requirements of Assembly Bill 52 (AB 52) (Chapter 532, Statutes of 2014) and Section 21080.3.1 of the California Public Resources Code (PRC). In addition, the City may have received requests for notifications pursuant to the statutory requirements of AB 52 from certain Native American tribes who are not known to be traditionally, culturally, and/or geographically affiliated with the project location pursuant to the Native American Heritage Commission's Tribal Consultation List. However, in the interest of ensuring the fullest environmental review of the Proposed Project, these tribes are also receiving notification.

As the Lead Agency for compliance with CEQA, the City is in the process of determining the appropriate scope and content of the Initial Study/Mitigated Negative Declaration (IS/MND) to be prepared for the Proposed Project. The project lies in Township 33 North, Range 5 West Section 14 and is depicted on the Shasta Dam USGS 7.5' quadrangle in Shasta County (see attachment); this is on lands administered by the Shasta National Forest and therefore the Proposed Project is also subject to Section 106 of the National Historic Preservation Act.

The City proposes to construct a new 2.45-million-gallon (MG) finished water storage tank to replace two existing tanks located on the north side of Fisherman's Point Water Treatment Plant (WTP; Proposed Project). Both of the existing tanks at the WTP have reached/exceeded their useful lives and were recommended for demolition/replacement as part of the City's 2016-2026 Water Master Plan (WMP). Pursuant to CEQA, cultural resources analysis will be included in the IS/MND prepared for the Proposed Project.

We are hereby notifying you of an opportunity to consult with the City regarding the potential for the Proposed Project to impact Tribal Cultural Resources, as defined in Section 21074 of the PRC. The purposes of tribal consultation under AB 52 are to determine, as part of the CEQA review process, whether or not Tribal Cultural Resources are present within the project area, and if so, whether or not those resources will be significantly

impacted by the project. If Tribal Cultural Resources may be significantly impacted, then consultation will also help to determine the most appropriate way to avoid or mitigate those impacts.

Pursuant to PRC 21080.3.1(d), you have 30 days from receipt of this letter to request consultation for the Proposed Project. Please send your written response before July 8, 2022 by letter or email to:

Peter Bird
Senior Planner
City of Shasta Lake

C: (530) 440-8901
O: (530) 275-7416
pbird@cityofshastalake.org

If we do not receive a response before the close of business July 8, 2022, we will proceed. Thank you and we look forward to your response.

Respectfully,

A handwritten signature in blue ink, appearing to read 'PB', with a large, stylized flourish extending to the right.

Peter Bird
Senior Planner

Enclosed: APE maps



SOURCE: "Shasta Dam, CA" USGS 7.5 Minute Topographic Quadrangle, T33N R5W, Section 14, Mt. Diablo Baseline & Meridian; ESRI 2022; AES-Montrose, 5/19/2022

City of Shasta Lake Centimudi Water Storage Tank Project ■

APE Map



SOURCE: City of Redding aerial photograph, 5/27/2020
ESRI 2022; AES-Montrose, 5/19/2022

City of Shasta Lake Centimudi Water Storage Tank Project ■

APE - Aerial Image

APPENDIX E

MMRP

APPENDIX E

Mitigation Monitoring and Reporting Plan

This appendix includes complex tables that are not accessible using an assistive device such as a screen reader. For additional assistance please contact the City of Shasta Lake.

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Appendix E

MITIGATION MONITORING AND REPORTING PLAN

E.1 INTRODUCTION

Public Resources Code (PRC) Section 21081.6 requires lead agencies to adopt a Mitigation Monitoring and Reporting Plan (MMRP) designed to ensure compliance with mitigation measures during project implementation. The following Mitigation Monitoring and Reporting Program (MMRP) was prepared in compliance with the requirements of California Public Resources Code (PRC) Section 21081.6 and Section 15097 of the California Environmental Quality Act (CEQA) Guidelines. This MMRP identifies specific funding, timing, and monitoring requirements for implementation of all mitigation measures identified in the Centimudi Water Storage Tank Project Initial Study/Mitigated Negative Declaration.

E.2 CONTENTS AND ORGANIZATION

MITIGATION MONITORING AND REPORTING PROGRAM

The City of Shasta Lake has adopted a standard mitigation monitoring program in order to implement PRC Section 21081.6. This program requires that mitigation measures recommended for discretionary projects, such as the Centimudi Water Storage Tank Project, be included in the conditions of approval monitored by the City through a variety of permit processes as listed below.

- City of Shasta Lake
 - Grading Permit
 - Building Permit
- County of Shasta
 - Encroachment Permit
- U.S. Department of Agriculture Forest Service
 - Approval of a Special Use Permit in accordance with Forest Service Handbook 1909.15 § 33.3,
 - Approval of a Decision Memorandum for compliance with NEPA, and
 - Approval of a Water Quality Management Plan

ORGANIZATION OF THE MMRP

The issuance of any of the listed permits or City actions must be preceded by verification by City staff that certain conditions of approval/mitigation measures have been met. This verification shall serve as the required monitoring for those conditions of approval/mitigation measures. All of the mitigation measures for the Centimudi Water Storage Tank Project included in the IS/MND would be monitored through the MMRP. As indicated in the text of each mitigation measure, compliance with each would be verified by City staff prior to issuance of required

approvals and permits. Table 1 identifies each mitigation measure that would be monitored through the MMRP. Table 1 also identifies the mitigation measures that require ongoing implementation, the party(ies) responsible for funding implementation, the necessary timing of implementation that would occur, and the performance criteria for monitoring compliance with each mitigation measure.

CONSTRUCTION PERSONNEL

A key element in the success of mitigation measure implementation and mitigation monitoring is the full cooperation of construction personnel and supervisors. Successful implementation of many of the mitigation measures requires specific actions and behaviors on the part of the construction supervisors or crews. To ensure success, the following actions shall be taken:

- Procedures to be followed by construction companies engaged to do the work shall be written into their contracts with the City of Shasta Lake. Procedures to be followed by construction crews shall be written into a separate agreement that all construction personnel would be asked to sign, denoting consent to the procedures.
- As specified by mitigation measures, a training program shall be conducted to inform construction personnel about the requirements of the monitoring program (as detailed in the MMRP). The City of Shasta Lake shall verify that each crew member receives the required training.
- A written summary of mitigation monitoring procedures shall be provided to construction supervisors for all mitigation measures requiring their attention.

E.3 MMRP SUMMARY TABLE

The following summary table outlines procedures for the implementation of the mitigation measures included in the IS/MND; the relative applicability of the mitigation measures to Proposed Project components, the reasonably foreseeable distribution components; the monitoring and reporting actions that will need to take place to ensure the measure is properly implemented, responsibility for implementation, the schedule for the monitoring and reporting actions, and the mechanism that verifies that monitoring is complete.

Table E-1. MMRP Summary Table

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<i>Aesthetics</i>				
<p>AES-1: Provide Vegetation Screening. The project proponent shall preserve sufficient vegetation within, at the edge of, or adjacent to construction area to screen views from public trails, parks, recreation areas, and roadways. In addition, the project proponent shall ensure that the project site is vegetated with trees or other plant species and vegetation will be maintained to the same screening level for as long as the tank is present on the site; quantity and size shall be in keeping with any adopted Scenic Corridor Guidelines, Landscape Manual, and the vegetative character of the project site to the extent that the species are compatible with existing vegetation. Planting shall be sufficient to provide screening from the ground up when mature. Verification of the adequacy of the proposed plantings will occur through City and USFS review and approval of the proposed project’s landscape plan.</p>	City of Shasta Lake	City of Shasta Lake Department of Public Works	Prior to completion of construction.	Installation and Maintenance of vegetation screening that achieves the effect of screening the water tank from public trails, parks, recreation areas, and roadways

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<p>AES-2: Standard Environmental Color The project proponent shall match the water tank and perimeter fencing to the dominant surrounding color of the project site to the satisfaction of USFS Landscape Architect. If required, the water tank will be repainted using same color or a color to the satisfaction of USFS Landscape Architect. Implementation of this measure will reduce the starkness of contrast between the new water tank and surrounding forested land.</p>	City of Shasta Lake	City of Shasta Lake Department of Public Works	Prior to completion of construction.	Water Tank is painted in and maintained in a color as approved by the USFS Landscape Architect
Biological Resources				
<p>BIO-1: Pre-Construction Nesting Bird Survey. The following measures shall be implemented to avoid or minimize adverse impacts to nesting migratory birds and bald eagles during construction activities associated with the proposed project.</p> <ul style="list-style-type: none"> ▪ If construction activities (e.g., building, grading, ground disturbance, removal of vegetation) are scheduled to occur during the bald eagle nesting season (January 1 through July 31), which includes the general nesting season (February 15 through September 15), a pre-construction nesting bird survey shall be conducted by a qualified biologist throughout accessible areas of suitable habitat within 500 feet of 	City of Shasta Lake	City of Shasta Lake Planning Department	<ol style="list-style-type: none"> 1. Prior to Construction 2. Throughout construction 	<ul style="list-style-type: none"> ▪ Completion of preconstruction surveys by a qualified biologist ▪ Implementation of “no construction” buffers should nesting bird species be identified

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<p>proposed construction activity for nesting birds and extended to 660 feet for nesting bald eagles. The survey shall occur no more than 7 days prior to the scheduled onset of construction. If construction is delayed or halted for more than 7 days, another pre-construction survey for nesting bird species shall be conducted. If no nesting birds are detected during the pre-construction survey, no additional surveys or mitigation measures shall be required.</p> <ul style="list-style-type: none"> ▪ If nesting bird species are observed within 500 feet, or 660 feet for bald eagles, of construction areas during the survey, appropriate “no construction” buffers shall be established. The size and scale of nesting bird buffers shall be determined by a qualified biologist and in consultation with CDFW and/or USFWS. Buffers shall be established around active nest locations. The nesting bird buffers shall be completely avoided during construction activities. The buffers may be removed when the qualified wildlife biologist confirms that the nest(s) is 				

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
no longer occupied and all birds have fledged.				
Cultural Resources				
<p>CR-1: Cultural Resources Training. Prior to commencement of any earth disturbance (e.g., clearing, grading, trenching, etc.), all construction personnel participating in the ground-disturbing activities and their supervisors shall receive training from a qualified archeologist and/or Native American representative regarding cultural and tribal cultural resources (TCR) and shall be given the opportunity to review the training materials and participate in the initial training.</p>	City of Shasta Lake and/or Contractors	City of Shasta Lake Planning Department	Prior to commencement of any earth disturbance	Completion of training for all construction personnel from a qualified archeologist and/or Native American representative
<p>CR-2: Inadvertent Discovery of Archaeological Resources. In the event of any inadvertent discovery of archaeological resources, all such finds shall be subject to Section 106 of the NHPA, the ARPA, NAGPRA, the Paleontological Resources Preservation Act, PRC § 21083.2 and CEQA Guidelines § 15064.5. Procedures for inadvertent discovery include the following.</p> <ul style="list-style-type: none"> • All work within 50 feet of the find shall halt until a professional archaeologist can evaluate the significance of the find in accordance with NRHP and CRHR criteria. 	City of Shasta Lake and/or Contractors	City of Shasta Lake Planning Department	<ol style="list-style-type: none"> 1. During construction 2. In the event of any inadvertent discovery of archaeological resources 	<ul style="list-style-type: none"> ▪ All work stopped within 50 feet of archaeological resource ▪ A professional archaeologist has evaluated the significance of the find ▪ Preparation of a report by the professional archaeologist

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<ul style="list-style-type: none"> If any find is determined to be significant by the archaeologist then representatives of the City and Shasta-Trinity National Forest shall meet with the archaeologist to determine the appropriate course of action. If necessary, a Treatment Plan shall be prepared by an archeologist outlining recovery of the resource, analysis, and reporting of the find. The Treatment Plan shall be submitted to the City and Shasta-Trinity National Forest for review and approval prior to resuming construction. All significant cultural materials recovered shall be subject to scientific analysis, professional curation, and a report prepared by the professional archaeologist according to current professional standards. 				<p>according to current professional standards</p>
<p>CR-3: Discovery of Human Remains. In the event that human remains are encountered during construction activities, all project-related ground disturbance within 100 feet of the find shall halt until the County coroner has been notified. If the coroner determines that the remains are Native American, the provisions of NAGPRA shall apply. Project-related ground disturbance in the vicinity of the find shall not resume until either NAGPRA or</p>	<p>City of Shasta Lake and/or Contractors</p>	<p>City of Shasta Lake Planning Department</p>	<ol style="list-style-type: none"> During construction In the event that human remains are encountered during construction activities 	<ul style="list-style-type: none"> All work stopped within 100 feet of human remains until the County coroner has been notified and work has been cleared to begin again

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
the process detailed in CEQA Guidelines § 15064.5 (e) has been completed.				<ul style="list-style-type: none"> ▪ Provisions of NAGPRA are followed
<i>Hazards and Hazardous Materials</i>				
<p>HAZ-1: Construction Hazards Reduction.</p> <p>During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a fire break. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.</p> <p>The following measures shall be implemented to reduce impacts from hazardous materials during construction:</p> <ul style="list-style-type: none"> • Potentially hazardous materials, including fuels, shall be stored away from drainages and secondary containment shall be provided for all hazardous materials during construction. • Vehicles and equipment used during construction shall be provided proper and timely maintenance to reduce the potential 	City of Shasta Lake and/or Contractor(s)	City of Shasta Lake Planning Department	During construction	<ul style="list-style-type: none"> ▪ All staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel ▪ Hazardous materials stored away from drainages ▪ Appropriate remediation

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<p>for mechanical breakdowns leading to spills.</p> <ul style="list-style-type: none"> Maintenance and fueling shall be conducted in an area that meets the criteria set forth in the spill prevention plan. If contaminated soil and/or groundwater is encountered or if suspected contamination is encountered during project construction, work shall be halted in the area, and the type and extent of the contamination shall be identified. A qualified professional, in consultation with the USFS and the EPA shall then develop an appropriate method to remediate the contamination. If necessary, a remediation plan approved by the EPA shall be prepared and implemented for the duration of construction of the proposed project. 				
<p>HAZ-2: Accidental Spill Prevention and Response Plan.</p> <ul style="list-style-type: none"> Potentially hazardous materials, including fuels, shall be stored away from drainages and secondary containment shall be provided for hazardous materials during construction. 	<p>City of Shasta Lake and/or Contractor(s)</p>	<p>City of Shasta Lake Planning Department</p>	<ol style="list-style-type: none"> Prior to construction. During construction 	<p>Preparation and Implementation of an Accidental Spill Prevention and Response Plan</p>

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<ul style="list-style-type: none"> A spill prevention, storage, and disposal plan shall be developed as a part of the water pollution control plan, prepared by the contractor and approved by the City and USFS and shall identify proper storage, collection, and disposal measures for potential pollutants used onsite, as well as proper cleanup and reporting procedures. The plan shall contain an inventory of potentially hazardous materials stored and used onsite, emergency response protocols for the release and disposal of unused hazardous materials, and employee training of emergency response procedures. 				
Hydrology and Water Quality				
<p>HYD-1: Water Quality Management Plan. A site-specific Water Quality Management Plan shall be prepared in conjunction with the USFS and the City for the proposed project prior to construction, which shall include, but not be limited to, the following BMPs in conformance with USFS BMPs for California:</p> <ul style="list-style-type: none"> Areas where ground disturbance occurs shall be identified in advance of construction and be limited to approved areas. Vehicular construction traffic shall be confined to the designated access routes and staging areas. 	City of Shasta Lake and/or Contractor(s)	City of Shasta Lake Planning Department	<ol style="list-style-type: none"> Prior to the commencement of construction. During construction. 	Preparation and Implementation of a site-specific Water Quality Management Plan

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<ul style="list-style-type: none"> ▪ Equipment maintenance and cleaning shall be confined to staging areas. No vehicle maintenance shall occur onsite during construction. ▪ Disturbed areas shall be restored to pre-construction contours to the extent possible. ▪ Hay/straw bales and silt fences shall be used to control erosion during stormwater runoff events. ▪ The highest quality soil shall be salvaged, stored, and used for native re-vegetation/seeding. ▪ Drainage gaps shall be implemented in topsoil and spoil piles to accommodate/reduce surface water runoff. ▪ An Erosion Control Plan that includes sediment control measures shall be in place prior to construction and shall be maintained until disturbed areas have been re-vegetated. Erosion control structures shall be in place and operational at the end of each day if work activities occur during the rainy season. ▪ Fiber rolls shall be placed along the perimeter of disturbed areas to ensure sediment and other potential contaminants of concern are not transported offsite or to open trenches. Locations of fiber rolls shall be field adjusted as needed. 				

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<ul style="list-style-type: none"> ▪ Vehicles and equipment stored in the construction staging area shall be inspected regularly for signs of leakage. Leak-prone equipment shall be staged over an impervious surface or other suitable means shall be provided to ensure containment of any leaks. Vehicle/equipment wash waters or solvents shall not be discharged to surface waters or drainage areas. ▪ During the rainy season, soil stockpiles and material stockpiles shall be covered and protected from the wind and precipitation. Plastic sheeting shall be used to cover the stockpiles and straw wattles shall be placed at the base for perimeter control. ▪ Contractors shall immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. Leaks and spills shall be reported to the designated representative of the lead contractor. Contaminated media shall be collected and disposed of at an off-site facility approved to accept such media. 				
Transportation				
T-1: Obtain and Comply with All Applicable Road Encroachment Permits.	City of Shasta Lake	City of Shasta Lake Planning Department	<ol style="list-style-type: none"> 1. Prior to construction. 2. During construction 	Receipt and compliance with All Applicable Road Encroachment Permits

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<p>Prior to the start of construction activities, all applicable local, State, and USFS road encroachment permits shall be obtained and the conditions of approval complied with.</p>				
<p>T-2: Temporary Traffic Control Plan Prior to the start of construction activities, a TTCP shall be developed detailing the construction route, hours of construction, the construction staging area, and the location and duration of any anticipated lane closures. Lane closures shall be limited during peak traffic hours to the extent practicable. The TTCP shall require the implementation of a flag person to assist with one-way traffic control in the event of lane closures, to assist with traffic control at the project site and construction staging area, and to maintain adequate emergency access. The TTCP shall be reviewed and approved by the City prior to the start of construction activities.</p>	<p>City of Shasta Lake and/or Contractor(s)</p>	<p>City of Shasta Lake Planning Department</p>	<ol style="list-style-type: none"> 1. Prior to construction. 2. During construction. 	<p>Preparation and implementation of a Temporary Traffic Control Plan</p>
<p><i>Tribal Cultural Resources</i></p>				
<p>TCR-1: Tribal Cultural Monitor. The City shall engage a tribal monitor from the Wintu Tribe of Northern California to monitor ground disturbing activities associated with grubbing, clearing, and excavation for the proposed project. If prehistoric archaeological resources are discovered during ground-disturbing activities, all</p>	<p>City of Shasta Lake</p>	<p>City of Shasta Lake Planning Department</p>	<p>During ground disturbing activities associated with grubbing, clearing, and excavation</p>	<p>Presence of the tribal monitor during ground disturbing activities associated with grubbing, clearing, and excavation</p>

Mitigation Measure	Implementation	Responsible Party	Timing	Performance Evaluation Criteria
<p>such activities shall halt within 50 feet of the find until a professional archaeologist can evaluate the significance of the find in accordance with the Wintu Tribal Monitor, the City, and the USFS. Construction shall not resume in the vicinity of the find until consultation is concluded or until a reasonable, good-faith effort has failed to provide a resolution to further impacts that is acceptable to the consulting parties.</p>				