Initial Study / Mitigated Negative Declaration

for the

Commercial Center Safe Routes to School and Green Stormwater Infrastructure Project

March 2025

Lead Agency:

City of Shasta Lake

Planning Division

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Acronyms and Abbreviations

(CV)RWQCB .... (Central Valley) Regional Water Quality Control Board
§ .... Section
AQMD .... Air Quality Management District
BMP(s) .... Best Management Practice(s)
BPM .... Best Practices Manual
BSA .... Biological Survey Area
Caltrans .... California Department of Transportation
CARB .... California Air Resources Board
CASWP .... Construction Activity Storm Water Permit
CBC .... California Building Code
CCR .... California Code of Regulations
CDFW .... (California) Department of Fish and Wildlife
CEQA .... California Environmental Quality Act
CESA .... California Endangered Species Act
CFR .... Code of Federal Regulations
CIDH .... Cast In Drilled Hole
CNDDB .... California Natural Diversity Database
CNPS .... California Native Plant Society
COSL .... City of Shasta Lake
CSC .... California Species of Special Concern
CV .... Central Valley
CWA .... Clean Water Act
CY .... Cubic Yards
dB .... Decibel(s)
DOT .... (US) Department of Transportation
DTSC .... (California) Department of Toxic Substances Control
EPA .... Environmental Protection Agency
ESA .... Endangered Species Act
ESU .... Evolutionary Significant Unit
FAA .... Federal Aviation Administration
FEMA .... Federal Emergency Management Agency
FIRM .... Flood Insurance Rate Map
ITP .... Incidental Take Permit
LOS .... Level(s) of Service
mgd .... Million Gallons per Day
MM .... Mitigation Measure
MS4 .... Municipal Separate Storm Sewer System
NHPA .... National Historic Preservation Act
NPDES .... National Pollution Discharge Elimination System
$PM_{10 / 2.5}$ .... Particulate Matter less than 10 / 2.5 Microns
PRC .... Public Resources Code
RSP .... Rock Slope Protection
SAA .... Streambed Alteration Agreement
SMM .... Standard Mitigation Measures
SR# .... State Route # (36, 44, et. al)
SR2S: .... Safe Routes to School (State)

SRTS: .... Safe Routes to School (Federal)
SWMP .... Storm Water Management Program
SWPPP.......... Storm Water Pollution Prevention Plan
UBC .... Uniform Building Code
USACE .... United States Army Corps of Engineers
USFWS .... United States Fish and Wildlife Service
USGS .... United States Geological Survey

1 INTRODUCTION

1.1 REGULATORY GUIDANCE

This document is an initial study with supporting environmental studies, which provide justification for a Mitigated Negative Declaration pursuant to the California Environmental Quality Act (CEQA). The Proposed Mitigated Negative Declaration has been prepared in accordance with the CEQA, Public Resources Code Section 21000 et seq., and the State CEQA Guidelines 14 California Code Regulations Section 15000 et seq.

An initial study is conducted by a lead agency to determine if a project may have a significant effect on the environment. In accordance with the CEQA Guidelines Section 15063, an Environmental Impact Report (EIR) must be prepared if an initial study indicates that the proposed project under review may have a potentially significant impact on the environment. A Negative Declaration may be prepared instead, if the lead agency prepares a written statement describing the reasons why the proposed project would not have a significant effect on the environment, and therefore, why it does not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a Negative Declaration shall be prepared for a project subject to CEQA when either:

a) The initial study shows there is no substantial evidence, in light of the whole record before the agency, that the proposed project may have a significant effect on the environment, or

b) The initial study identifies potentially significant effects, but:

(1) Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed negative declaration is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur and;

(2) There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant effect on the environment.

1.2 PURPOSE OF THE INITIAL STUDY

This initial study has been prepared consistent with CEQA Guidelines Section 15063, to determine if the City of Shasta Lake Commercial Center Safe Routes to School and Green Stormwater Infrastructure Project, as proposed, may have a significant effect upon the environment. Based upon the findings contained within this report, the Initial Study will be used in support of the preparation of a MITIGATED NEGATIVE DECLARATION.

2 GENERAL INFORMATION

2.1 PROJECT DESCRIPTION

Project Title:	Commercial Center Safe Routes to School and Green Stormwater Infrastructure Project (Project)
Lead Agency Name and Address:	City of Shasta Lake 4477 Main Street Shasta Lake, CA 96019
Contact Person and Phone Number:	Peter Bird, AICP City of Shasta Lake, Planning Division Office: (530) 275-7430 Fax: (530) 275-7414
Project Location:	The proposed Project is located in Sections 29 and 32, Township 33N, Range 04W, Project City 7.5' USGS Quadrangle, City of Shasta Lake, Shasta County, California, latitude 40.68156, longitude -122.35145. Project activities will occur on Cascade Boulevard, Grand Avenue, Shasta Dam Boulevard, and Shasta Way. The Project site is approximately 500 feet west of the Interstate 5 interchange with Shasta Dam Boulevard (State Route 151). The Project site surrounds an approximately 11-acre property owned by the Redding Rancheria. The Project will be located on the existing public right-of-way and an open space area to the northeast. The Project site has been historically disturbed due to prior development activities, with Moody Creek flowing through the northeastern corner of the site.
Affected Parcel(s):	Assessor's Parcel Numbers (APNs) - 007-380-051, 007-380-054, 007-380-053, 007-380-037, 007-380-052, 007-380-005, 007-380-006, 007-380-007, 007-380-008
Zoning:	CPD (Commercial Planned Development), Urban Residential
Adjacent Land Use:	Commercial, Urban Residential
Consultation with Native American Tribes:	On June 20th, 2024, the city sent letters to the tribes formally initiating the Assembly Bill 52 consultation process. The letters provided a detailed description of the proposed project including project location maps. The tribes were invited to notify the city within 30 days if potential significant effects to tribal cultural resources as a result of the proposed project were anticipated. No responses have been received as of the date of this assessment. Consultation will remain open.

PROJECT SETTING AND LOCATION:

The City of Shasta Lake (COSL) is in Northern California, just north of the City of Redding along Interstate 5. The project site surrounds the approximately 11-acre commercial center property owned by the Redding Rancheria and its subsidiary; Win-River Hotel Corporation (WRHCO) and is located on Cascade Boulevard approximately 500' west of the Interstate 5 interchange with Shasta Dam Boulevard (State Route 151). The Redding Rancheria is also a co-applicant and partner of the AHSC program award.

The City of Shasta Lake, and its partners, K2 Development (K2), Redding Rancheria and Community Revitalization & Development Corporation (CRDC) prepared and submitted a proposal to the AHSC Program in June 2021 and was notified in February 2022 that the necessary funding for the project had been awarded. The project is described as a Complete Streets, Safe Routes to School, and Green Stormwater Infrastructure project. The project includes improvements to numerous existing roads, construction of a new roadway, and an improvement of a 2-acre open space area adjacent to Moody Creek that will integrate green space, native landscaping, improved trails, and green sustainable stormwater infrastructure.

PROJECT DESCRIPTION:

The project will generate a seamless network of complete streets creating safe routes to Grand Oaks School and connections to improved open space areas, trails, residential neighborhoods, shopping, employment centers, government facilities, Tribal owned land, recreation areas, and other local destinations. These projects will serve the needs of all transportation users including pedestrians, bicyclists, people with disabilities, transit riders, and motorists. The WRHCO has begun master planning the commercial center property, and coordination with WRHCO and their design team is anticipated.

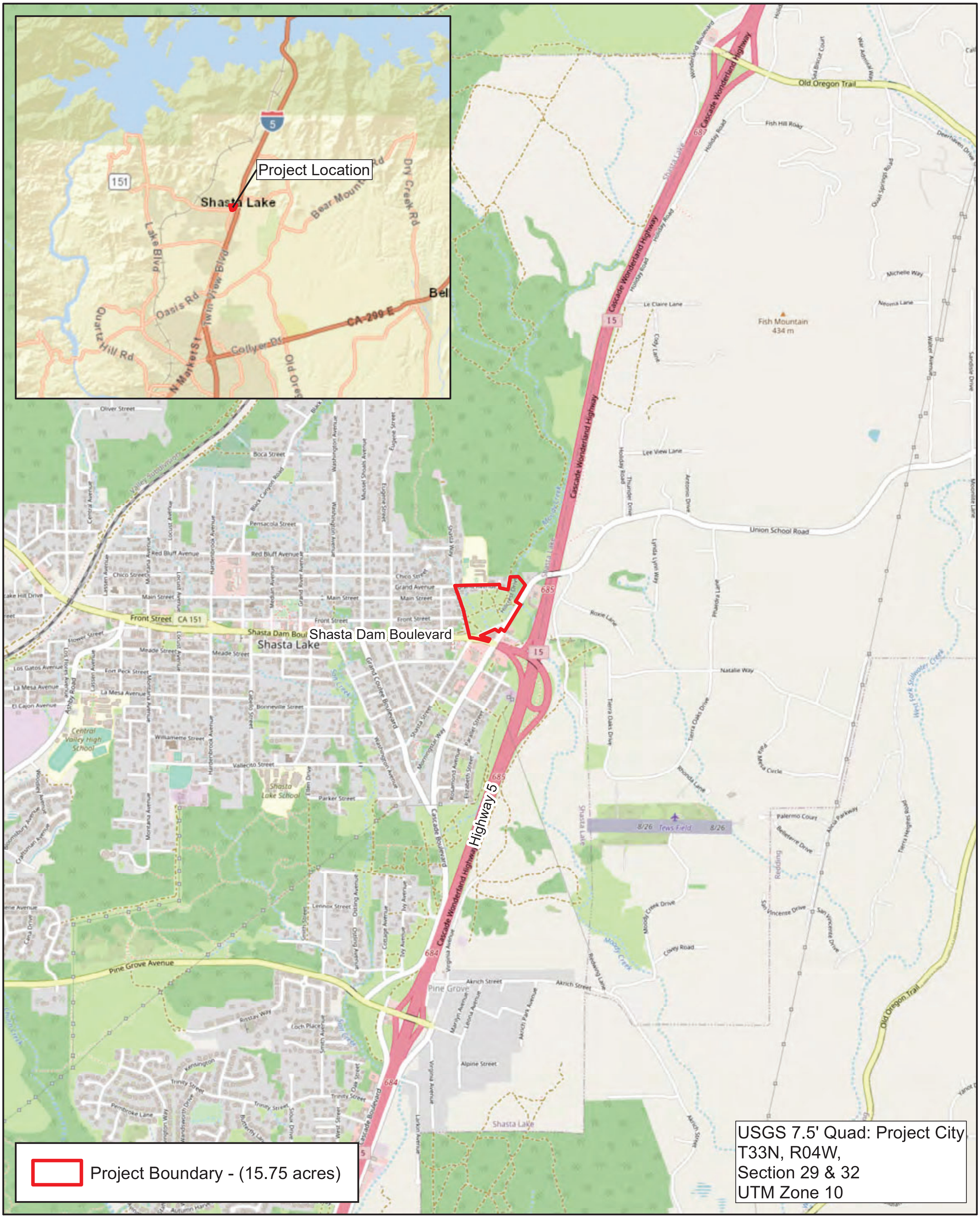
The roadway portion of the project will have complete streets components to promote multi-modal transportation. Coordination with the urban designer, landscape architect, Redding Rancheria (and their design team) and the City is required to provide a seamless concept of complete streets and to complement the commercial center's development vision. The project also includes an approximately 2-acre open space on the northeast portion of the project site, adjacent to Moody Creek. This area has been set aside to provide amenities such as walking trails, native landscaping including shade trees, green sustainable stormwater infrastructure including bio retention, bio-swales, pedestrian lighting, seating, picnic benches, shade structure, drinking fountains, waste receptacles and bike racks.

The goals of the project are to:

- Enhance safety and ease of travel for school children who walk, bicycle, carpool, and/or utilize transit to travel to school or school-related activities.
- Provide safe facilities for all transportation users – pedestrians, bicyclists, people with disabilities, transit users, and motorists.
- Decrease traffic congestion around Grand Oaks School, reduce school-related travel emissions, and improve the health, well-being, and safety of students and residents.
- Enhance walking and bicycling safety, comfort, and convenience.
- Create a natural recreation space to increase opportunities for physical activity and utilize the natural infrastructure of the site in conjunction with green sustainable stormwater infrastructure to maximize stormwater capture and minimize pollution.

In general, the identified Project improvements include:

- Construction of curb, gutter, sidewalk, utilities, drainage infrastructure and lighting improvements to:
  - 700± linear feet; Grand Avenue from Shasta Way to Wonderland Boulevard
  - 850± linear feet; Shasta Way from Grand Avenue to Shasta Dam Boulevard
  - 600± linear feet; Cascade Boulevard from Shasta Dam Boulevard to Wonderland Boulevard
  - 200± linear feet; Shasta Dam Blvd (SR-151) from Shasta way east towards Cascade Boulevard
- Construction of 600± linear feet of new Wonderland Boulevard from Cascade Boulevard to Grand Avenue including:
  - Street section consistent with an 84-ft right of way per City of Shasta Lake Construction Standards (COSLCS) including landscaped medians.
  - Complete street design components
  - Utility design & coordination (water, wastewater, stormwater, joint utility trench & irrigation)
  - Safe crossing infrastructure from Commercial Center site to open space (across Wonderland Blvd.)
- A 2-acre open space adjacent to Moody Creek with the following improvements:
  - 1600± linear feet of improved trails
  - Pedestrian lighting, seating, picnic benches, a shade structure, drinking fountains, trash receptacles, signage, and a bike rack
  - Enhanced water-wise landscaping and shade tree planting consistent with existing and native flora.
  - Green sustainable stormwater infrastructure including bioretention and bioswales



NORTH

1:24,000 1 inch = 2,000 feet

0 0.25 0.5 Miles

Data Sources: ESRI, OpenStreetMap, City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Regional Location
Figure 1

gallaway ENTERPRISES

GE: #23-114 Map Date: 10/26/2023

NORTH

1:2,400 1 inch = 200 feet

0 100 200 Feet

Data Sources: ESRI, Maxar 09/16/2022
City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Project Location
Figure 2

gallaway ENTERPRISES

GE: #23-114 Map Date: 01/11/2024

3 EVALUATION OF ENVIRONMENTAL IMPACTS

3.1 EVALUATION OF ENVIRONMENTAL IMPACTS

This section provides an evaluation of the potential environmental impacts of the project. There are 18 Environmental Factors evaluated in Section 4.0, in addition to the CEQA Mandatory Findings of Significance.

The Checklist Discussion/Analysis provides a detailed discussion of each of the environmental issue checklist questions. The level of significance for each topic is determined by considering the predicted magnitude of the impact. Four levels of impact significance are described in this initial study:

Potentially Significant: A new impact that may have a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected”

Less Than Significant with Mitigation Incorporated: A new impact that is “potentially significant” as described below; the incorporation of mitigation measure(s) would reduce the project related impact to a less than significant level

Less Than Significant: A new impact would not result in a substantial and adverse change in the environment; this impact level does not require mitigation measures

No Impact: No project-related impact to the environment would occur with project development

3.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below could be potentially affected by this project; however, with the incorporation of mitigation measures, potentially significant impacts are reduced to less than significant level by the project” (CEQA Guidelines Section 15382).

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

4 ENVIRONMENTAL IMPACTS

4.1 AESTHETICS

Would the project:	**Potentially Significant**	**Less Than Significant with Mitigation**	**Less Than Significant**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?				**X**
b) Substantially damage scenic resources within a state scenic highway?			**X**	
c) Substantially degrade the existing visual character or quality of the site/surroundings?				**X**
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			**X**	

ENVIRONMENTAL SETTING:

The Project site is bound by Grand Avenue to the north, Cascade Boulevard to the east, Shasta Dam Boulevard to the south, and Shasta Way to the west. The Project site is situated in the foothills bordering the furthest northern portion of the Sacramento Valley, approximately 4.5 miles south of Lake Shasta. Annual grassland, blue oak-foothill pine, urban, valley foothill riparian, riverine, lacustrine, and barren habitats are found within the Project site. Moody Creek, an intermittent tributary, runs through the northeast corner of the Project site from north to south. The surrounding area consists of suburban and commercial development, blue oak-foothill pine and blue oak woodland. Due to the disturbed nature of the Project site, non-native vegetation predominates much of the site. The overall topography of the Project site is relatively flat to gently sloping.

DISCUSSION OF IMPACTS:

(4.1a) No Impact. The COSL General Plan identifies the foothills, mountains, forest lands, natural viewsheds, and water features of the region as important scenic resources and establishes goals and policies to ensure their protection. The Project site and surrounding area has been highly developed, with exception to the riparian areas abutting Moody Creek. The Project has been designed to avoid impacting Moody Creek and the adjacent riparian habitat. The proposed Project does not contribute to the modification of a scenic resource; therefore, will not have a substantial adverse effect on a scenic vista.

(4.1b) Less Than Significant. The section of Interstate 5 adjacent to the Project site is eligible for listing under the California State Scenic Highway Program; however, currently holds no protection status. State Route 151 is the nearest officially designated highway and is three (3) miles to the west (Caltrans, 2024). The Project is not within or in proximity to a state scenic highway; therefore, will not substantially damage scenic resources within a state scenic highway.

(4.1c) No Impact. The Project involves improvements to existing roads, a newly constructed road, and various improvements to an open space adjacent to Moody Creek. The Project site has been highly disturbed, except for Moody Creek, and previously developed with surrounding land uses being predominately residential and commercial. The Project includes temporary construction related activities, which upon completion would result in an improved and formalized streetscape. However, these impacts are short-term and minor in nature. The proposed Project is compatible with the surrounding land uses and will improve the utility and aesthetic of the area. The Project will not substantially degrade the existing visual character or quality of the site/surroundings. Less than significant impacts will occur.

(4.1d) Less Than Significant. Lighting improvements will occur on Grand Avenue, Shasta Dam Boulevard, Cascade Boulevard, the proposed Wonderland Boulevard, and within the proposed 2-acre open space area adjacent to Moody Creek. Lighting improvements will be designed according to City standards such that no new substantial sources of light or glare will be introduced. Compliance with the City's lighting requirements outlined in the COSL Interim Zoning Ordinance will ensure the Proposed Project will not adversely impact day or nighttime views in the area; therefore, impacts would be less than significant.

4.2 AGRICULTURAL AND FORESTRY RESOURCES

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				**X**
d) Result in the loss of forestland or conversion of forestland to non-forest use?				**X**
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				**X**

ENVIRONMENTAL SETTING:

According to the CA Department of Conservation Farmland Mapping and Monitoring Program, the Project site is designated “Urban and Built-Up” and does not contain any classification of farmland.

DISCUSSION OF IMPACTS:

***(4.2a-e) No Impact*.** The Urban and Built-Up classification is defined by land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10 acre parcel. The Project site is zoned for commercial development, and according to the City’s Interim Zoning Ordinance 2023, is not under a Williamson Act contract, and does not accommodate timber lands or forest lands. The Project will neither conflict with existing zoning for forest land nor result in the loss or conversion of forestland or farmland. Regarding agricultural and forestry resources, the Project will have no impact.

4.3 AIR QUALITY

Would the project:	**Potentially Significant**	**Less Than Significant with Mitigation**	**Less Than Significant**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?				**X**
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			**X**	
c) Expose sensitive receptors to substantial pollutant concentrations?			**X**	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			**X**	

ENVIRONMENTAL SETTING:

Under the Federal Clean Air Act (CAA), the Environmental Protection Agency (EPA) establishes National Ambient Air Quality Standards (NAAQS) that each state must comply with. Under the California Clean Air Act (CCAA), the California Air Resources Board (CARB) further establishes California Ambient Air Quality Standards (CAAQS) that cities and counties are expected to make progress towards meeting. The State of California is divided into 15 air basins, for which 35 local Air Quality Management Districts (AQMD) are responsible for developing conformity plans, regulations, and thresholds of significance for criteria pollutants described in the NAAQS and CAAQs.

The Project is in the City of Shasta Lake, Shasta County, and is in the Sacramento Valley Air Basin (SVAB). The SVAB is comprised of the counties of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba; the western urbanized portion of Placer County; and the northeastern portion of Solano County. The Shasta County Air Quality Management District (SCAQMD) is the local authority tasked with enforcing Federal and state air quality regulations. Based on air quality monitoring data, Shasta County is currently in unclassified/attainment status for all state and Federal standard criteria pollutants, except for the state ozone (0_3) standard. The applicable regional air quality plan is the Northern Sacramento Valley Planning Area 2021 Triennial Air Quality Attainment Plan (2021 Plan). The 2021 Plan proposes strategies necessary to attain the NAAQS/CAAQS, by the earliest practicable date, by assessing and updating progress towards achieving control measure commitments and summarizing and comparing existing and projected emissions data.

According to the Land Use Permitting Activities, prepared by the SCAQMD regarding thresholds of significance, air quality impacts may be caused by direct emissions from stationary sources or by indirect emissions (associated with motor vehicles and/or area wide emission sources). By comparing a Project's daily or annual emissions with emission levels considered significant under local or state law, impacts can be evaluated.

Indirect emission sources are defined as any building, facility, structure, or property that attracts or generates mobile source activity (autos or trucks), while direct emissions are emissions emitted from stationary sources such as buildings. Direct emissions from stationary sources are usually recognized as not having a significant environmental impact unless stationary source emissions of either oxides of nitrogen, reactive organic compounds, or inhalable particulate matter (PM_{10}) exceed 25 Tons/yr. Significance thresholds for indirect emissions are determined by the SCAQMD and are detailed in the following table:

Table 1: SCAQMD Significance Thresholds for Criteria Pollutants

Level A	25 pounds per day of either oxides of nitrogen or reactive organic compound 80 pounds per day of inhalable particulate matter (PM_{10})
Level B	137 pounds per day of either oxides of nitrogen, reactive organic compounds, or inhalable particulate matter (PM_{10})

Source: SCAQMD, Land Use Permitting Activities

The Project was screened through the California Emissions Estimator Model (CalEEmod) due to the linear construction and land development components of the Project. CalEEMod calculates emissions based on various factors, including the type and size of the project, location, and specific activities associated with construction and operation. The model calculates short-term construction emissions, operations emissions, GHG emissions, and provides a database of measures to reduce emissions.

A CalEEmod Detailed Report (Report) was developed on August 8, 2024 (Appendix A). A summarized table of the estimated average daily construction and operational emissions for the Project is shown below:

Table 2: Construction Related Emissions vs SCAQMD Significance Thresholds

Construction Emissions	Pollutants (lbs/day)		
	NO_X	**ROG**	**PM_{10}**
Road Construction (mitigated)	0.4	< 0.1	0.1
Road Construction (unmitigated)	0.4	< 0.1	0.1
SCAQMD Thresholds (level A)	25	25	80
SCAQMD Thresholds (level B)	137	137	137
Exceeds Threshold	**No**	**No**	**No**

Source: CalEEMod, Detailed Report for the City of Shasta Lake Commercial Center Safe Routes to School Project 2024

Table 3: Operational Related Emissions vs SCAQMD Significance Thresholds

Operational Emissions	Pollutants (lbs/day)		
	NO_X	**ROG**	**PM_{10}**
Road Construction (mitigated)	< 0.1	0.1	< 0.1
Road Construction (unmitigated)	< 0.1	0.1	< 0.1
SCAQMD Thresholds (level A)	25	25	80
SCAQMD Thresholds (level B)	137	137	137
Exceeds Threshold	**No**	**No**	**No**

Source: CalEEMod, Detailed Report for the City of Shasta Lake Commercial Center Safe Routes to School Project 2024

According to the CARB, the following are the definitions for the applicable criteria pollutants detailed above:

Nitrogen Oxides (NO_X)

Nitrogen oxides (NOx) are a group of highly reactive gasses and are also known as "oxides of nitrogen." Nitrogen oxides include nitrogen dioxide (NO2), nitric oxide (NO), nitrous acid (HNO2) and nitric acid (HNO3). Because NOx is an ingredient in the formation of ozone, it is referred to as an ozone precursor. NOx is emitted from combustion sources such as cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone, and fine particle pollution, NO2 (a component of NOx) is linked with a number of adverse effects on the respiratory system.

Reactive Organic Gases (ROG)

Reactive organic gases are carbon compounds that have atmospheric photochemical reactivity. ROG excludes carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. As required by the US EPA, the ROG inventory is expressed in terms of volatile organic compounds (VOC). VOC emissions are generally slightly less than ROG, because the VOC definition excludes certain compounds such as ethane, acetone, methyl acetate, and perchloroethylene, which do not contribute to ozone formation. The reader may find both terms used in this document.

Particulate Matter (PM_{10})

Airborne particulate matter (PM) is not a single pollutant, but rather is a mixture of many chemical species. It is a complex mixture of solids and aerosols composed of small droplets of liquid, dry solid fragments, and solid cores with liquid coatings. Particles vary widely in size, shape and chemical composition, and may contain inorganic ions, metallic compounds, elemental carbon, organic compounds, and compounds from the earth's crust. Particles are defined by their diameter for air quality regulatory purposes. Those with a diameter of 10 microns or less (PM10) are inhalable into the lungs and can induce adverse health effects. Fine particulate matter is defined as particles that are 2.5 microns or less in diameter (PM2.5). Therefore, PM2.5 comprises a portion of PM10

DISCUSSION OF IMPACTS:

(4.3a) No Impact. As discussed above**,** the applicable regional air quality plan is the Northern Sacramento Valley Planning Area 2021 Triennial Air Quality Attainment Plan. Because the Project does not exceed construction or operational emission thresholds, it is generally considered consistent with the 2021 Plan. Furthermore, all Projects in Shasta County are subject to SCAQMD air quality rules and regulations and are required to obtain Project review through the construction permitting process. Thus, the Project will be screened and determined consistent with applicable state and Federal air quality regulations detailed in the regional 2021 Plan, prior to implementation. The Project has been programmed in the Shasta County 2015 Regional Transportation Plan (2015 RTP), which is a regional document consistent with all levels of government. Regarding conformity with applicable air quality plans, the Project will have no impact.

(4.3b-d) Less Than Significant. The Project would temporarily impact air quality in the local area during construction. The Project would cause a temporary increase in NO_X and ROG emissions due to the usage of gas-powered construction vehicles and equipment and will cause an increase in trips generated to and from the construction site by workers. An increase in PM_{10} may occur due to dust associated with driving within the construction site, excavation, and clearing/grubbing. For this reason, the Project was screened through the CalEEmod using construction duration, techniques, equipment, and mitigation estimated inputs. CalEEmod analyzes potential daily emissions for all criteria pollutants during Project construction and post-construction operational uses and derives analytics. During construction or operation, the Project was determined not to exceed significance thresholds for applicable criteria pollutants. As mentioned in the above discussion, Shasta County is in non-attainment for the state standard of ozone

(O3). As determined by the CalEEmod, the Project would not cause a net increase for the criteria pollutant ozone.

The CalEEmod derives conclusions based on estimations using factors such as idle time, vehicle trips generated, construction duration, equipment efficiency, and energy use. Because these factors may change during construction it is appropriate to implement conditions to limit the potential for impacts to become significant. Furthermore, Project activities are in proximity to sensitive receptors, being Grand Oaks Elementary School. School is typically in session from 8am – 2:30pm and will potentially coincide with construction activities. Construction activities have the potential to expose sensitive receptors to odors and low quantities of pollutants such as PM_{10}, CO, and NO_x. Typically, odors related to road construction are not considered significant or a health hazard but can in some cases cause adverse reactions.

Implementation of the Project will encourage the use of alternative modes of transportation, such as walking and biking, and will likely improve air quality in the immediate area. In addition, all projects within the City of Shasta Lake are required to implement and adhere to the Standard Conditions of Approval for Discretionary Entitlements and Permits (Standard Conditions). Applicable Standard Conditions regarding air quality can be referenced below. Implementation of the Standard Conditions will ensure impacts will be less than significant.

COSL Standard Conditions – Air Quality

The following standard mitigation measures shall be applied during grading activities to control dust and PM10 emissions:

a) Suspend all grading operations when winds (as instantaneous gusts) exceed 20 miles per hour.

b) Water active construction sites at least twice daily, as directed by the Public Works Department.

c) Apply non-toxic soil stabilizers according to the manufacturer's specification to all graded areas which will be inactive for ten days or more.

d) Provide temporary traffic control (flag person), as appropriate, during all phases of construction to improve traffic flow.

e) All public roadways used by the project contractor shall be maintained free from dust, dirt and debris caused by construction activities. Streets shall be swept at the end of the day if visible soil materials are carried onto adjacent public paved roads. Wheel washers shall be used where vehicles enter and exit unpaved roads onto paved roads, or trucks and any equipment shall be washed off prior to leaving the site with each trip.

f) An adequate vehicle access point, such as a crushed rock entrance sufficient to prevent the transport of dirt, mud, and debris offsite, shall be required.

g) All trucks hauling dirt, sand, soil or other loose materials should be covered or should maintain at least two feet of freeboard (minimum vertical distance between the top of the load and the top of the trailer), in accordance with the requirements of California Vehicle Code Section 23114. This provision is enforced by local law enforcement agencies.

h) Construction activities that could affect traffic flow shall be scheduled for off-peak hours. Heavy truck trips involved in the hauling of soil to the site shall be limited to the hours of 9:00 A.M. to 4:00 P.M., Monday through Friday. Hauling activity may occur on Saturday from 8:00 A.M. to 6:00 P.M. No work is allowed on Sundays.

i) Exposed stockpiles of soil and other fill material shall either be covered, watered or have soil binders added to inhibit dust and wind erosion

4.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
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 Game or US Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
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?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

ENVIRONMENTAL SETTING:

The Project is located in the City of Shasta Lake, just north of the City of Redding along Interstate 5. The Project includes improvements to numerous existing roads, construction of a new roadway, and an improvement of a 2-acre open space area adjacent to Moody Creek that will integrate green space, native landscaping, improved trails, and green sustainable stormwater infrastructure. The Project site surrounds the approximately 11-acre commercial center property, and is located on Cascade Boulevard, Grand Avenue, Shasta Way, Shasta Dam Boulevard, and the newly proposed Wonderland Boulevard. A majority of the Project site has been highly disturbed from previous urban, residential, and commercial developments, with the exception of the riparian area associate with Moody Creek.

A Biological Resource Assessment (BRA) was prepared for the project by Gallaway Enterprises, December 2016 (Appendix B). The purpose of the BRA is to document the endangered, threatened, sensitive, and rare species, and their critical habitats that occur or may occur in the Biological Survey Area (BSA) of the Project. A habitat assessment and general biological and botanical surveys were conducted within the BSA to evaluate site conditions and potential for biological and botanical species to occur. Primary references consulted include species lists and information gathered using United Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC), California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB), the California Native Plant Society's (CNPS) list of rare and endangered plants, and literature review. A Draft Delineation of Aquatic Resources report was developed for the Project by Gallaway Enterprises, June 2024 (Appendix C). The purpose of the Delineation is to establish and document the existence, location, and physical limits of any wetlands, hydrological features, and other waters of the United States (WOTUS), within the Project boundary. Field surveys were conducted on November 16, 2023, April 8, 2020, April 10, 2018, December 6, 2016, and involved an examination and determination of wetland hydrology and associated soils and vegetation.

The following information is based on the survey results and analysis documented in the Biological Resource Assessment and Draft Delineation of Aquatic Resources, prepared for the Project:

<u>Vegetation</u>

The Project site consists of the following terrestrial and aquatic habitat types: annual grassland (2.35 acre), barren (3.27 acre), blue oak-foothill pine (1.01 acre), valley foothill riparian (0.10 acre), riverine (0.24 acre), urban (0.44 acre), and lacustrine (0.03 acre). No special status plant species were observed during field surveys.

Blue oak-foothill pine, valley foothill riparian, and riverine habitats are primarily associated with the banks, streambed, and upland areas adjacent to Moody Creek, with a couple scattered stands of blue oak foothill-pine near the southeast and southwest sections of the Project Site. These habitat types, as indicated by the field surveys, were characterized as having a moderately dense canopy and understory, of the following tree and shrub species: foothill pine (*Pinus sabiniana*), blue oak (*Quercus douglasii*), interior live oak, valley oak (*Quercus lobata*), tree of heaven (*Ailanthus altissima*), Fremont's cottonwood (*Populus fremontii*), a few scattered California sycamore (*Platanus racemose*), mulberry (*Morus alba*), wild oats (*Avena sp*.), rip-gut brome (*Bromus diandrus*), hedge parsley (*Torilis arvensis*), poison oak (*Toxicodendron diversilobum*), and purple needlegrass (*Stipa pulchra*).

Annual grassland, barren, and urban habitat types occur throughout the Project site and are composed of highly disturbed and cleared areas, including gravel and paved driveways, homesites, and trails. Plant and tree species in these areas include ornamental and non-native trees, hedges, and various grasses of the following types: silver wattle acacia (*Acacia dealbata*), silver maple *(Acer saccharinum)* hybrid poplar (*Populus* sp./*Populus x canadensis),* medusahead *(Elymus caputmedusae), vetch (Vicia villosa),* wild oats *(Avena sp.),* Fitch's spikeweed *(Centromadia fitchii),* narrow leaf plantain *(Plantago lanceolata),* yellow star thistle *(Centaurea solstitialis),* Italian ryegrass *(Festuca perennis),* and broadleaf filaree *(Erodium botrys).* Lacustrine habitats occur within the Project site as stormwater control features in the form of man-made ditches and swales.

Lacustrine habitats are characterized as inland depressions or dammed riverine channels containing standing water. Vegetation within these areas included cattails (*Typha latifolia*), arroyo willow (*Salix lasiolepis*), dalisgrass (*Paspalum dilatatum*), tall nutsedge (*Cyperus eragrostis*), Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), perennial rye-grass (*Festuca perennis*), and curly dock (*Rumex crispus*). Vegetation within and surrounding the ditch include annual saltmarsh aster (*Symphyotrichum subulatum var. parviflorum*), Spanish lotus (*Acmispon americanus*), Bermuda grass (*Cynodon dactylon*), and dalisgrass. The areas lining the swales/ditches were dominated by a tree canopy of cottonwoods (*Populus fremontii*) with a few scattered arroyo willows and non-native trees including silver wattle (*Acacia dealbata*) and cherry plumb (*Prunus cerasifera*), and an understory of periwinkle (*Vinca major*), Himalayan blackberry (*Rubus armeniacus*), and dalisgrass. The Project site does not contain suitable habitat for candidate or special status plant species.

Aquatic Resources

A series of lateral/perpendicular man-made ditches and swales, meant to convey stormwater runoff, are present within the Project site. The stormwater control features were constructed in the upland areas following the removal of a housing development that had previously occurred on the Property. These stormwater control features were constructed solely to convey stormwater runoff and are not excavated in or part of a relocated tributary.

The dominant aquatic feature within the Project site is Moody Creek. Moody Creek is an intermittent stream and tributary to the Sacramento River, that flows southeasterly through a northeastern section of the Project site. Tributaries are waters that exhibit physical indicators of flow, which include a bed, banks, and ordinary high-water mark (OHWM), but lack positive indicators for one or more of the three wetland test parameters. No wetland features were observed within the Project site. Moody Creek confluences with West Fork Stillwater Creek approximately 4.5 miles southeast of the BSA, and in turn, confluences with the Sacramento River approximately 15 miles southeast of the BSA, and southeast of the city Redding near Anderson, California. Moody Creek was intermittent and dry in portions of the Project site and ponded in others, as observed during the site visit. The aquatic habitat composition consisted of deep pools with large cobble, boulders, or bedrock and shallow pools with low gradient banks consisting of either gravel, sand, or silt. The creek is surrounded by blue oak-foothill pine and patches of valley foothill riparian habitats, providing a matrix of habitat for a variety of terrestrial wildlife species including nesting birds, tree roosting bats, and migration corridors for larger mammalian species.

Animal Species

Candidate, sensitive, or special status animal species with a low to high potential for occurrence within the Project site are the northwestern pond turtle (*Actinemys marmorata) (NPT)*, foothill yellow-legged frog - north coast DPS (*Rana boylii* pop. 1)(FYLF), and the pallid bat (*Antrozous pallidus*). The Project site contains suitable habitat for a variety of migratory birds and raptors protected under the Migratory Bird Treaty Act (MBTA). Essential Fish Habitat occurs within Moody Creek, however the section of the Creek within the Project site does not contain suitable habitat in the form of adult holding pools suitable for juvenile rearing.

DISCUSSION OF IMPACTS:

(4.4a) Less Than Significant with Mitigation Incorporated. Candidate, sensitive, or special status animal species with a low to high potential for occurrence within the Project site are the northwestern pond turtle (*Actinemys marmorata) (NPT)*, foothill yellow-legged frog - north coast DPS (*Rana boylii* pop. 1)(FYLF), and the pallid bat (*Antrozous pallidus*). The Project site contains suitable habitat for a variety of nesting migratory birds and raptors protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.

Northwestern Pond Turtle

The northwestern pond turtle (NPT) is a species of special concern in California. NPT are drab, darkish colored turtles with yellowish to cream colored heads. They range from the Washington Puget Sound to the California Sacramento Valley. NPT are frequently found within irrigation canals and drainages throughout their range in the Central Valley and are known to bask on banks and woody debris, such as

logs, along the sides of perennial aquatic features. They are also known to travel up to 400 meters from aquatic habitat into upland areas to nest (Reese and Welsh 1997) and they may aestivate in upland areas along intermittent drainages for several months during dry periods (Belli 2015). Suitable aquatic habitats include slow-moving to stagnant water, such as backwaters and ponded areas of rivers and creeks, semi-permanent to permanent ponds, and irrigation ditches. Preferred habitats include features such as hydrophytic vegetation for foraging and cover and basking areas to regulate body temperature. In early spring through early summer, female turtles begin to move over land in search for nesting sites. Eggs are laid on the banks of slow-moving streams. The female digs a hole approximately 4 inches deep and lays up to 11 eggs. Afterwards, the eggs are covered with sediment and are left to incubate under the warm soil. Eggs are typically laid between March and August (Zeiner et al. 1990). Current threats facing the western pond turtle include loss of suitable aquatic habitats due to rapid changes in water regimes and removal of hydrophytic vegetation.

The western pond turtle has a high potential to occur within areas of the Project site associated with Moody Creek. Moody Creek contains ponded water features, fresh emergent vegetation, and rocks and logs suitable for foraging, basking, and nesting. There are five (5) CNDDB occurrences of NPT within a five-mile radius of the Project site, however none occurred in any area with a direct hydrological connection to Moody Creek. No western pond turtles were witnessed during the biological field surveys.

Project activities will occur in the upland areas adjacent to Moody Creek, however no activities will occur on the immediate banks or within wetted portions of the Creek. Direct and indirect impacts to western pond turtles will be avoided by conducting focused surveys prior to commencement, relocating turtles if encountered, and establishing exclusion fencing around Project activities adjacent to Moody Creek. Should the ESA status of WPT be elevated prior to Project commencement, and WPT be encountered during focused surveys or Project activities, USFW shall be consulted. With the implementation of mitigation measure MM-BIO-1 (Special Status Aquatic Species), impacts are considered less than significant with mitigation incorporated.

<u>Foothill Yellow-legged Frog</u>

The foothill yellow-legged frog (FYLF) Northwest Clade is listed as a state Species of Special Concern (SSC). Suitable habitat for the FYLF includes a permanent water source which may include wet meadows, and rocky steep streams in mixed chaparral or woodland habitats. FYLFs utilize the rocks within their surroundings for areas of refuge from predators, basking and cover during periods of in-activity such as over wintering or cold weather. Breeding season begins at the end of the spring flood season, which can be between March and May depending on local conditions. Egg laying typically occurs at a particular site once water temperatures reach 12 to 15° C. FYLF requires shallow, even-flowing water in small to moderate sized streams with cobble/boulder substrate for oviposition. The cobble/boulder substrate also provides significant refuge for early life stages of FYLF. Eggs, tadpoles, and metamorphs are susceptible to aquatic predators such as bullfrogs, various species of fish, and garter snakes (Thamnophis sp.). Irregular water flows from large seasonal precipitation events and large water releases from upstream reservoirs can scour egg masses from oviposition locations. Current threats facing the FYLF are primarily due to invasive and exotic predators such as the bullfrog. Other threats include degradation of habitat, urban development, agriculture and timber harvests.

The reach of Moody Creek in the Project site provides suitable breeding habitat. Aquatic habitat is characterized by low gradient, slow moving water, dominated by a coarse, gravelly substrate with fine sands and silt as well as small to large size angular rocks and cobbles. Available amphibian habitat includes undercut banks, overhanging vegetation, and some instream woody debris. In addition, Moody Creek provides a migration corridor for this species. No FYLF has been observed within the BSA during any habitat assessment conducted in 2016, 2018, 2019, 2020 or 2023. Moody Creek provides suitable habitat for the FYLF; however, none have been documented within Moody Creek; therefore, the potential for occurrence within the Project site is low.

Project activities will occur in areas adjacent to Moody Creek, however no activities will occur on the immediate banks or within wetted portions of the Creek. Direct and indirect impacts to FYLF will be avoided by conducting focused surveys immediately prior to project commencement, relocation of any FYLF encountered, and establishing "no-entry" barriers around key FYLF habitat. With the implementation of mitigation measure MM-BIO-1 (Special Status Aquatic Species), impacts are considered less than significant with mitigation incorporated.

<u>Pallid Bat</u>

Pallid bats are designated as a CDFW SSC. Pallid bats roost alone, in small groups (2 to 20 bats), or gregariously (100s of individuals). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of coast redwoods and giant sequoias, bole cavities of oaks, exfoliating Ponderosa pine and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges (especially wooden and concrete girder designs), barns, porches, bat boxes, and human-occupied as well as vacant buildings. Roosts generally have unobstructed entrances/exits, and are high above the ground, warm, and inaccessible to terrestrial predators. However, this species has also been found roosting on or near the ground under burlap sacks, stone piles, rags, and baseboards. Pallid bats have low roost fidelity and both pregnant and lactating pallid bats changed roosts an average of once every 1.4 days throughout the summer. Overwintering roosts have relatively cool, stable temperatures and are located in protected structures beneath the forest canopy or on the ground, out of direct sunlight. In other parts of the species' range, males and females have been found hibernating alone or in small groups, wedged deeply into narrow fissures in mines, caves, and buildings. At low latitudes, outdoor winter activity has been reported at temperatures between – 5 and 10 °C.

There are mature trees within the Project site that provide suitable bird cavities and foliage for tree roosting bat species. No trees within the Project site were observed to have sloughing bark; therefore, solitarily roosting species that roost on leaves of trees or within small avian-made cavities have a higher potential to occur, while species that require sloughing bark or basal cavities to form large maternity colonies have no potential to occur. The potential for occurrence within the Project site is low.

The Project site contains mature trees that may provide suitable habitat for day roosting pallid bats. Removal of these trees may have a significant impact on bats using the area; therefore, mitigation is proposed. With the implementation of mitigation measure MM-BIO-2 (Pallid bat), impacts to pallid bats are considered less than significant with mitigation incorporated.

<u>Nesting Migratory Birds and Raptors</u>

Nesting birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703) and the California Fish and Game Code (CFGC) (§3503). The MBTA (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance have the potential to affect bird species protected by the MBTA. The CFGC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFGC (§3503) also states that "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

The Project site contains suitable habitat for a variety of ground, shrub, and tree nesting avian species. Removal of vegetation that may provide habitat for avian species has the potential to impact the population. The potential for avian species to nest within the Project site is high, therefore mitigation is proposed. With the implementation of mitigation measure MM-BIO-3 (Nesting Migratory Birds and Raptors), impacts are considered less than significant with mitigation incorporated.

(4.4b) Less Than Significant Impact. The BRA developed for the Project determined no Sensitive Natural Communities identified by CDFW, USFW, or a local or regional plan are present within the Project site. The Project site contains riparian habitat associated with Moody Creek; however, no Project activities are proposed within these areas. Project activities occurring adjacent to Moody Creek have been designed to avoid encroachment into the riparian vegetation, therefore this will be a less than significant impact.

(4.4c) No Impact. A Draft Delineation of Waters of the U.S. was developed for the Project to determine the extent of aquatic resources onsite. With the exception of Moody Creek, the draft delineation report indicates no wetlands or Waters of the U.S., as defined by §404 of the Clean Water Act, occur onsite. Previous review by the U.S. Army Corps of Engineers (SPK-201900856) determined, as part of the review for the commercial center that makes up the core of the site, that the aquatic features on the site are not subject to §404 of the Clean Water Act, except for Moody Creek. However, the aquatic features present onsite are subject the §401 of the Clean Water Act as administered by the State Waterboard. Project activities will not change the hydrology of Moody Creek. No direct or indirect impacts will occur.

(4.4d) Less Than Significant with Mitigation Incorporated. Moody Creek is situated within the Clear Creek-Sacramento River watershed and is designated as a NMFS Essential Fish Habitat (EFH) for Chinook Salmon. Moody Creek confluences with West Fork Stillwater Creek approximately 4.5 miles southeast of the BSA, and in turn, confluences with the Sacramento River approximately 15 miles southeast of the BSA, and southeast of the city Redding near Anderson, California. The COSL General Plan 2040 identifies Stillwater Creek as a protected resource and establishes goals and policies to minimize potential impacts. No Project activities are proposed within the riparian or riverine habitats onsite.

The Project site contains mature trees and shrubs suitable for nesting migratory birds and roosting bats. Migratory birds and bats are protected under the Federal Migratory Bird Treaty Act and California Fish and Game Code. Should the Project remove trees or shrubs suitable for nesting/roosting, potentially significant impacts may occur; therefore, mitigation is proposed. With the implementation of mitigation measure MM-BIO-3, impacts are considered less than significant with mitigation incorporated.

(4.4e) No Impact**.** The COSL General Plan outlines goals and policies protecting the riparian and riverine areas associated within the region. The Project contains riparian and riverine habitat near the northeast section, associated with Moody Creek. The Project has been planned and designed to avoid these resources.

The City of Shasta Lake Code of Ordinances, Title 12, Chapter 12.36 “Tree Conservation” establishes criteria for the conservation of protected trees within city limits, with exemptions outlined in chapter 12.36.50. The Project assumes compliance with all local ordinances and permit requirements established in the COSL Code of Ordinances. No conflict with a local policy or ordinance is anticipated; therefore, no impacts will occur.

(4.4f) No Impact*.* According to the CDFW Natural Community Conservation Planning Program (NCCP) website, and the USFW Habitat Conservation Plan (HCP) website, accessed August 8, 2024, the Project is not located within an adopted or proposed Natural Community Conservation Plan or Habitat Conservation Plan. The Project is not in conflict with an adopted NCCP/HCP. No impacts will occur.

MITIGATION:

MM-BIO-1 (Special Status Aquatic Species)

The following measures are required to avoid and minimize potential impacts to special status aquatic species within the Project site.

- Conduct a preconstruction survey no later than 48 hours prior to ground disturbance. pre-construction surveys will be conducted by a qualified biologist within the Project limits for western pond turtle and foothill yellow-legged frog. If a NPT or FYLF is observed in the Project limits during construction, all work will be stopped, and the turtle or frog will; be allowed to leave on its own volition; or be moved by the Project biologist in the direction it was heading, at a safe distance from the project activities, and at a safe location.
- Exclusionary fencing shall be installed around all sensitive habitats and construction areas adjacent to the riparian and upland areas near Moody Creek.
- Should the protection status of western pond turtle or foothill yellow-legged frog be elevated before or during Project activities, consultation with USFW will occur.
- Project staff shall monitor and inspect the exclusionary fencing on a daily basis. Should the fencing be damaged or need reinstallation, Project staff shall contact a qualified biologist for reinstallation.

MM-BIO-2 (Pallid Bat)

The following measures are required to avoid and minimize potential impacts to the Pallid Bat.

- If trees containing suitable bat habitat (i.e. sloughing bark, cavities, or crevices) are removed between March 15 and August 31, a qualified biologist will conduct a preconstruction survey for roosting bats within seven days prior to tree removal. The survey will focus on suitable habitat to determine the absence or presence of roosting bats and type of roost within the tree. If the pre-construction survey determines that bats are not using the trees onsite as day roosts, then tree removal can proceed as planned.
- If the tree is being utilized as a day roost and the qualified biologist determines that it is a maternity roost, then removal of the tree will be postponed until consultation with CDFW occurs. If the roost is not a maternity roost or if tree removal occurs during the winter months (i.e. October 16 – February 14), then the following phased removal of the occupied tree will be implemented:
  - Day 1: All unoccupied roosting habitat (e.g. crevices, sloughing bark, cavities) should be removed or altered to make it less desirable for roosting. All portions of the tree that do not contain suitable habitat can be removed while avoiding occupied habitat.
  - Day 2: All remaining portion of the tree including suitable roosting habitat can be removed. A qualified biologist shall be onsite during tree removal activities if bats are detected.

MM-BIO-3 (Nesting Migratory Birds and Raptors)

The following measures are required to avoid and minimize potential impacts to nesting and migratory birds and raptors within the Project site.

- If vegetation removal or initial ground disturbances occur during the avian breeding season (February 1 – August 31) the applicant shall hire a qualified biologist to conduct a nesting migratory bird and raptor survey to identify any active nests within 50 feet of Project activities. A qualified biologist shall:
    - Conduct a pre-construction survey for nesting migratory birds and raptors within 7 days prior to the initiation of Project activities, and map all active nests located within 50 feet of proposed construction areas.
    - Develop buffer zones around active nests as recommended by a qualified biologist. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails.
    - If construction activities stop for more than fifteen (15) days, then another migratory bird and raptor survey shall be conducted within seven (7) days prior to the continuation of construction activities.
    - The qualified biologist shall document, and make available to the applicant, the survey results.

4.5 CULTURAL RESOURCES

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations, Section 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CA Code of Regulations, §15064.5?			X	
c) Disturb any human remains, including those interred outside of formal cemeteries?			X	

DISCUSSION OF IMPACTS:

(4.5a-c) Less Than Significant. Since the Project could ultimately involve physical disturbance to ground surface and sub-surface components in conjunction with road safety development, it has the potential to impact cultural resources that may be located within the Project site. Evaluation of the project's potential to impact cultural resources must be undertaken in conformity with both City of Shasta Lake and Shasta County rules and regulations, and in compliance with requirements of the California Environmental Quality Act of 1970, Public Resources Code, Section 21000, et seq. (CEQA), and The California CEQA Environmental Quality Act Guidelines, California Administrative Code, Section 15000 et seq. (Guidelines as amended).

Genesis Society prepared a Cultural Resources Inventory Survey (CRIS) and Historic Properties Survey Report (HPSR) in December 2023 (Appendix D). In support of the CRIS, Genesis Society staff conducted an archival record search, consultations, and an archaeological field survey in order to identify the cultural resources occurring, or potentially occurring, in the Project area. The record search included a review of the data housed at the Northeast Information Center (NEIC) at CSU, Chico and a Sacred Lands search with the Native American Heritage Commission (NAHC). The consultation involved potentially interested local Native American groups, as identified by the NAHC. The results of CRIS, HPSR, records search, consultations and field survey area as follows:

Records Search and Pedestrian Survey

Existing records at the NEIC document that all of the present Project site had been subjected to previous archaeological investigation, and that no cultural resources had been documented within the Project site. As well, the present effort included an intensive-level pedestrian survey. The pedestrian survey failed to identify any cultural resources within the Project site.

The present field survey confirmed that the property had been subjected to ground disturbing impacts along virtually the entire APE. Road construction and ongoing maintenance has contributed to nearly all of the APE being subjected to intensive ground disturbance. Similarly, buried utilities have further impacted subsurface soils to an even greater depth than road construction. Finally, decades of residential construction and ultimately wholesale demolition within the commercial center lands, and the lands within the eastern and northern portions of the APE have further resulted in ground surface and subsurface disturbances likely to have destroyed any cultural resources that may have once been present

No evidence of prehistoric use or occupation was observed within the APE. The absence of such materials might best be explained by the degree of disturbance to which the entire APE has been subjected. No evidence of historic-era resources was observed within the APE. The absence of such resources is best explained by the level of disturbance within, and adjacent to the APE.

Consultation with Interested Parties

Consultation was undertaken with the Native American Heritage Commission (NAHC) re. sacred land listings for the property. An information request letter was delivered to the NAHC on November 3, 2023. The NAHC responded with a letter dated December 8, 2023, indicating that a search of their Sacred Lands files returned negative results.

In summary, the CRIS, HPSR, records search, NAHC consultations and field survey returned negative results. No cultural resources have been documented at the Site. Further, the probability of encountering buried archaeological sites within the APE is low due to a high level of previous ground disturbance within the Project site. However, there is always a possibility of unearthing an archaeological site during ground-disturbing activities. All projects within the City of Shasta Lake are required to implement Standard Conditions. With the implementation of the Standard Conditions listed below, impacts regarding cultural resources are considered less than significant.

COSL Standard Conditions – Cultural Resources

The following Standard Conditions shall be applied during grading activities to mitigate potential impacts to cultural resources:

a) If during the course of construction or pre-construction activities on the site any archeological, historical, or paleontological resources are uncovered, discovered, or otherwise detected or observed, all earthwork and /or construction within one hundred feet (100’) of these materials shall be stopped immediately, the City shall be notified, and a professional archeologist, certified by the Society of California Archeology and/or the Society of Professional Archeology, in consultation with other affected parties such as local Native American groups, shall conduct a review of the materials. Site work and construction in the area shall not occur until the archeologist has had an opportunity to evaluate the significance of the find and outline appropriate mitigation measures deemed necessary to provide protection of the materials and/or the site

b) Should any human remains be found during the construction project, construction in the area shall stop immediately and reported to the County Coroner. Construction shall not proceed until the County Coroner has determined such construction will not further impact human remains.

4.6 ENERGY

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

ENVIRONMENTAL SETTING

The Project aims to improve transportation infrastructure to create safe routes to Grand Oaks School and enhance connectivity between residential neighborhoods, commercial centers, and open spaces. The project includes road improvements, the construction of a new roadway, and the development of a 2-acre open space area adjacent to Moody Creek. The Project will integrate complete streets components, green stormwater infrastructure, and native landscaping.

DISCUSSION OF IMPACTS

(4.6a-b) Less Than Significant. Energy consumption during construction would occur from diesel, gasoline, and electrical inputs. Operational energy use would occur from the proposed lighting improvements including streetlights and pedestrian lighted areas near the open space component of the Project. The Project does not involve the construction of any building. All equipment used during construction would be regulated by the California Air Resources Board (CARB) which sets emission standards for equipment. Compliance with state regulations regarding energy consumption would ensure the Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. Potential impacts are considered less than significant.

4.7 GEOLOGY AND SOILS

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:			X	
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?			X	
ii.) Strong seismic ground shaking?			X	
iii.) Seismic-related ground failure, including liquefaction?			X	
iv.) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
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 waste water?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	

ENVIRONMENTAL SETTING:

According to the Department of Conservation (DOC) Earthquake Hazards Zone online map, the Project site is not located within an Alquist-Priolo Earthquake Hazard, Liquefaction, or Landslide Zone. Additionally, the DOC Fault Activity Map of California shows the known or inferred Battle Creek Fault line lies approximately 21 miles south near the town of Cottonwood.

DISCUSSION OF IMPACTS:

(4.7a-aiv) Less Than Significant. Activity within the Battle Creek fault would produce low to moderate shaking potential in relation to the Project site. Because the Project site is not located within a hazard zone and the nearest known fault is 21 miles away, direct or indirect impacts regarding ground shaking, liquefaction, or landslides are considered less than significant.

(4.7b-d) Less Than Significant. Soil within the Project site would be temporarily exposed due to minor grading and clearing associated with construction. Exposure to the elements could potentially cause erosion and sedimentation.

All projects disturbing one acre or more must comply with and obtain coverage under the applicable National Pollution Discharge Elimination Permit (NPDES) from the California Regional Water Quality Control Board (CRWQCB) per §402 of the Clean Water Act. As part of the NPDES permit, a Storm Water Pollution Prevention Plan (SWPPP), that includes measures to further reduce pollution as a result of storm events, would be required. Additionally, Project activities would be subject to the COSL Construction Standards §100-800. Compliance with the above Federal, state, and local regulations would ensure Project activities would not result in substantial soil erosion, soil instability, or the loss of topsoil.

(4.7e) No Impact. No septic or alternative wastewater systems are proposed by the Project. No impacts would occur.

(4.7f) ***Less Than Significant.*** No known unique paleontological resource/site or unique geologic feature occurs onsite. The Project site has been highly disturbed from past housing developments and associated road developments. Project activities would primarily occur on the shoulders of existing roadways, with the exception to the proposed open space improvements adjacent to Moody Creek, and the proposed Wonderland Ave road construction. Due to the highly disturbed character of the site, the potential to encounter surface-level paleontological resources is considered low but cannot be excluded. Given the Project involves grading and excavation, inadvertent paleontological finds may occur. All projects in the City of Shasta Lake are required to implement Standard Conditions. With the implementation of the Standard Conditions outlined in section 4.5 “Cultural Resources”, related to paleontological resources, impacts are considered less than significant.

4.8 GREENHOUSE GAS EMISSIONS

Would the project:	**Potentially Significant**	**Less Than Significant with Mitigation**	**Less Than Significant**	**No Impact**
a) Generate greenhouse gas emissions, directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?				X

DISCUSSION OF IMPACTS:

(4.8a) Less Than Significant Impact. The Project is expected to produce minimal greenhouse gas emissions, both directly and indirectly. The Project involves no stationary sources of emissions, such as buildings, and will not cause an increase in vehicle miles traveled. Instead, the Project will contribute to a reduction in overall GHG emissions in the area by enhancing connectivity for vehicles, pedestrians, and recreational users. By improving connectivity, the Project will help decrease vehicle miles traveled, thus lowering GHG emissions. Additionally, it will create a safer and more convenient environment for all transportation users including children, people with disabilities, and other pedestrians to walk, bike, carpool, and use transit. The Project aims to alleviate traffic congestion near Grand Oaks School by constructing a new roadway, that is Wonderland Boulevard. Wonderland Boulevard will connect Grand Avenue and Cascade Boulevard and is expected to reduce queuing at intersections and lower school-related vehicle emissions. Construction related activities could contribute to a temporary increase in GHG emissions, however, with the implementation of the City of Shasta Lake Standard Conditions, outlined in section 4.3 Air Quality, impacts regarding greenhouse gas emissions will be less than significant.

(4.8b) No Impact. Furthermore, the Project is identified in the 2022 Shasta County Regional Transportation Plan (2022 RTP) which is subject to CEQA and has undergone an environmental impact report (EIR). The Project utilizes funds awarded from the Affordable Housing and Sustainable Communities (AHSC) federal program. The AHSC Program funds affordable housing and transportation projects close to jobs, schools, and other daily destinations to help California meet both its climate and equity goals. Because the Project is consistent with the previously vetted 2022 RTP, and is utilizing AHSC funds, it is required to align with California's emissions standards. No impacts would occur.

4.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	**Potentially Significant**	**Less Than Significant with Mitigation**	**Less Than Significant**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			**X**	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials, substances, or waste into the environment?			**X**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			**X**	
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, create a significant hazard to the public or environment?				**X**
e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				**X**
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			**X**	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death from wildland fires?				**X**

ENVIRONMENTAL SETTING:

The Project site is primarily within an urban setting, surrounded by residential, commercial, and open space areas. There are no known hazardous materials sites within the Project area, and the site is not listed on the Department of Toxic Substances Control's (DTSC) EnviroStor database or the State Water Resources Control Board's (SWRCB) GeoTracker database. However, standard construction activities may involve the use of hazardous materials such as fuels, lubricants, and solvents.

DISCUSSION OF IMPACTS:

(4.9a-b) Less Than Significant. The Project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The California Health and Safety Code defines hazardous materials as any material that could pose a significant present or potential hazard to human health and safety or the environment if released into the workplace or environment. Hazardous materials used during construction may include oils, gasoline/diesel fuel, lubricants, or other chemicals. The accidental release or spill of a hazardous substance could potentially cause adverse impacts to the environment. However, all hazardous material use would be subject to local, state, and Federal regulations regarding safe use and handling. Specifically, the 2022 Shasta County Hazardous Materials Area Plan (2022 Area Plan) establishes policies, responsibilities, and procedures to protect the health and safety of Shasta County's citizens, and the environment. The Shasta County Environmental Health division is the local governing body designated as the Certified Unified Program Agency (CUPA), by CalEPA. At the state level, the Project is subject to regulations enforced by the California Occupational Health and Safety Administration (CalOSHA). Due to the low potential for an accidental spill or release of hazardous materials, and the Project's assumed compliance with existing regulations, the Project is considered to have a less than significant impact.

(4.9c) Less Than Significant. Project activities will occur within a quarter mile from Grand Oaks Elementary School. Emissions would occur in the Project area due to the use of heavy machinery such as haul trucks and other gas/diesel equipment used during the construction. As stated above, and in the Air Quality section, emissions would be mitigated to a less than significant level and all handling and use of hazardous substances are subject to local and state regulations. The Project neither proposes to construct hazardous generating sites, such as manufacturing or maintenance facilities, nor will handle/emit waste or acutely hazardous substances. Less than significant impacts would occur.

(4.9d) No Impact. According to the EnviroStor database, there are no documented hazardous material sites within or near the Project site. EnviroStor is the Department of Toxic Substances Control's data management system for tracking our cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites, pursuant to Government Code §65962.5.

(4.9e) No Impact. The Project site is not associated with an airport land use plan and not within close proximity to an existing airport. The nearest public airport is the Redding Regional Airport and is approximately 13 miles south of the Project site.

(4.9f) Less Than Significant. The Project would not interfere with an adopted emergency response plan. The Project intends to improve the existing transportation facilities and enhance the connectivity of the region. Slight delays in response times may occur during construction due to increased work in the area, however would only be experience temporarily. Emergency response or evacuating vehicles have use of Front St. and Buena Vista St. Therefore, impacts relating to emergency response time would be less than significant.

(4.9g) No Impact. The Project involves transportation infrastructure and open space improvements. No people or structures are at risk from wildfires, as a result of the Project. No impacts would occur.

4.10 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
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:			X	
i) result in a substantial erosion or siltation on- or off-site;			X	
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			X	
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			X	
iv) impede or redirect flood flows?			X	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

ENVIRONMENTAL SETTING:

The Project site is located within the Sacramento River watershed and includes areas adjacent to Moody Creek, a local waterway that may be subject to seasonal variations in flow. The area is characterized by urban development with a mix of impervious surfaces, including roads and buildings, which contribute to stormwater runoff. Existing drainage patterns direct runoff toward Moody Creek and local stormwater infrastructure.

DISCUSSION OF IMPACTS

(4.10a) Less Than Significant. The proposed Project involves clearing, grading and minor excavation due to the construction of the new Wonderland Ave roadway, open space installations adjacent to Moody Creek, and various frontage area improvements. As a result, the Project could potentially impact water quality through the discharge of pollutants such as rock, sand, silt, chemicals, paints, and other solvents into a regulated stormwater system. To minimize these effects, the Project has proposed to incorporate sustainable storm water infrastructure in the form of bioretention ponds and bioswales meant to capture and filter storm water inputs.

Due to a disturbance of one or more acres of land, the Project would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB). Through the RWQCB permitting process the Project will be required to avoid, minimize, and/or compensate for potential discharges into regulated waterways. Further, the applicant would be required to develop a Storm Water Pollution Prevention Plan (SWPPP), through the NPDES permitting process, that would specify Best Management Practices regarding storm water runoff. The Project would be required to implement BMPs during construction that would further avoid, minimize, and prevent potential discharge of pollutants.

Compliance and possession of the NPDES permit and SWPPP would ensure the Project does not violate any water quality standards or waste discharge requirements. Additionally, all projects within the City of Shasta Lake are required to implement Standard Conditions. With the implementation of the Standard Conditions mentioned below in this section, impacts are considered less than significant.

(4.10b) Less Than Significant. The addition of new impervious surfaces including roads, sidewalks, curbs/gutters, and other paved surfaces, could result in less ground water retention. To offset this potential impact, the Project will construct multiple bioretention and bioswale facilities onsite. These facilities act as recharge sites collecting and filtering storm water from surrounding impervious surfaces ultimately returning water underground. Thus, the Project will not deplete groundwater supplies or interfere substantially with groundwater recharge. No net deficit in aquifer volume or a lowering of the local groundwater table level is anticipated; therefore, impacts are considered less than significant.

(4.10c-civ) Less Than Significant. The construction of new roadways and other infrastructure could alter existing drainage patterns, potentially leading to increased stormwater runoff and the risk of localized flooding. However, the Project includes green stormwater infrastructure designed to manage and treat runoff on-site, reducing the potential for downstream impacts, and incorporates complete streets components that account for stormwater control and management.

The Project involves no activities that would alter the course of a stream or river. The Project proposes to improve the frontage areas of the existing roads by constructing curbs, gutters, and sidewalks. Improvement of an open space adjacent to Moody Creek will occur and involves the installation of walking trails, pedestrian amenities, and green stormwater infrastructure. The design of these facilities would be required to demonstrate compliance with City/State post-construction storm water management standards including coverage under the NPDES permitting process.

Further, under the NPDES permit the Project is required to develop a SWPPP that incorporates BMPs during construction for water quality and storm water management. Compliance with City/State post-construction stormwater management standards and coverage under the NPDES permitting process will ensure the Project would not result in substantial erosion or siltation on or offsite; would not result in flooding on or offsite; would not result in substantial additional sources of polluted runoff. All projects within the City of Shasta Lake are required to implement Standard Conditions. The applicable COSL Standard Conditions, related to drainage at the site, are listed below. Impacts are considered less than significant.

(4.10d) Less than Significant. According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map No. 06089C1236G, a portion of the Project is located within Zone AE. Zone AE is a Special Flood Hazard Area subject to inundation by the 1% annual chance flood. The DOC California Tsunami Maps show the Project is not in a Tsunami or Seiche Hazard Area.

There is an approximate 1% chance the area in question experiences flooding each year. Additionally, the Project will not introduce new point sources of pollutants beyond existing conditions. The potential for pollutant releases due to flood inundation is extremely low; therefore, these impacts are considered less than significant.

(4.10e) Less than Significant Impact. As previously discussed, the Project is required to maintain compliance with the NPDES permitting process and City/State construction standards. Development of the SWPPP will further ensure the project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Further, all projects within the City of Shasta Lake are required to implement Standard Conditions. With the implementation of the Standard Conditions mentioned below, related to drainage and storm water infrastructure, impacts are considered less than significant.

COSL Standard Conditions – Hydrology and Water Quality

The following Standard Conditions shall be applied during project activities to mitigate potential impacts regarding hydrology and water quality:

a. Prior to issuance of building permits or final approval of improvement plans, drainage plans shall be submitted to the City Engineer for review and approval. Required storm drainage facilities shall be sized and installed in accordance with the improvement plans as approved by the City Engineer, and in accordance with the construction standards of the Public Works Department.

b. All development sites shall be graded, or alternative measures implemented, to ensure that no post-construction increases in site drainage crosses property lines. All post-construction development drainage shall be directed to a city street or other facility via City Engineer approved stormwater conveyance. Modifications to this requirement are at the sole discretion of the City.

c. Prior to improvement-plan approval, the Permittee shall prepare a Drainage Study in accordance with the Shasta Lake Municipal Code, City Council Policy and the requirements of the City Engineer. The Drainage Study shall address impacts from the 10-, 25-, and 100-year-storm events. Projects shall address peak flows to maintain predevelopment levels at all locations where drainage flows exit the project. The Drainage Study shall be stamped and signed by a registered Civil Engineer and provided to the City at the time of submittal of project improvement plans.

d. Storm-drain facilities shall be designed in accordance with the requirements of City Construction Standards, and good design practice. Project design shall incorporate Best Management Practices (BMPs) to prevent the polluting of stormwater, both during construction and over the life of the project. Should the maintenance costs of the long-term pollution-control measures within the public right of way or easements exceed typical storm-drain-management costs, such costs shall be borne by the project by participation in a landscape maintenance district, establishment of an escrow account, or by other City accepted financing mechanism.

4.11 LAND USE AND PLANNING

Would the project:	**Potentially Significant**	**Less Than Significant with Mitigation**	**Less Than Significant**	**No Impact**
a) Physically divide an established community?				**X**
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				**X**
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				**X**

ENVIRONMENTAL SETTING

The Project site is located in a predominantly urban setting, surrounded by residential neighborhoods, commercial centers, and open spaces. The project site itself includes existing roadways, sidewalks, and an area designated for open space development. According to the City of Shasta Lake's General Plan, the land use designations for the project area are primarily "Residential" and "Commercial," with the proposed open space area intended to enhance recreational opportunities for the community.

DISCUSSION OF IMPACTS

(4.11a-c) No Impact. The Project is consistent with the land use designations and policies outlined in the City of Shasta Lake General Plan 2040. The Project supports the General Plan's goals of improving pedestrian and bicycle connectivity, enhancing public safety, and increasing access to recreational spaces. The Project does not involve any changes to existing land use designations or zoning. The Project would not physically divide an established community. The Project aims to promote community connectivity by establishing multi-modal transportation infrastructure; enhancement of the open space near Moody Creek including pedestrian walking trails and amenities, and sustainable stormwater infrastructure; establishing a road connection between Grand Avenue and Cascade Boulevard; and constructing curbs, gutters, sidewalks, utilities, and drainage infrastructure on the surrounding existing roads.

The Project site is zoned for commercial development, therefore would not conflict with an applicable land use plan. Project activities are consistent with the goals and policies outlined in the COSL General Plan. No HCP/NCCP has been adopted for the area. The Project would result in no impacts to the land use and planning of the area.

4.12 MINERAL RESOURCES

Would the project:	**Potentially Significant**	**Less Than Significant with Mitigation**	**Less Than Significant**	**No Impact**
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				**X**
b) Result in the loss of availability of a locally-important mineral resource recovery site on a local general plan, specific plan or other land use plan?				**X**

ENVIRONMENTAL SETTING

Shasta County is known for various mineral resources, including aggregates, sand, gravel, and other materials essential for construction and industrial uses. However, the Project site itself is located within an urbanized area of the City of Shasta Lake, and there are no active or designated mineral resource extraction sites within the Project boundaries.

According to the COSL General Plan, there are no mineral extraction or mining operations within city limits. The Project site is not within an important Mineral Resource Zone, however, is classified as MRZ-3 (sand and gravel). A MRZ is an area designated by the DOC as having important mineral potential.

DISCUSSION OF IMPACTS

(4.12a-b) No Impact. The Project would not result in the loss of availability of a known mineral resource or mineral resource recovery site. Due to the lack of mineral resources within the Project site, no impacts would occur.

4.13 NOISE

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?			X	
b) Generation of excessive ground borne vibration or ground borne noise levels?			X	
c) For a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

ENVIRONMENTAL SETTING

The Project site is located in the City of Shasta Lake, just north of Redding, along Interstate 5 (I-5). The area surrounding the site includes a mix of commercial, residential, and natural open spaces, with the I-5 corridor being a significant contributor to the existing noise levels in the vicinity. The primary sources of existing noise in the Project area include vehicular traffic from I-5, local roadways, and typical urban activities associated with nearby residential and commercial areas.

The Project will involve construction activities and the development of infrastructure improvements, including a new roadway, sidewalks, curbs/gutters, lighting, development of an open space adjacent to Moody Creek, and installation of green stormwater infrastructure. The noise sources associated with the Project are predominately related to construction activities. Noise generated during construction would occur from machinery use such as bulldozers, graders, jackhammers, and haul trucks, during site preparation, grading, and road construction. Operational noise would occur in the long-term from vehicular traffic on improved and new roadways, pedestrian activities in open space areas, and use of amenities such as trails, seating areas, and picnic benches. Typical noise levels, measured at a distance of 50ft and 100ft, generated by common construction equipment are described below:

Table 4: Construction Equipment Noise Levels

Construction Equipment	Typical Noise Level Ranges at 50-100 feet (dB(A))
Bulldozer	80-85 dB(A)
Backhoe	75-85 dB(A)
Jackhammer	85-90 dB(A)
Concrete Mixer Truck	75-85 dB(A)
Excavator	80-90 dB(A)
Crane	80-85 dB(A)
Grader	85-90 dB(A)
Paver	85-90 dB(A)

Air Compressor	75-85 dB(A)
Dump Truck	75-85 dB(A)
Pile Driver	95-105 dB(A)
Chainsaw	85-100 dB(A)
Concrete Saw	90-100 dB(A)
Compactor (Roller)	75-85 dB(A)
Front-End Loader	75-85 dB(A)
Generator	70-80 dB(A)
Trencher	80-85 dB(A)
Scraper	80-90 dB(A)
Impact Hammer	90-100 dB(A)
Pneumatic Tools	85-90 dB(A)

Source: Federal Highway Administration, Construction Noise Handbook

The City of Shasta Lake's General Plan 2040 and Municipal Code sets forth noise standards for various land uses to protect public health and welfare. The standards consider both the source of the noise and the sensitivity of the receptor and determine appropriate thresholds based on time of day. Noise sensitive receptors typically include schools, hospitals, and residential areas, primarily during nighttime hours. The following table summarizes the COSL noise standards per time of day according to land use:

Table 5: COSL Noise Sensitivity Standards

Land Use Category	Time Period	Maximum Allowable Exterior Noise Level
Residential	Daytime (7:00 AM - 10:00 PM)	60 dB(A)
	Nighttime (10:00 PM - 7:00 AM)	45 dB(A)
Commercial	All Hours	65 dB(A)
Industrial	All Hours	70 dB(A) or higher, depending on specific activities
Open Space / Recreational	Daytime (7:00 AM - 10:00 PM)	60 dB(A)
	Nighttime (10:00 PM - 7:00 AM)	45 dB(A)
Public Facilities / Schools	Daytime (7:00 AM - 10:00 PM)	60 dB(A)
	Nighttime (10:00 PM - 7:00 AM)	45 dB(A) (if applicable)

Source: COSL General Plan 2040, COSL Municipal Code, Shasta County 2004

DISCUSSION OF IMPACTS

(4.13a-b) Less Than Significant. Project activities would occur within 100 feet of Grand Oaks Elementary School and the residential neighborhoods adjacent to Grand Avenue and Shasta Way; no residents occur within the Project boundary adjacent to Cascade Boulevard. One commercial business occurs at the intersection of Shasta Dam Boulevard and Cascade Boulevard but is located outside of the typical noise buffer zone. Construction would temporarily introduce ground borne vibrations and increase ambient noise levels due to the use of equipment identified in the table above.

Temporary noise generated during construction would occur intermittently and in short duration. Construction would be limited to daytime hours and is subject to all local, state, and federal regulations. The COSL 2040 General Plan, Noise Ordinance, and Municipal Code set forth specific limits concerning noise levels and hours of operations, in relation to land uses.

Further, the Project is subject to state, county, and local regulations regarding noise generated during construction, which include California Building Code (CBC) standards for construction-generated noise attenuation and Caltrans Standard Specifications §14-8.02, "Noise Control", and the COSL Standard Conditions. All projects within the City of Shasta Lake are required to comply with the Standard Conditions which outline specific measures intended to mitigate Project related impacts. The conditions of approval related to noise are referenced below. With the implementation of the above measures and Standard Conditions below, potential impacts are considered less than significant.

(4.13c) No Impact. The Project site is unaffected by the noise generated from the Redding Regional Airport, which is located approximately 13 miles to the south. No impacts are anticipated.

COSL Standard Conditions – Noise

The following Standard Conditions shall be applied during project activities to mitigate potential noise related impacts:

a. During construction, the Permittee shall comply with the following noise threshold periods established for construction activities.:

    a. Monday through Friday: 7:00 A.M. – 7:00 P.M.

    b. Saturday: 8:00 A.M. – 5:00 P.M.

    c. Sunday: No construction activities allowed.

    Construction activities shall not occur outside of the following time limits unless approved by the City pursuant to documented special circumstances. Special circumstances include the need to complete construction along public roadways or within public utility easements to ensure continued services or public safety. The City must approve such exceptions prior to commencement of the work.

MM-NOI-1 (Employ Best Noise Control Practices During Construction)

The following measures are required to avoid and minimize potential impacts related to construction noise:

- The City shall require all construction contractors to employ best noise control practices to minimize construction noise levels at nearby residences. The noise control shall include, at a minimum, the following best practices:

- Stationary equipment (e.g., generators, compressors, cement mixers, idling trucks) shall be located as far as possible from noise-sensitive land uses.
- Construction equipment powered by gasoline or diesel engines shall be required to have sound control devices that are at least as effective as those originally provided by the manufacturer; all equipment shall be operated and maintained to minimize noise generation.
- Excessive noise shall be prevented by shutting down idle vehicles or equipment.
- Noise-reducing enclosures shall be used around noise-generating equipment.
- Adjacent residents shall be notified in advance of construction work.
- Lead Agency staff shall verify that the above wording is included on construction plans

4.14 POPULATION AND HOUSING

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

ENVIRONMENTAL SETTING

The Project involves the construction of the newly proposed Wonderland Avenue. Wonderland Avenue will connect Grand Avenue and Cascade Boulevard such that traffic congestion near Grand Oaks Elementary School will be decreased. The Project will construct frontage area improvements including sidewalks, curbs, gutters, multimodal transportation options, and the improvement of an open space adjacent to Moody Creek.

The Project site is located within a developed urban area of the City of Shasta Lake, surrounded by residential neighborhoods, commercial centers, and schools. The area has a stable population, and housing stock primarily consists of single-family homes with some multi-family units. The Project site includes five (5) residential homes near the northwest section of the Project site, at the intersection of Grand Avenue and Shasta Way.

DISCUSSION OF IMPACTS

(4.14a-c) No Impact. The Project does not involve the development of new housing or businesses; therefore, will not contribute directly or indirectly to substantial population growth. The Project is identified in the Shasta County Regional Transportation Plan and is consistent with the COSL General Plan. The Project will not displace housing or people. Regarding population and housing, the Project will have no impact.

4.15 PUBLIC SERVICES

Would the project 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:	**Potentially Significant**	**Less Than Significant with Mitigation**	**Less Than Significant**	**No Impact**
a) Fire protection?				**X**
b) Police protection?				**X**
c) Schools?				**X**
d) Parks?				**X**
e) Other public facilities?				**X**

DISCUSSION OF IMPACTS

(4.15a-e) No Impact. The Project aims to provide a seamless network of complete streets by constructing multimodal transportation options, sidewalks, curbs, gutters, a new roadway, and improvements to the open space adjacent to Moody Creek. The Project will improve regional connectivity by constructing a new roadway between Grand Avenue and Cascade Boulevard.

The Project is expected to improve safety for pedestrians and bicyclists, particularly students, by enhancing the infrastructure in the area. This could reduce the potential for accidents and related incidents, thereby not significantly increasing the demand for police services. Additionally, the enhanced and newly constructed infrastructure could potentially reduce response times for emergency vehicles.

The SR2S project includes the development of a 2-acre open space area adjacent to Moody Creek, which will be enhanced with trails, native landscaping, and recreational amenities. This will increase recreational opportunities for residents and is consistent with the City's goals for park development.

The Project will not place additional strain on existing parks and recreational facilities. No new residential or commercial developments are proposed, so there will be no substantial increase in population requiring additional police protection. The Project will not cause an increase in the population such that service ratio demand relating to fire and police protection, schools, parks, or other public facilities will be adversely impacted. The Project will result in no impacts.

4.16 RECREATION

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?			X	

ENVIRONMENTAL SETTING

The Project involves the construction of sidewalks, curbs, gutters, and improvements to an open space adjacent to Moody Creek. The goal of the Project is to construct the transportation infrastructure necessary for safe multimodal use of the area. The result of the Project would be a more connected street system and an improved pedestrian park-like open space.

Open space improvements will include the installation of pedestrian amenities such as walking trails, lighting, seating, picnic benches, a shade structure, drinking fountains, trash receptacles, signage, and a bike rack. Currently, no recreational facilities are present in the area. The Project involves the installation of stormwater infrastructure including bioretention and bioswales and water-wise landscaping.

DISCUSSION OF IMPACTS

(4.16a-b) Less Than Significant. The Project activities mentioned above would have a temporary environmental impact during construction due to clearing, grading, and excavation. The operational extent of the proposed recreational facilities would not cause an adverse physical effect on the environment. The Project has been designed to include the amenities necessary to avoid and minimize impacts during use. Increased use of the area would occur, however would not substantially deteriorate facilities beyond existing conditions. Impacts regarding recreation are considered less than significant.

4.17 TRAFFIC AND TRANSPORTATION

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

ENVIRONMENTAL SETTING

The Project area is served by major roadways including Shasta Dam Boulevard (State Route 151) and Cascade Boulevard. These roads provide access to local residential neighborhoods, commercial centers, and Grand Oaks School. The existing transportation network includes vehicular traffic, pedestrian pathways, and bicycle routes, although some areas lack adequate infrastructure for non-motorized users. Traffic volumes are moderate, with peak periods during school drop-off and pick-up times.

The Project is identified in and consistent with the 2022 RTP, which is the regional transportation planning document for the COSL. Projects identified in the 2022 RTP are subject to the design standards, goals and objectives, and implementation strategies set forth by local, state, and federal agencies. Additionally, The Project is consistent with the COSL General Plan, which further establishes objectives and policies regarding design and safety criteria.

DISCUSSION OF IMPACTS

(4.17a-d) Less Than Significant. The proposed roadway improvements and new street construction are aimed at enhancing traffic flow and reducing congestion. The Project includes upgrades to existing roads and the addition of new infrastructure designed to improve connectivity and safety. These enhancements are expected to improve the overall level of service and will have negligible effects on traffic flow and congestion in the surrounding area. Traffic congestion may increase during construction due to increased work in the area. However, these effects are considered minimal and short-term. The Project's design and construction will not degrade the level of service on any affected roadway or intersection.

The Project will enhance facilities for pedestrians, bicyclists, and transit riders, including improved sidewalks, bike racks, and safe crossings. The construction of these facilities will provide multimodal transportation opportunities and will improve the safety of all users. The open space improvements will also provide amenities that promote walking and biking, aligning with the Project's goals to make these modes of transportation safer and more convenient. The Project will not contribute to an increase in hazardous transportation design.

CEQA Guidelines §15064.3, subdivision (b), outlines criteria for analyzing transportation related impacts and are predominately related to the subjects of vehicle miles traveled (VMT) and methods of analysis. According to criteria (2) in the CEQA Guidelines §15064.3, subdivision (b), transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. The construction of Wonderland Boulevard will reduce VMT by providing better connectivity between Grand Avenue and Cascade Boulevard and multimodal transportation infrastructure will help promote non-vehicular travel; therefore, impacts regarding VMT are considered less than significant.

4.18 TRIBAL CULTURAL RESOURCES

Would the project:	**Potentially Significant**	**Less Than Significant With Mitigation**	**Less Than Significant**	**No Impact**
Cause a substantial adverse change in the significance of a tribal cultural resource, defined in public Resources Code section 21074 as either a site, feature place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of the Historical Resources, or in a local register of historical resources as defined Public Resources Code section 5020.1(k), or			X	
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.			X	

DISCUSSION OF IMPACTS

(4.18a-c) Less Than Significant. The Project site is located within lands historically inhabited by the Wintu Indians; therefore, the potential of finding cultural resources cannot be excluded. A tribal cultural resource is referring to any site, feature, place, cultural landscape, sacred place, or object that may have cultural significance to a California Native American Tribe.

Genesis Society prepared a Cultural Resources Inventory Survey (CRIS) and Historic Properties Survey Report (HPSR) in December 2023 (Appendix C). In support of the CRIS, Genesis Society staff conducted an archival record search, consultations, and an archaeological field survey in order to identify the cultural resources occurring, or potentially occurring, in the Project area. The record search included a review of the data housed at the Northeast Information Center (NEIC) at CSU, Chico and a Sacred Lands search with the Native American Heritage Commission (NAHC). The consultation involved potentially interested local Native American groups, as identified by the NAHC. The results of CRIS, HPSR, records search, consultations and field survey returned negative results and determined the potential of encountering buried archaeological sites it low.

In accordance with Assembly Bill 52 (AB52), the COSL delivered notification letters in June 2024 to all tribes requesting notification. AB52 requires lead agencies to provide written notification to all tribes requesting notification of projects occurring within their traditional territory, with the intent of protecting and preserving tribal cultural resources. Regarding the AB52 letters sent out for the Project, no responses to date have been received.

According to the cultural resources report mentioned above, the probability of encountering tribal cultural resources is low due to the Project site being highly disturbed from previous developments. Consultation with the NAHC, regarding any findings of Sacred Lands, returned negative and no responses concerning the AB52 request letters have been received as of the date of this assessment. Potential impacts are considered less than significant.

4.19 UTILITIES AND SERVICE SYSTEMS

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

DISCUSSION OF IMPACTS

(4.19a-e) No Impact. The Project involves transportation infrastructure improvements and the development of open space, which will not significantly alter the demand for water services. No buildings or land uses will be constructed that require the treatment of wastewater. Water requirements for construction will be minimal and temporary. Construction activities would be serviced by on-site portable restroom facilities and/or existing facilities in the area. The Project's open space landscaping and green infrastructure will use drought-tolerant plants and sustainable practices, minimizing additional water demand and eliminating City wastewater capacity issues.

The construction of curbs, gutters, sidewalks, and other impermeable infrastructure, related to road construction, would alter existing drainage patterns resulting in the accumulation and disposal of stormwater runoff into the municipal sewer system. To reduce the potential for capacity related impacts to manage stormwater runoff effectively, the Project proposes to construct green sustainable stormwater infrastructure, such as bioretention areas, natural landscaping, and bioswales. These features will improve the existing stormwater management system by enhancing runoff capture, recharge and filtering processes. In addition, the Project would be required to obtain a Construction General Permit, therefore would demonstrate compliance with City /state regulations regarding wastewater/stormwater runoff. The COSL provides construction site BMPs to further mitigate runoff impacts. The Project's stormwater infrastructure has been designed to meet or exceed local standards, ensuring that it does not conflict with existing stormwater systems. Additionally, compliance with the City of Shasta Lake Standards of Approval regarding storm water drainage, outlined in section 4.10 “Hydrology and Water Quality”, will ensure impacts are minimal.

Because Project activities will not generate wastewater or solid waste causing increased demand for facilities and has been designed with sustainable green infrastructure and water-wise landscaping, the Project is expected to have no impacts on utilities or service systems.

4.20 WILDFIRE

Would the project:	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?				X
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?				X
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?				X

ENVIRONMENTAL SETTING:

The Project is located in a region of Northern California that is susceptible to wildfires, particularly during the dry summer months. The surrounding landscape includes a mix of urban development and natural vegetation, which can contribute to wildfire risk. The Project site itself is not located within a designated Very High Fire Hazard Severity Zone (VHFHSZ), but the general area is vulnerable to wildfires due to the proximity of forested and brush-covered areas.

DISCUSSION OF IMPACTS:

(4.20a-d) No Impact. Project activities involve improvements to existing transportation infrastructure, the construction of a new roadway, and improvements to an open space adjacent to Moody Creek. The Project site has been assessed for wildfire risk in the COSL 2040 General Plan (2040 Plan) Public Safety and Community Health Element, Natural Hazards, and the COSL 2021 Hazard Mitigation Plan (2021 HMP). As mentioned above, according to local fire hazard maps shown in the 2040 Plan, the Project site is not located within a Very High Fire Hazard Severity Zone or a State or Federal Responsibility Area. The Project will occur in a Local Responsibility Area (LRA) and is served by the Shasta Lake Fire Protection District and the Shasta County Office of Emergency Services. The Project will not exacerbate fire risk due to slope, prevailing winds, or other factors. The Project site is relatively flat and is surrounded by residential and commercial developments. Project activities include the construction of a new roadway, Wonderland Boulevard, that would provide the necessary connectivity for safe egress. Project activities will have no impact on wildfire risk.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

Mandatory Findings of Significance	Potentially Significant	Less Than Significant With Mitigation	Less Than Significant	No Impact
a) Does the project have the potential to 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, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

DISCUSSION OF IMPACTS

(4.21a-c) Less Than Significant. The Project does not have the potential to 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, 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 pre-history. The Project will not have a cumulative considerable effect in relation to past, present, or future projects, and will not result in substantial direct or indirect effects to human beings. As demonstrated by the preceding analysis, and with the incorporation of identified mitigation measures and existing regulations, the Project will result in a less than significant impact.

5 LEAD AGENCY DETERMINATION

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

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

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

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

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

Signature: ______________________ Date: ______________

Jessaca Lugo
City Manager
City of Shasta Lake

6 PREPARERS, TECHNICAL STUDIES AND REFERENCES

6.1 REPORT PREPARATION

Gallaway Enterprises 117 Meyers Street, Suite 120, Chico, CA 95928

- Kevin Sevier – Senior Planner
- Anthony McLaughlin – Associate Planner

6.2 REFERENCES:

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Attachment A

Mitigation Monitoring and Reporting Program

ATTACHMENT A
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Monitoring and Reporting Requirements:

Public Resources Code (PRC) Section 21081.6 mandates that the following requirements shall apply to all reporting or mitigation monitoring programs:

- The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a Responsible Agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the Lead Agency or a Responsible Agency, prepare and submit a proposed reporting or monitoring program.
- The Lead Agency shall specify the location and custodian of the documents or other material, which constitute the record of proceedings upon which its decision is based. A public agency shall provide the measures to mitigate or avoid significant effects on the environment that are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or in the case of the adoption of a plan, policy, regulation, or other project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.
- Prior to the close of the public review period for a draft Environmental Impact Report (EIR) or Mitigated Negative Declaration (MND), a Responsible Agency, or a public agency having jurisdiction over natural resources affected by the project, shall either submit to the Lead Agency complete and detailed performance objectives for mitigation measures which would address the significant effects on the environment identified by the Responsible Agency or agency having jurisdiction over natural resources affected by the project, or refer the Lead Agency to appropriate, readily available guidelines or reference documents. Any mitigation measures submitted to a Lead Agency by a Responsible Agency or an agency having jurisdiction over natural resources affected by the project shall be limited to measures that mitigate impacts to resources, which are subject to the statutory authority of, and definitions applicable to, that agency. Compliance or noncompliance by a Responsible Agency or agency having jurisdiction over natural resources affected by a project with that requirement shall not limit that authority of the Responsible Agency or agency having jurisdiction over natural resources affected by a project, or the authority of the Lead Agency, to approve, condition, or deny projects as provided by this division or any other provision of law.

Mitigation Monitoring and Reporting Procedures:

The Mitigation Monitoring and Reporting Program (MMRP), shown below, has been prepared in compliance with PRC Section 21081.6. It describes the requirements and procedures to be followed by the City of Shasta Lake Development Services Department to ensure that all mitigation measures and Standard Conditions of Approval, adopted as part of the proposed project, will be carried out as described in this IS/MND.

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
1. Aesthetics			
The proposed project would not result in significant adverse impacts related to aesthetics. No mitigation would be required.			
2. Agricultural and Forestry Resources			
The proposed project would not result in significant adverse impacts related to agriculture and forestry resources. No mitigation would be required.			
3. Air Quality			
<u>COSL Standard Conditions – Air Quality</u> The following standard mitigation measures shall be applied during grading activities to control dust and PM10 emissions: a) Suspend all grading operations when winds (as instantaneous gusts) exceed 20 miles per hour. b) Water active construction sites at least twice daily, as directed by the Public Works Department. c) Apply non-toxic soil stabilizers according to the manufacturer's specification to all graded areas which will be inactive for ten days or more.	City of Shasta Lake	Prior to Construction / During Construction	

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
d) Provide temporary traffic control (flag person), as appropriate, during all phases of construction to improve traffic flow. e) All public roadways used by the project contractor shall be maintained free from dust, dirt and debris caused by construction activities. Streets shall be swept at the end of the day if visible soil materials are carried onto adjacent public paved roads. Wheel washers shall be used where vehicles enter and exit unpaved roads onto paved roads, or trucks and any equipment shall be washed off prior to leaving the site with each trip. f) An adequate vehicle access point, such as a crushed rock entrance sufficient to prevent the transport of dirt, mud, and debris offsite, shall be required. g) All trucks hauling dirt, sand, soil or other loose materials should be covered or should maintain at least two feet of freeboard (minimum vertical distance between the top of the load and the top of the trailer), in accordance with the requirements of California Vehicle Code Section 23114. This provision is enforced by local law enforcement agencies. h) Construction activities that could affect traffic flow shall be scheduled for off-peak hours. Heavy truck trips involved in the hauling of soil to the site shall be limited to the hours of 9:00 A.M. to 4:00 P.M., Monday through Friday. Hauling activity may occur on Saturday from 8:00 A.M. to 6:00 P.M. No work is allowed on Sundays. i) Exposed stockpiles of soil and other fill material shall either be covered, watered or have soil binders added to inhibit dust and wind erosion			

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
4. Biological Resources			
MM-BIO-1 (Special Status Aquatic Species) The following measures are required to avoid and minimize potential impacts to special status aquatic species within the Project site. • Conduct a preconstruction survey no later than 48 hours prior to ground disturbance. pre-construction surveys will be conducted by a qualified biologist within the Project limits for western pond turtle and foothill yellow-legged frog. If a NPT or FYLF is observed in the Project limits during construction, all work will be stopped, and the turtle or frog will; be allowed to leave on its own volition; or be moved by the Project biologist in the direction it was heading, at a safe distance from the project activities, and at a safe location. • Exclusionary fencing shall be installed around all sensitive habitats and construction areas adjacent to the riparian and upland areas near Moody Creek. • Should the protection status of western pond turtle or foothill yellow-legged frog be elevated before or during Project activities, consultation with USFW will occur. • Project staff shall monitor and inspect the exclusionary fencing on a daily basis. Should the fencing be damaged or need reinstallation, Project staff shall contact a qualified biologist for reinstallation. **MM-BIO-2 (Pallid Bat)** The following measures are required to avoid and minimize potential impacts to the Pallid Bat.	City of Shasta Lake	Prior to Construction / During Construction	

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
• If trees containing suitable bat habitat (i.e. sloughing bark, cavities, or crevices) are removed between March 15 and August 31, a qualified biologist will conduct a preconstruction survey for roosting bats within seven days prior to tree removal. The survey will focus on suitable habitat to determine the absence or presence of roosting bats and type of roost within the tree. If the pre-construction survey determines that bats are not using the trees onsite as day roosts, then tree removal can proceed as planned. • If the tree is being utilized as a day roost and the qualified biologist determines that it is a maternity roost, then removal of the tree will be postponed until consultation with CDFW occurs. If the roost is not a maternity roost or if tree removal occurs during the winter months (i.e. October 16 – February 14), then the following phased removal of the occupied tree will be implemented: - Day 1: All unoccupied roosting habitat (e.g. crevices, sloughing bark, cavities) should be removed or altered to make it less desirable for roosting. All portions of the tree that do not contain suitable habitat can be removed while avoiding occupied habitat. - Day 2: All remaining portion of the tree including suitable roosting habitat can be removed. A qualified biologist shall be onsite during tree removal activities if bats are detected. **MM-BIO-3 (Nesting Migratory Birds and Raptors)** The following measures are required to avoid and minimize potential impacts to nesting and migratory birds and raptors within the Project site.			

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
• If vegetation removal or initial ground disturbances occur during the avian breeding season (February 1 – August 31) the applicant shall hire a qualified biologist to conduct a nesting migratory bird and raptor survey to identify any active nests within 50 feet of Project activities. A qualified biologist shall: - Conduct a pre-construction survey for nesting migratory birds and raptors within 7 days prior to the initiation of Project activities, and map all active nests located within 50 feet of proposed construction areas. - Develop buffer zones around active nests as recommended by a qualified biologist. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails. - If construction activities stop for more than fifteen (15) days, then another migratory bird and raptor survey shall be conducted within seven (7) days prior to the continuation of construction activities. - The qualified biologist shall document, and make available to the applicant, the survey results.			
5. Cultural Resources			
<u>COSL Standard Conditions – Cultural Resources</u> The following Standard Conditions shall be applied during grading activities to mitigate potential impacts to cultural resources: a) If during the course of construction or pre-construction activities on the site any archeological, historical, or paleontological resources are uncovered, discovered, or	City of Shasta Lake	Prior to Construction / During Construction	

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
otherwise detected or observed, all earthwork and /or construction within one hundred feet (100') of these materials shall be stopped immediately, the City shall be notified, and a professional archeologist, certified by the Society of California Archeology and/or the Society of Professional Archeology, in consultation with other affected parties such as local Native American groups, shall conduct a review of the materials. Site work and construction in the area shall not occur until the archeologist has had an opportunity to evaluate the significance of the find and outline appropriate mitigation measures deemed necessary to provide protection of the materials and/or the site b) Should any human remains be found during the construction project, construction in the area shall stop immediately and reported to the County Coroner. Construction shall not proceed until the County Coroner has determined such construction will not further impact human remains.			
6. Energy			
The proposed project would not result in significant adverse impacts related to energy. No mitigation would be required.			
7. Geology and Soils			
The proposed project would not result in significant adverse impacts related to geology and soils. No mitigation would be required.			
8. Greenhouse Gas Emissions			

Standard Conditions/Mitigation Measures	**Responsible Party**	**Timing for Standard Condition or Mitigation Measure**	**Compliance Verification (Date and Signature Required)**
The proposed project would not result in significant adverse impacts related to greenhouse gas emissions. No mitigation would be required.			
9. Hazards and Hazardous Materials			
The proposed project would not result in significant adverse impacts related to hazards or hazardous materials. No mitigation would be required.			
10. Hydrology and Water Quality			
<u>COSL Standard Conditions – Hydrology and Water Quality</u> The following Standard Conditions shall be applied during project activities to mitigate potential impacts regarding hydrology and water quality: a. Prior to issuance of building permits or final approval of improvement plans, drainage plans shall be submitted to the City Engineer for review and approval. Required storm drainage facilities shall be sized and installed in accordance with the improvement plans as approved by the City Engineer, and in accordance with the construction standards of the Public Works Department. b. All development sites shall be graded, or alternative measures implemented, to ensure that no post-construction increases in site drainage crosses property lines. All post-construction development drainage shall be directed to a city street or other facility via City Engineer approved stormwater conveyance. Modifications to this requirement are at the sole discretion of the City. c. Prior to improvement-plan approval, the Permittee shall prepare a Drainage Study in accordance with the Shasta Lake Municipal	City of Shasta Lake	Prior to Construction / During Construction	

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
Code, City Council Policy and the requirements of the City Engineer. The Drainage Study shall address impacts from the 10-, 25-, and 100-year-storm events. Projects shall address peak flows to maintain predevelopment levels at all locations where drainage flows exit the project. The Drainage Study shall be stamped and signed by a registered Civil Engineer and provided to the City at the time of submittal of project improvement plans. d. Storm-drain facilities shall be designed in accordance with the requirements of City Construction Standards, and good design practice. Project design shall incorporate Best Management Practices (BMPs) to prevent the polluting of stormwater, both during construction and over the life of the project. Should the maintenance costs of the long-term pollution-control measures within the public right of way or easements exceed typical storm-drain-management costs, such costs shall be borne by the project by participation in a landscape maintenance district, establishment of an escrow account, or by other City accepted financing mechanism.			
11. Land Use and Planning			
The proposed project would not result in significant adverse impacts related to land use and planning. No mitigation would be required.			
12. Mineral Resources			
The proposed project would not result in significant adverse impacts related to mineral resources. No mitigation would be required.			
13. Noise			

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
<u>COSL Standard Conditions – Noise</u> The following Standard Conditions shall be applied during project activities to mitigate potential noise related impacts: **a.** During construction, the Permittee shall comply with the following noise threshold periods established for construction activities.: a. Monday through Friday: 7:00 A.M. – 7:00 P.M. b. Saturday: 8:00 A.M. – 5:00 P.M. c. Sunday: No construction activities allowed. Construction activities shall not occur outside of the following time limits unless approved by the City pursuant to documented special circumstances. Special circumstances include the need to complete construction along public roadways or within public utility easements to ensure continued services or public safety. The City must approve such exceptions prior to commencement of the work. **<u>MM-NOI-1 (Employ Best Noise Control Practices During Construction)</u>** The following measures are required to avoid and minimize potential impacts related to construction noise: • The City shall require all construction contractors to employ best noise control practices to minimize construction noise levels at nearby residences. The noise	City of Shasta Lake	Prior to Construction / During Construction	

Standard Conditions/Mitigation Measures	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
control shall include, at a minimum, the following best practices: - Stationary equipment (e.g., generators, compressors, cement mixers, idling trucks) shall be located as far as possible from noise-sensitive land uses. - Construction equipment powered by gasoline or diesel engines shall be required to have sound control devices that are at least as effective as those originally provided by the manufacturer; all equipment shall be operated and maintained to minimize noise generation. - Excessive noise shall be prevented by shutting down idle vehicles or equipment. - Noise-reducing enclosures shall be used around noise-generating equipment. - Adjacent residents shall be notified in advance of construction work. - Lead Agency staff shall verify that the above wording is included on construction plans			
14. Population and Housing			
The proposed project would not result in significant adverse impacts related to population and housing. No mitigation would be required.			
15. Public Services			

Standard Conditions/Mitigation Measures	**Responsible Party**	**Timing for Standard Condition or Mitigation Measure**	**Compliance Verification (Date and Signature Required)**
The proposed project would not result in significant adverse impacts related to public services. No mitigation would be required.			
16. Recreation			
The proposed project would not result in significant adverse impacts related to recreation. No mitigation would be required.			
17. Traffic and Transportation			
The proposed project would not result in significant adverse impacts related to traffic and transportation. No mitigation would be required.			
18. Tribal Cultural Resources			
The proposed project would not result in significant adverse impacts related to tribal cultural resources. No mitigation would be required.			
19. Utilities/ Service Systems			
The proposed project would not result in significant adverse impacts related to utilities/ service systems. No mitigation would be required.			
20. Wildfire			
The proposed project would not result in significant adverse impacts related to wildfire. No mitigation would be required.			

Appendix A

CalEEmod Detailed Report

COSL SR2S Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	COSL SR2S
Construction Start Date	3/1/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	58.6
Location	40.681965, -122.350666
County	Shasta
City	Shasta Lake
Air District	Shasta County AQMD
Air Basin	Sacramento Valley
TAZ	150
EDFZ	15
Electric Utility	City of Shasta Lake
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.26

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Construction	0.44	Mile	0.00	0.00	—	—	—	—

City Park	2.00	Acre	2.00	0.00	2.00	2.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-3	Use Local Construction Contractors
Construction	C-4*	Use Local and Sustainable Building Materials
Construction	C-5	Use Advanced Engine Tiers
Construction	C-9	Use Dust Suppressants
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Transportation	T-32*	Orient Project Toward Transit, Bicycle, or Pedestrian Facility
Transportation	T-34*	Provide Bike Parking
Transportation	T-35*	Provide Tra c Calming Measures
Water	W-5	Design Water-Efficient Landscapes
Area Sources	LL-3*	Electric Yard Equipment Compatibility

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.42	0.09	< 0.005	0.01	0.09	0.10	0.01	0.03	0.03	—	344	344	< 0.005	0.05	0.77	361

Mit.	0.01	0.01	0.42	0.09	< 0.005	0.01	0.09	0.10	0.01	0.03	0.03	—	344	344	< 0.005	0.05	0.77	361
% Reduced	—	—	—	—	—	—	1%	1%	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.41	0.08	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	—	310	310	< 0.005	0.05	0.02	324
Mit.	0.01	0.01	0.41	0.08	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	—	310	310	< 0.005	0.05	0.02	324
% Reduced	—	—	—	—	—	—	1%	1%	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	0.03	27.2
Mit.	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	0.03	27.2
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.51
Mit.	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.51
% Reduced	—	—	—	—	—	—	2%	1%	—	1%	1%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.01	0.01	0.42	0.09	< 0.005	0.01	0.09	0.10	0.01	0.03	0.03	—	344	344	< 0.005	0.05	0.77	361

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.01	0.01	0.41	0.08	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	—	310	310	< 0.005	0.05	0.02	324
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	0.03	27.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.51

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.01	0.01	0.42	0.09	< 0.005	0.01	0.09	0.10	0.01	0.03	0.03	—	344	344	< 0.005	0.05	0.77	361
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.01	0.01	0.41	0.08	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	—	310	310	< 0.005	0.05	0.02	324
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	0.03	27.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.51

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.13	0.12	0.05	4.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	0.09	39.1	39.2	0.01	< 0.005	0.10	40.1
Mit.	0.13	0.12	0.05	4.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	0.09	39.1	39.2	0.01	< 0.005	0.10	40.1
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.13	0.12	0.05	4.11	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	0.09	36.7	36.8	0.01	< 0.005	< 0.005	37.6
Mit.	0.13	0.12	0.05	4.11	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	0.09	36.7	36.8	0.01	< 0.005	< 0.005	37.6
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.02	0.02	0.01	0.20	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.09	14.5	14.6	0.01	< 0.005	0.02	15.1
Mit.	0.02	0.02	0.01	0.20	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.09	14.5	14.6	0.01	< 0.005	0.02	15.1
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	2.40	2.42	< 0.005	< 0.005	< 0.005	2.50
Mit.	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	2.40	2.42	< 0.005	< 0.005	< 0.005	2.50
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	—	—	—	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.02	0.02	0.15	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	28.9	28.9	< 0.005	< 0.005	0.10	29.5
Area	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.13	0.12	0.05	4.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	0.09	39.1	39.2	0.01	< 0.005	0.10	40.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	26.5	26.5	< 0.005	< 0.005	< 0.005	27.0
Area	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.13	0.12	0.05	4.11	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	0.09	36.7	36.8	0.01	< 0.005	< 0.005	37.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	0.01	0.01	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	0.02	14.5
Area	0.01	0.01	< 0.005	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.34	0.34	< 0.005	< 0.005	—	0.34
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.02	0.02	0.01	0.20	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.09	14.5	14.6	0.01	< 0.005	0.02	15.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.34	2.34	< 0.005	< 0.005	< 0.005	2.39
Area	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.06	0.06	< 0.005	< 0.005	—	0.06
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.05
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	2.40	2.42	< 0.005	< 0.005	< 0.005	2.50

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.02	0.02	0.15	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	28.9	28.9	< 0.005	< 0.005	0.10	29.5
Area	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.13	0.12	0.05	4.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	0.09	39.1	39.2	0.01	< 0.005	0.10	40.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	26.5	26.5	< 0.005	< 0.005	< 0.005	27.0
Area	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.13	0.12	0.05	4.11	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	0.09	36.7	36.8	0.01	< 0.005	< 0.005	37.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	0.01	0.01	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	0.02	14.5
Area	0.01	0.01	< 0.005	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.34	0.34	< 0.005	< 0.005	—	0.34
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.02	0.02	0.01	0.20	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.09	14.5	14.6	0.01	< 0.005	0.02	15.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.34	2.34	< 0.005	< 0.005	< 0.005	2.39
Area	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.06	0.06	< 0.005	< 0.005	—	0.06
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.05
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	2.40	2.42	< 0.005	< 0.005	< 0.005	2.50

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.01	0.01	0.38	0.08	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	—	309	309	< 0.005	0.05	0.69	325
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.01	0.01	0.41	0.08	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	—	310	310	< 0.005	0.05	0.02	324
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.2	21.2	< 0.005	< 0.005	0.02	22.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.51	3.51	< 0.005	< 0.005	< 0.005	3.68

3.2. Linear, Grubbing & Land Clearing (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.01	0.01	0.38	0.08	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	—	309	309	< 0.005	0.05	0.69	325
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	0.01	0.01	0.41	0.08	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	—	310	310	< 0.005	0.05	0.02	324
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.2	21.2	< 0.005	< 0.005	0.02	22.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00

Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.51	3.51	< 0.005	< 0.005	< 0.005	3.68

3.3. Linear, Grading & Excavation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.8	34.8	< 0.005	0.01	0.08	36.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.77	4.77	< 0.005	< 0.005	< 0.005	5.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.83

3.4. Linear, Grading & Excavation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.8	34.8	< 0.005	0.01	0.08	36.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.77	4.77	< 0.005	< 0.005	< 0.005	5.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.83

3.5. Linear, Drainage, Utilities, & Sub-Grade (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00

3.6. Linear, Drainage, Utilities, & Sub-Grade (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00

3.7. Linear, Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	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
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00

3.8. Linear, Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	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
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	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	0.00
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.03	0.02	0.02	0.15	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	28.9	28.9	< 0.005	< 0.005	0.10	29.5
Total	0.03	0.02	0.02	0.15	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	28.9	28.9	< 0.005	< 0.005	0.10	29.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.02	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	26.5	26.5	< 0.005	< 0.005	< 0.005	27.0
Total	0.02	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	26.5	26.5	< 0.005	< 0.005	< 0.005	27.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.34	2.34	< 0.005	< 0.005	< 0.005	2.39
Total	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.34	2.34	< 0.005	< 0.005	< 0.005	2.39

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.03	0.02	0.02	0.15	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	28.9	28.9	< 0.005	< 0.005	0.10	29.5
Total	0.03	0.02	0.02	0.15	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	28.9	28.9	< 0.005	< 0.005	0.10	29.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.02	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	26.5	26.5	< 0.005	< 0.005	< 0.005	27.0
Total	0.02	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	26.5	26.5	< 0.005	< 0.005	< 0.005	27.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.34	2.34	< 0.005	< 0.005	< 0.005	2.39
Total	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.34	2.34	< 0.005	< 0.005	< 0.005	2.39

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	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
Total	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	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
Total	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	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
Total	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

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	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
Total	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	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

Total	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	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
Total	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

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Total	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Total	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.06	0.06	< 0.005	< 0.005	—	0.06
Total	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.06	0.06	< 0.005	< 0.005	—	0.06

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Total	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Total	0.10	0.10	0.03	3.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.2	10.2	< 0.005	< 0.005	—	10.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.06	0.06	< 0.005	< 0.005	—	0.06
Total	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.06	0.06	< 0.005	< 0.005	—	0.06

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	—	> -0.005

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Total	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Total	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.05

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Total	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Total	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.32
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.05

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	3/1/2025	4/4/2025	5.00	25.0	Site prep and open space prep
Linear, Grading & Excavation	Linear, Grading & Excavation	4/1/2025	6/9/2025	5.00	50.0	Curb and sidewalk construcrtion
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	3/3/2025	9/26/2025	5.00	150	Street construction
Linear, Paving	Linear, Paving	3/4/2025	9/29/2025	5.00	150	Street construction

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	0.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	0.00	8.00	36.0	0.38
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	0.00	8.00	87.0	0.43
Linear, Grading & Excavation	Excavators	Diesel	Average	0.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	0.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	0.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	0.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	0.00	8.00	423	0.48
Linear, Grading & Excavation	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	0.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	0.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	0.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	0.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	0.00	8.00	8.00	0.43

Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	0.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	0.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	0.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	0.00	8.00	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	0.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	0.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	0.00	8.00	36.0	0.38
Linear, Paving	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	0.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	0.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	0.00	8.00	36.0	0.38
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	0.00	8.00	87.0	0.43
Linear, Grading & Excavation	Excavators	Diesel	Average	0.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	0.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	0.00	8.00	36.0	0.38

Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	0.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	0.00	8.00	423	0.48
Linear, Grading & Excavation	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Back hoes	Diesel	Average	0.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	0.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	0.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	0.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	0.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	0.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	0.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	0.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	0.00	8.00	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	0.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	0.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	0.00	8.00	36.0	0.38
Linear, Paving	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Paving	Tractors/Loaders/Back hoes	Diesel	Average	0.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	0.00	11.1	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	6.95	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	4.44	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	0.00	11.1	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	6.95	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.50	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	0.00	11.1	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	6.95	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	0.00	11.1	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	6.95	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	0.00	10.0	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	6.95	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	4.44	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	0.00	10.0	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	6.95	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.50	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	0.00	10.0	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	6.95	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	0.00	10.0	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	6.95	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	444	444	0.27	0.00	—
Linear, Grading & Excavation	100	100	0.14	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Construction	0.00	100%
City Park	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO_2	CH_4	N_2O
2025	0.00	453	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
City Park	1.56	3.92	4.38	839	11.1	27.9	31.1	5,969

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
City Park	1.56	3.92	4.38	839	11.1	27.9	31.1	5,969

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	150	50.0	—

5.10.3. Landscape Equipment

Equipment Type	Fuel Type	Number Per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Other Lawn & Garden Equipment	Gasoline 4-Stroke	1.00	2.00	24.0	6.09	0.58

5.10.4. Landscape Equipment - Mitigated

Equipment Type	Fuel Type	Number Per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Other Lawn & Garden Equipment	Gasoline 4-Stroke	1.00	2.00	24.0	6.09	0.58

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
City Park	0.00	453	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
City Park	0.00	453	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	43.9

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	-5.73

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	0.17	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	0.17	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	24.9	annual days of extreme heat
Extreme Precipitation	18.8	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.99	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	4	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	4	1	1	4
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

6.4.1. Wildfire

User Selected Measures	Co-Benefits Achieved	Exposure Reduction	Sensitivity Reduction	Adaptive Capacity Increase
MH-14: Maintain Trails and Parks	Improved Public Health, Social Equity	—	1.00	1.00
MH-2: Use Climate-Resilient Design for Infrastructure	Enhanced Pedestrian or Traffic Safety, Improved Public Health, Water Conservation	—	1.00	1.00
WF-1: Implement Fire-safe Landscaping	Improved Air Quality, Improved Ecosystem Health, Improved Public Health	—	1.00	—

6.4.2. Flooding

User Selected Measures	Co-Benefits Achieved	Exposure Reduction	Sensitivity Reduction	Adaptive Capacity Increase
MH-14: Maintain Trails and Parks	Improved Public Health, Social Equity	—	1.00	1.00
MH-2: Use Climate-Resilient Design for Infrastructure	Enhanced Pedestrian or Traffic Safety, Improved Public Health, Water Conservation	—	1.00	1.00
MH-22: Improve Poor Drainage	Improved Public Health	—	2.00	—

EP-3: Install Stormwater Cistern/Retention Basin	Water Conservation	—	1.00	—

6.4.3. Temperature and Extreme Heat

User Selected Measures	Co-Benefits Achieved	Exposure Reduction	Sensitivity Reduction	Adaptive Capacity Increase
D-3: Install Drought Resistant Landscaping	Water Conservation	—	1.00	1.00
EH-1: Install Green Infrastructure	Energy and Fuel Savings, Improved Air Quality, Improved Ecosystem Health, Improved Public Health, Social Equity	2.00	2.00	—
EH-2: Provide Heat Mitigation for Public Walkways and Transit Stops	Improved Air Quality, Improved Public Health, Social Equity	2.00	—	—
EH-6: Install Refillable Water Stations	Energy and Fuel Savings, Improved Public Health, Social Equity	—	—	1.00
EH-9: Expand Urban Tree Canopy	Energy and Fuel Savings, Improved Air Quality, Improved Public Health, Social Equity	1.00	1.00	—
MH-14: Maintain Trails and Parks	Improved Public Health, Social Equity	—	1.00	1.00
MH-2: Use Climate-Resilient Design for Infrastructure	Enhanced Pedestrian or Traffic Safety, Improved Public Health, Water Conservation	—	1.00	1.00
MH-22: Improve Poor Drainage	Improved Public Health	—	2.00	—
MH-23: Landscape with Climate Considerations	Improved Ecosystem Health, Water Conservation	—	1.00	—

6.4.4. Extreme Precipitation

User Selected Measures	Co-Benefits Achieved	Exposure Reduction	Sensitivity Reduction	Adaptive Capacity Increase
MH-14: Maintain Trails and Parks	Improved Public Health, Social Equity	—	1.00	1.00
MH-2: Use Climate-Resilient Design for Infrastructure	Enhanced Pedestrian or Traffic Safety, Improved Public Health, Water Conservation	—	1.00	1.00

EP-3: Install Stormwater Cistern/Retention Basin	Water Conservation	—	1.00	—

6.4.5. Drought

User Selected Measures	Co-Benefits Achieved	Exposure Reduction	Sensitivity Reduction	Adaptive Capacity Increase
D-3: Install Drought Resistant Landscaping	Water Conservation	—	1.00	1.00
D-9: Implement Local Water Recycling	Water Conservation	—	—	1.00
EH-1: Install Green Infrastructure	Energy and Fuel Savings, Improved Air Quality, Improved Ecosystem Health, Improved Public Health, Social Equity	2.00	2.00	—
MH-23: Landscape with Climate Considerations	Improved Ecosystem Health, Water Conservation	—	1.00	—

6.4.6. Air Quality Degradation

User Selected Measures	Co-Benefits Achieved	Exposure Reduction	Sensitivity Reduction	Adaptive Capacity Increase
EH-1: Install Green Infrastructure	Energy and Fuel Savings, Improved Air Quality, Improved Ecosystem Health, Improved Public Health, Social Equity	2.00	2.00	—
EH-2: Provide Heat Mitigation for Public Walkways and Transit Stops	Improved Air Quality, Improved Public Health, Social Equity	2.00	—	—

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—

AQ-Ozone	58.2
AQ-PM	16.9
AQ-DPM	45.2
Drinking Water	4.56
Lead Risk Housing	61.5
Pesticides	0.00
Toxic Releases	5.53
Traffic	22.6
Effect Indicators	—
CleanUp Sites	42.6
Groundwater	43.8
Haz Waste Facilities/Generators	22.0
Impaired Water Bodies	0.00
Solid Waste	75.7
Sensitive Population	—
Asthma	71.8
Cardio-vascular	90.5
Low Birth Weights	20.7
Socioeconomic Factor Indicators	—
Education	34.4
Housing	62.4
Linguistic	0.00
Poverty	76.4
Unemployment	57.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract

Economic	—
Above Poverty	31.06634159
Employed	19.33786732
Median HI	24.00872578
Education	—
Bachelor's or higher	14.23071988
High school enrollment	100
Preschool enrollment	10.59925574
Transportation	—
Auto Access	39.77928911
Active commuting	62.6331323
Social	—
2-parent households	84.88387014
Voting	53.04760683
Neighborhood	—
Alcohol availability	45.25856538
Park access	27.25522905
Retail density	12.57538817
Supermarket access	45.29706147
Tree canopy	96.7406647
Housing	—
Homeownership	61.5167458
Housing habitability	27.51186963
Low-inc homeowner severe housing cost burden	39.89477736
Low-inc renter severe housing cost burden	1.026562299
Uncrowded housing	42.30719877
Health Outcomes	—
Insured adults	15.50109072

Arthritis	0.0
Asthma ER Admissions	24.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	8.4
Cognitively Disabled	11.9
Physically Disabled	6.2
Heart Attack ER Admissions	4.1
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	97.5
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	50.6
SLR Inundation Area	0.0
Children	24.2
Elderly	25.1
English Speaking	87.2

Foreign-born	10.8
Outdoor Workers	29.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	90.6
Traffic Density	12.5
Traffic Access	0.0
Other Indices	—
Hardship	62.7
Other Decision Support	—
2016 Voting	52.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	34.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

Measure Title	Co-Benefits Achieved
CCD-1: Consult Pre-existing Community Knowledge/Priorities	Social Equity
CCD-2: Conduct a Stakeholder Analysis and Develop a Community-Centered Outreach Plan	Social Equity
CCD-3: Conduct a Community Needs Assessment	Social Equity
CCD-4: Conduct Community Asset Mapping	Enhanced Energy Security, Social Equity
IE-4: Inclusive Community Meetings	Social Equity

IE-5: Provide Education on Essential Topics Related to Project	Social Equity
PH-2: Increase Urban Tree Canopy and Green Spaces	Energy and Fuel Savings, Enhanced Energy Security, Improved Air Quality, Improved Ecosystem Health, Improved Public Health, Social Equity
IC-3: Promotes Accessibility	Enhanced Pedestrian or Traffic Safety, Social Equity
IC-4: Enhanced Open and Green Spaces	Improved Ecosystem Health, Improved Public Health, Social Equity, Water Conservation
CR-1: Adapt and Re-use Vacant Lots for Green Infrastructure	Enhanced Energy Security, Enhanced Food Security, Improved Ecosystem Health, Improved Public Health, Social Equity

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	No buildings are proposed for construction
Construction: Dust From Material Movement	Construction will primarily occur due to roadwork associated with Wonderland Ave.
Construction: Demolition	No demolotion

Appendix B

Biological Resource Assessment

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BIOLOGICAL RESOURCE ASSESSMENT

Aquatic and Terrestrial Wildlife, and Botanical Resources

City of Shasta Lake Commercial Center Safe Routes to School

Shasta County, California

December 2023

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BIOLOGICAL RESOURCE ASSESSMENT

City of Shasta Lake Commercial Center Safe Routes to School

Project Location:

Shasta Lake, Shasta County, California
Section 29 & 32 Township 33N Range 04W
Project City USGS 7.5' Quadrangle

INTRODUCTION

Purpose and Overview

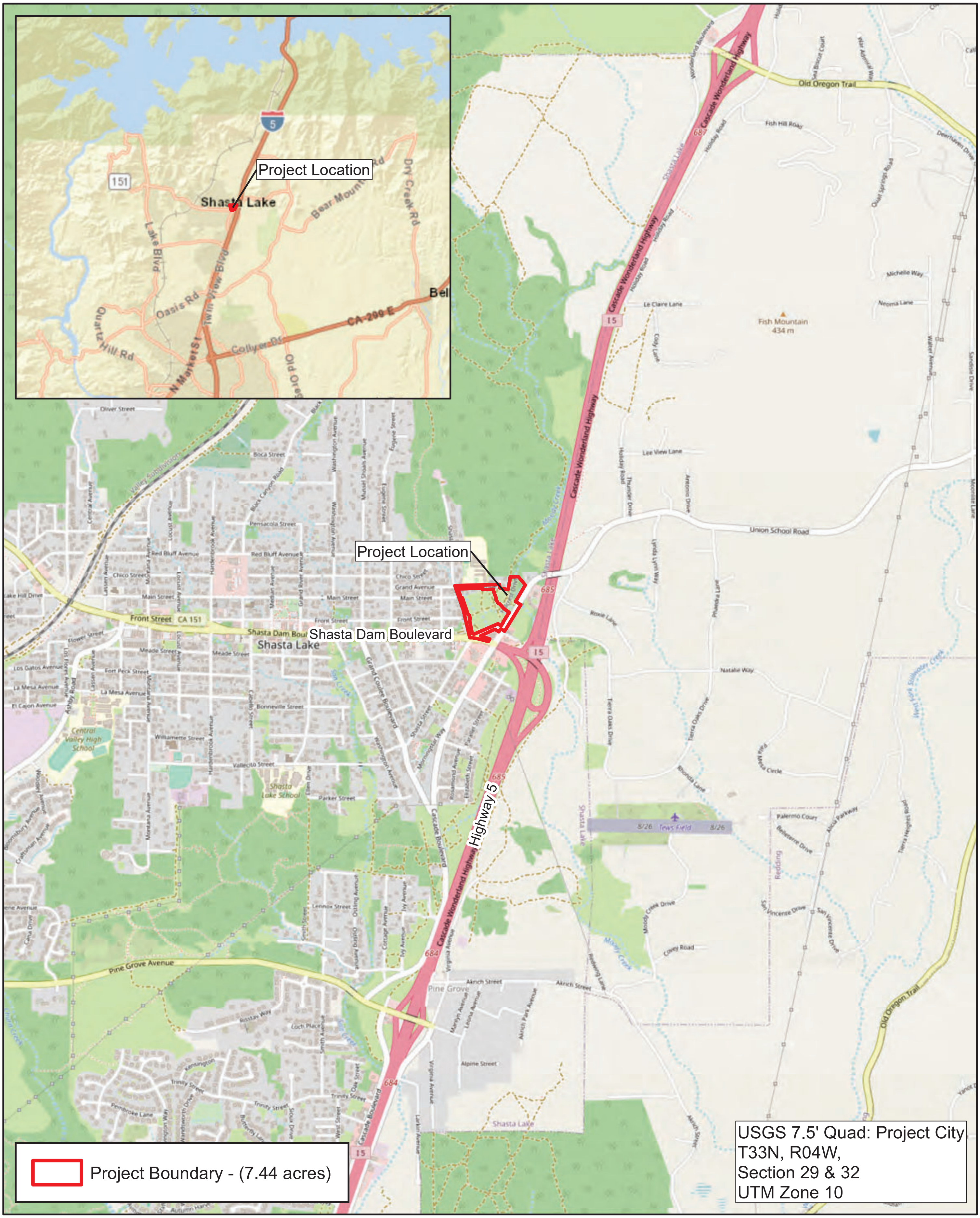
The purpose of this biological resource assessment (BRA) is to document the endangered, threatened, sensitive and rare species, and their habitats that occur or may occur in the biological survey area (BSA) of the City of Shasta Lake Commercial Center Safe Routes to School (SR2S) Project (Project) located directly on the north side of Shasta Dam Boulevard in Shasta Lake, Shasta County, California (**Figure 1**). The Project area is approximately 7.44 acres. The proposed Project includes improvements to numerous existing roads, construction of a new roadway, and an improvement of a 2-acre open space area adjacent to Moody Creek that will integrate green space, native landscaping, improved trails, and green sustainable stormwater infrastructure.

The BSA is the area where the focus of biological surveys is conducted (**Figure 2**). Gallaway Enterprises (GE) conducted a habitat assessment and general biological and botanical surveys in the BSA to evaluate site conditions and potential for biological and botanical species to occur. Other primary references consulted include species lists and information gathered using United States Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC), California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), the California Native Plant Society's (CNPS) list of rare and endangered plants, and literature review. The results of the BRA are the findings of surveys, habitat assessments, and recommendations for avoidance and minimization measures.

Project Location and Environmental Setting

The Project is located off of Shasta Dam Boulevard, within the City of Shasta Lake, Shasta County, California, Latitude 40.681725, Longitude -122.350822, within the USGS "Project City" quadrangle, Section 29 & 32, Township 33N, Range 04W. The average site elevation is 776 feet above sea level, with a minimum elevation of 756 feet and a maximum elevation of 800 feet. The BSA is bound by Grand Avenue to the north, Cascade Boulevard to the east, Shasta Dam Boulevard to the south, and Shasta Way to the west. The BSA is situated in the foothills bordering the furthest northern portion of the Sacramento Valley, approximately 4.5 miles south of Lake Shasta. Annual grassland, blue oak-foothill pine, urban, valley foothill riparian, riverine, lacustrine, and barren habitats are found within the BSA and Moody Creek, an intermittent tributary, runs through the northeast corner of the BSA from north to south. The surrounding area consists of suburban and commercial development, blue oak-foothill pine and blue oak woodland. Due to the disturbed nature of the BSA, non-native vegetation predominates much of the site. The overall topography of the BSA is relatively flat to gently sloping. Soils within the BSA are loams or silty loams with a restrictive layer ranging from 20 to 28 inches in depth. The average annual precipitation for the area is 32.15 inches and the average annual temperature is 63.1° F (WRCC 2023).

The BSA was previously occupied by residential homes and outbuildings, which were demolished in 1993-1996. Original access roads were retained within the BSA including Front Street, Buena Vista



NORTH

1:24,000 1 inch = 2,000 feet

0 0.25 0.5 Miles

Data Sources: ESRI, OpenStreetMap, City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Regional Location
Figure 1

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GE: #23-114 Map Date: 12/07/2023

NORTH

1:2,399 1 inch = 200 feet

0 100 200 Feet

Data Sources: ESRI, Maxar 09/16/2022
City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Biological Survey Area
Figure 2

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GE: #23-114 Map Date: 12/07/2023

Street, and Hillcrest Drive. A series of man-made ditches and an associated large berm occur in the middle portion of the BSA running from east to west and then north to south along the eastern boundary, which were constructed to convey water run-off from Shasta Way and Grand Way on the north side of the boundary to the roadways and commercial development to the south. These lateral/perpendicular ditches have developed seasonal wetland vegetation. Precipitation and surface irrigation runoff from the site and surrounding land functions as the main hydrological inputs within the BSA for these features. Although the BSA has been historically man-altered, the disturbance occurred no later than 1996, and are, thus, not recent. Therefore, conditions within the BSA are not considered atypical since these conditions have been present for more than 20 years and are not considered "normal" to the site.

Project Description

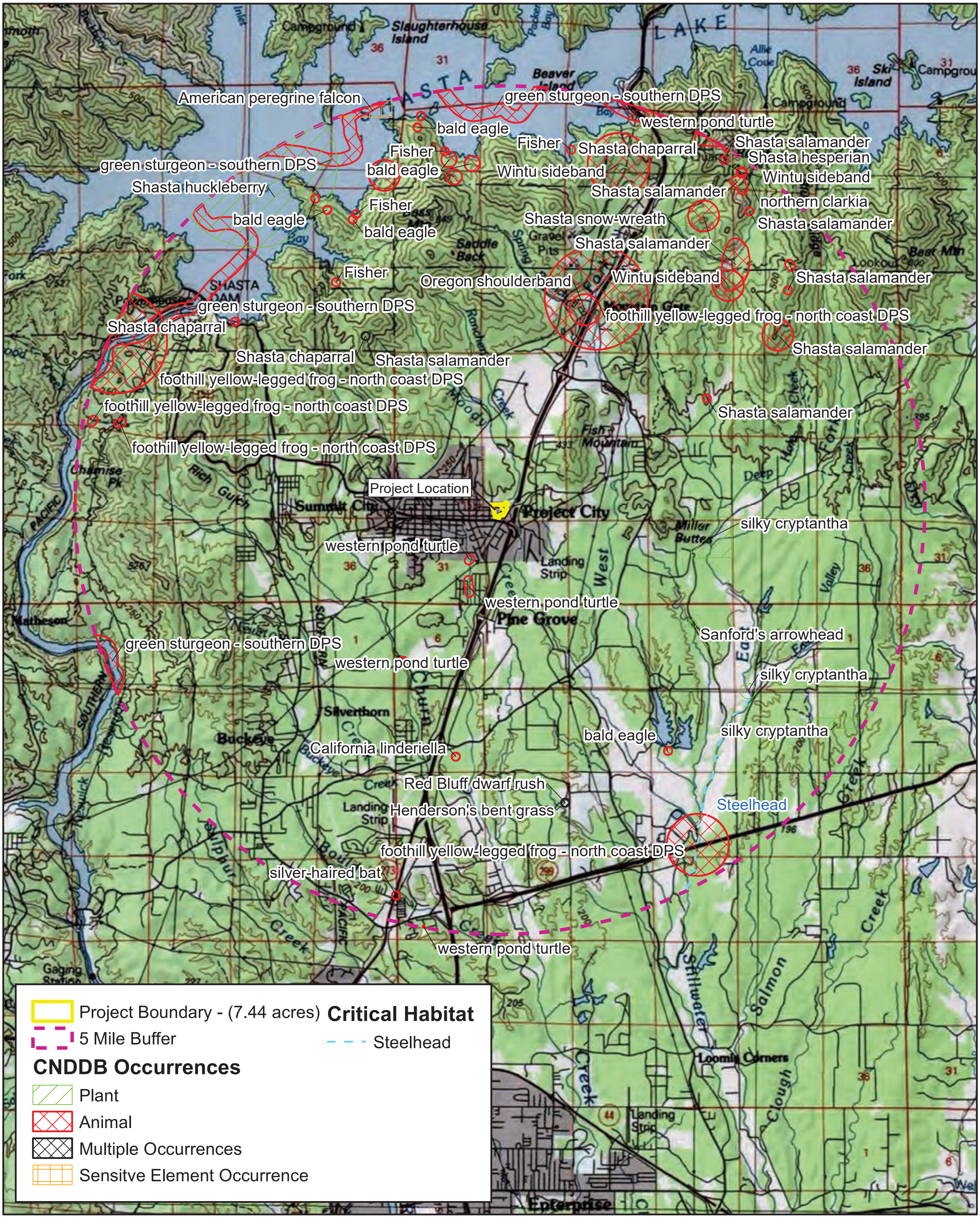
The proposed Project will generate a seamless network of complete streets creating safe routes to Grand Oaks School and connections to improved open space areas, trails, residential neighborhoods, shopping, employment centers, government facilities, tribal owned land, recreation areas, and other local destinations. The Project activities will include improvements to numerous existing roads, construction of a new roadway, and an improvement of a 2-acre open space area adjacent to Moody Creek that will integrate green space, native landscaping, improved trails, and green sustainable stormwater infrastructure. These improvements will serve the needs of all transportation users including pedestrians, bicyclists, people with disabilities, transit riders, and motorists. The Project proponent proposes to completely avoid impacts to Moody Creek.

METHODS

References Consulted

Gallaway Enterprises obtained lists of special-status species that occur in the vicinity of the BSA. The CNDDB Geographic Information System (GIS) database was also consulted and showed special-status species within a five (5) mile radius of the BSA (**Figure 3**). Other primary sources of information regarding the occurrence of federally listed threatened, endangered, purposed and candidate species, and their habitats within the BSA used in the preparation of this BRA are:

- The USFWS IPAC Official Species List for the BSA, November 7, 2023, (**Appendix A; Species Lists**);
- The NMFS West Coast Region, California official Species List of ESA listed Species, Critical Habitat, and Essential Habitat for the USGS "Project City" quadrangle, November 6, 2023 (**Appendix A; Species Lists**);
- The results of a species record search of the CDFW CNDDB, RareFind 5, for the 7.5 minute USGS "Shasta Dam", "Project City", "Bella Vista", "O'Brien", "Minnesota Mountain.", "Bohemotash Mountain.", "Redding", "Enterprise", and "Palo Cedro" quadrangles, November 6, 2023 (**Appendix A; Species Lists**);
- The review of the CNPS Inventory of Rare and Endangered Vascular Plants of California for the 7.5 minute USGS "Shasta Dam", "Project City", "Bella Vista", "O'Brien", "Minnesota Mountain.", "Bohemotash Mountain.", "Redding", "Enterprise", and "Palo Cedro" quadrangles, November 7, 2023 (**Appendix A; Species Lists**);
- Assessment of USFWS Critical Habitat for Threatened & Endangered Species geospatial data, November 6, 2023;



1:95,000

0 1 2 Miles

NORTH

Data Sources: ESRI, CDFW, CNDDB, USGS

City of Shasta Lake Commercial Center
Safe Routes to School Project
CNDDB Occurrences
Figure 3

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GE: #23-114 Map Date: 12/07/2023

- Assessment of NMFS Protected Resources App spatial data for ESA listed anadromous species ranges and critical habitat, November 6, 2023;
- Assessment of the NMFS Essential Fish Habitat Mapper for managed fish species, November 6, 2023; and
- Results from the field surveys conducted by Gallaway Enterprises on December 6, 2016, April 8, 2020, and November 16, 2023.

Special-Status Species

Special-status species that have potential to occur in the BSA are those that fall into one of the following categories:

- Listed as threatened or endangered, or are proposed or candidates for listing under the California Endangered Species Act (CESA, 14 California Code of Regulations 670.5) or the Federal Endangered Species Act (ESA, 50 Code of Federal Regulations 17.12);
- Listed as a Species of Special Concern (SSC) by CDFW or protected under the California Fish and Game Code (CFGC; i.e., Fully Protected Species);
- Ranked by the CNPS as 1A, 1B, or 2;
- Protected under the Migratory Bird Treaty Act (MBTA);
- Protected under the Bald and Golden Eagle Protection Act; or
- Species that are otherwise protected under policies or ordinances at the local or regional level as required by the California Environmental Quality Act (CEQA; §15380).

Critical/Essential Habitat

The Endangered Species Act requires that critical habitat be designated for all ESA listed species. Critical habitat is designated for areas that provide essential habitat elements that enable a species survival and which are occupied by the species during the species listing under the ESA. Areas outside of the species range of occupancy during the time of its listing can also be determined as critical habitat if the agency decides that the area is essential to the conservation of the species.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the primary law that governs marine fisheries management in the U.S. federal waters. Its objectives include the protection of habitat that fish need to spawn, breed, and grow to maturity. The MSA directs NMFS in the protection, conservation, and enhancement of Essential Fish Habitat (EFH). For each life stage of each NMFS managed species in the fishery management unit, EFH is identified. Habitats that are identified as necessary to the species for spawning, breeding, feeding, or growth to maturity are considered EFH.

Gallaway Enterprises obtained official species lists and reviewed geospatial data for critical habitat from NMFS and USFWS resources on November 6, 2023. In addition, the NOAA Fisheries Essential Fish Habitat Mapper was consulted for the presence of EFH within the BSA. Appropriate Federal Registers were also used to confirm the presence or absence of critical/essential habitat.

Sensitive Natural Communities

Sensitive Natural Communities (SNCs) are designated and monitored by CDFW with the goal of preserving these areas of habitat that are rare or ecologically important. Many SNCs are designated because they represent a historical landscape and are typically preserved as valued components of California’s diverse habitat assemblage. Gallaway Enterprises assessed the presence of SNCs using the CDFW Bios Viewer and reviewed the CNDDB species records search results on November 6, 2023.

Aquatic Resources

A delineation of waters of the United States (WOTUS) was conducted within a 12-acre portion of BSA on June 13, 2013 by Salix Consulting and on December 6, 2016 by Gallaway Enterprises. An approved jurisdictional determination for the 12-acre portion was obtained from the United States Army Corps of Engineers (USACE) on February 21, 2020 (SPK-2019-00856). The portion of Moody Creek that runs through the BSA was determined to be regulated pursuant to Section 404 of the Clean Water Act as it is a relatively permanent water that flows indirectly into the Sacramento River. Stormwater ditches and swales located within the BSA were not determined to be jurisdictional. A general habitat assessment was conducted by GE biologists following methods described below to determine the presence of additional aquatic resources within the expanded area of the BSA.

Habitat Assessments

Site visits were conducted on December 6, 2016, April 10, 2018, and April 8, 2020, by GE senior botanist Elena Gregg and biologist Dan Machek, and on November 16, 2023 by GE biologists Jessica Sellers and Nick Perazzo. Additionally, a focused biological survey was conducted in May 14, 2019 by Dewberry|Drake Haglan Senior Environmental Scientist, Lindsay Tisch (Caltrans 2022). The general biological and botanical habitat assessments were conducted to determine the presence of special-status species and their habitats within the BSA. The assessment was conducted by walking in all areas of the BSA and taking inventory of observed species and habitat elements. If habitat was observed for special-status species, it was then evaluated for quality based on vegetation composition and structure, physical features (i.e., soils, elevation), micro-climates, hydrology, surrounding area attributes, presence of predatory species, and available resources (i.e., prey items, nesting or roosting habitat), and land use patterns. A list of wildlife and botanical species observed within the BSA during the site visits is included in **Appendix B**.

Protocol-level Rare Plant Survey

Senor botanist Elena Greg conducted a protocol-level rare plant survey on April 10, 2018 and April 8, 2020 for all plant species with blooming periods that overlapped the date of the April site visits. A Trimble GPS unit was used to record the location, extent, and estimated number of individuals of any special-status plant populations observed within the BSA. A list of botanical species observed within the BSA during the April site visits is included in **Appendix B**. In addition, a botanical survey was conducted May 14, 2019 by Dewberry|Drake Haglan Senior Environmental Scientist, Lindsay Tisch (Caltrans 2022).

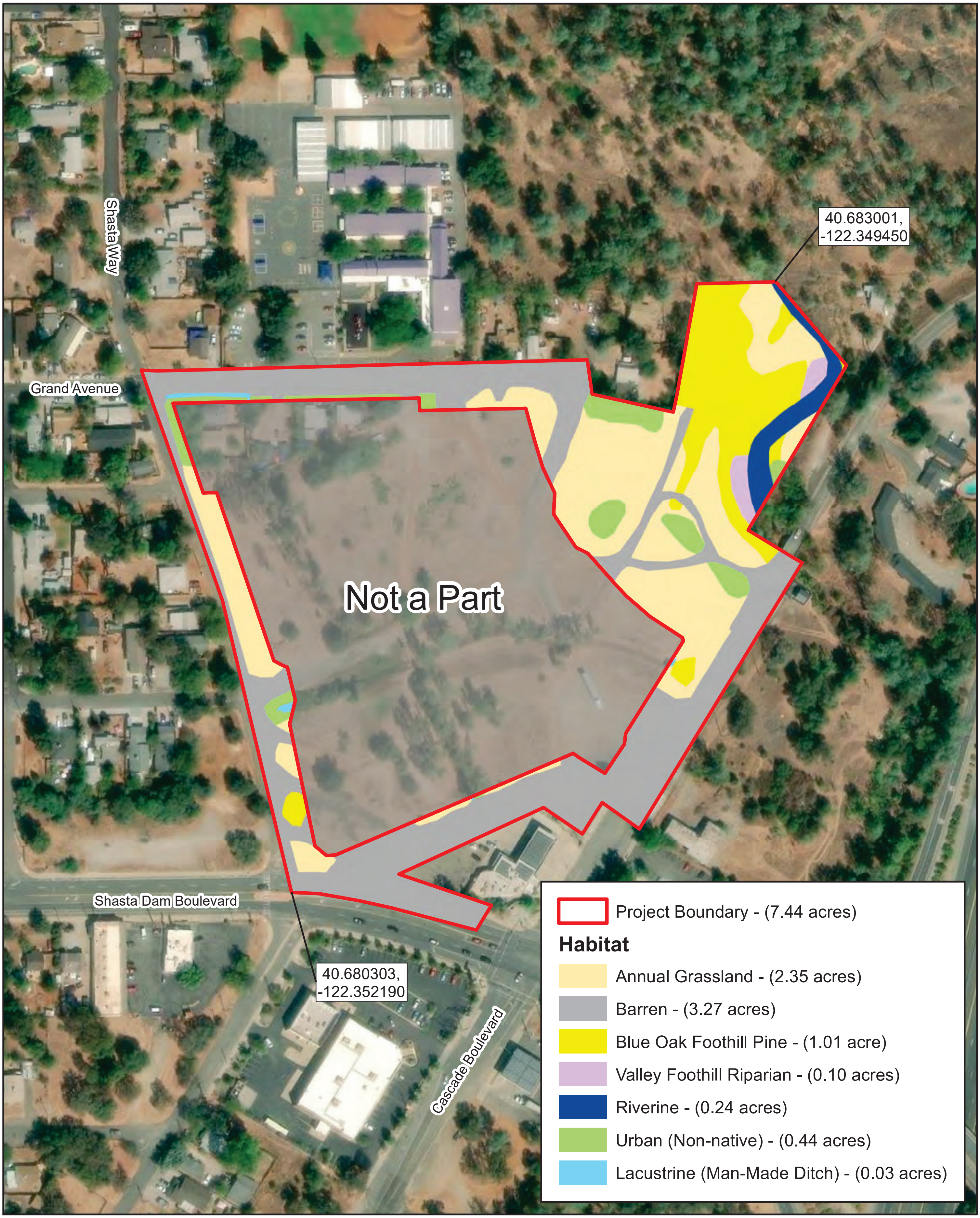
RESULTS

Habitats

The terrestrial and aquatic habitat types present within the BSA have been classified, as detailed below, to follow the current classification scheme identified in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). A map depicting the approximate extent of the habitat types identified within the BSA is included as **Figure 4**.

Blue Oak-Foothill Pine

Blue oak-foothill pine (1.01 acres) is present primarily within the northeast corner of the BSA surrounding along Moody Creek with only sparse and scattered oak canopy in the northwest, southwest, and southeast portions of the BSA. While the species composition present in this area is most fitting of



Data Sources: ESRI, Maxar 09/16/2022
City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Habitat Map
Figure 4

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GE: #23-114 Map Date: 12/07/2023

the BOP habitat type; few blue oaks (*Quercus douglasii*) were present in these portions of the BSA. The dominant tree species in this area was foothill pine (*Pinus sabiniana*), interior live oak (*Quercus wislizeni*), valley oak (*Quercus lobata*), and tree of heaven (*Ailanthus altissima*). The understory vegetation present within the BSA included wild oats (*Avena sp*.), rip-gut brome (*Bromus diandrus*), hedge parsley (*Torilis arvensis*), poison oak (*Toxicodendron diversilobum*), and purple needlegrass (*Stipa pulchra*). This habitat type provides valuable breeding, nesting, and foraging opportunities for migratory birds.

Valley Foothill Riparian

Valley foothill riparian (0.10 acres) was observed along the banks of Moody Creek within the BSA. Some of the vegetation was atypical because of the presence of introduced species. This habiatat was dominated by Fremont's cottonwood (*Populus fremontii*), valley oak, and a few scattered California sycamore (*Platanus racemose*), and mulberry (*Morus sp.*). The understory was composed of arroyo willow (*Salix lasiolepis*), Himalayan blackberry (*Rubus armeniacus*), wild grape (*Vitis californica*), and wild rose (*Rosa sp.*). This habitat type provides valuable breeding, nesting, migration and dispersal corridors, escape, and foraging opportunities for many wildlife species.

Urban

Urban habitats (0.44 acres) are typically composed of grass lawns, ornamental trees and hedges and, particularly in unmaintained areas, can be a mosaic of non-native and native vegetation. Within the BSA urban habitat occurs as patches of non-native tree species including tree of heaven, silver wattle acacia (*Acacia dealbata*), silver maple *(Acer saccharinum)* and hybrid poplar (*Populus* sp./*Populus* x canadensis). The hybrid poplar is the predominant tree canopy present lining lacustrine habitat present within stormwater ditches and swales within the BSA. The understory present within the patches of hybrid poplar was largely dominated by periwinkle (*Vinca major*). This habitat type provides foraging ground for a variety of wildlife species and breeding habitat for a variety of terrestrial reptiles and ground nesting mammals.

Annual Grassland

Annual grassland (2.35 acres) is the dominant vegetation community within the BSA. The majority of the site has previously been disturbed and cleared, and ruderal annuals have occupied the disturbed areas. Common species that were observed in the annual grasslands were medusahead (*Elymus caput-medusae*), vetch (*Vicia villosa*), wild oats (*Avena sp.*), Fitch's spikeweed (*Centromadia fitchii*), narrow leaf plantain (*Plantago lanceolata*), yellow star thistle (*Centaurea solstitialis*), Italian ryegrass (*Festuca perennis*), and broadleaf filaree (*Erodium botrys*). Annual grasslands provide suitable foraging habitat for a variety of terrestrial wildlife species.

Barren

Barren habitat (3.27 acres) is characterized by less than 2 percent total vegetation cover by herbaceous, desert, or non-wildland species and less than 10 percent cover by tree or shrub species. Gravel and paved driveways, footpaths, and an empty paved lot comprise most of the barren habitat in the BSA. The barren habitat type provides low-quality habitat to wildlife.

Riverine

Riverine habitat (0.24 acres) includes intermittent or continually flowing rivers, streams and drainages. The aquatic and vegetative habitats within riverine habitats vary depending on the flow duration and velocity. This habitat type provides valuable resources for fish and wildlife species. Within the BSA, riverine habitat occurs within Moody Creek, located within the northeast portion of the BSA. Moody Creek confluences with West Fork Stillwater Creek approximately 4.5 miles southeast of the BSA, and in turn, confluences with the Sacramento River approximately 15 miles southeast of the BSA, and southeast of the city Redding near Anderson, California. Moody Creek was intermittent and dry in portions of the BSA and ponded in others during the site visit. The aquatic habitat composition consisted of deep pools with large cobble, boulders, or bedrock and shallow pools with low gradient banks consisting of either gravel, sand, or silt. The creek is surrounded by blue oak-foothill pine and patches of valley foothill riparian habitats, providing a matrix of habitat for a variety of terrestrial wildlife species including nesting birds, tree roosting bats, and migration corridors for larger mammalian species.

Lacustrine

Lacustrine habitat (0.03 acres) are inland depressions or dammed riverine channels containing standing water. Within the BSA, intermittent lacustrine habitats are present in the form of stormwater ditches and swales. These ditches and swales are stormwater control features that were constructed in upland habitats immediately after removing a housing development. These stormwater control features were constructed solely to convey stormwater runoff and not excavated in or part of a relocated tributary. These features flow immediately after rain events. Two stormwater swales consisting of intermittent ponded water are present within the BSA. One swale occurs in the northwest corner of the BSA and continues to flow into the second swale located in the southwest portion of the BSA through a culvert under Front Street. A stormwater ditch is located in the center of the BSA and intersects the two swales, flowing west to east and draining into Moody Creek. Vegetation within the swales included cattails (*Typha latifolia*), arroyo willow (*Salix lasiolepis*), dalisgrass (*Paspalum dilatatum*), tall nutsedge (*Cyperus eragrostis*), Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), perennial rye-grass (*Festuca perennis*), and curly dock (*Rumex crispus*). Vegetation within and surrounding the ditch include annual saltmarsh aster (*Symphyotrichum subulatum var. parviflorum*), Spanish lotus (*Acmispon americanus*), Bermuda grass (*Cynodon dactylon*), and dalisgrass. The areas lining the swales/ditches were dominated by a tree canopy of cottonwoods (*Populus fremontii*) with a few scattered arroyo willows and non-native trees including silver wattle (*Acacia dealbata*) and cherry plumb (*Prunus cerasifera*), and an understory of periwinkle (*Vinca major*), Himalayan blackberry (*Rubus armeniacus*), and dalisgrass.

Critical/Essential Habitat

Moody Creek is situated within the Clear Creek-Sacramento River watershed and is designated as a NMFS Essential Fish Habitat (EFH) for Chinook salmon. Moody Creek within the BSA provides suitable emigration and natal rearing habitat characterized by low gradient, slow moving water, dominated by a coarse, gravelly substrate with fine sands and silt as well as small to large size cobble. Available fish habitat includes undercut banks, overhanging vegetation, and some instream woody debris. Moody Creek is not designated as Central Valley (CV) steelhead Critical Habitat. The nearest CV steelhead Critical Habitat is within East Valley Creek, which confluence with Moody Creek approximately 4.5 miles downstream of the BSA. No anadromous fish or spawning have been observed within the BSA during field site visits or per CDFW correspondence records (Caltrans 2022).

Special-Status Species

A summary of special-status species assessed for potential occurrence within the BSA based on the USFWS, IPaC species list, CNDDB, and the CNPS list of rare and endangered plants within the “Shasta Dam”, “Project City”, “Bella Vista”, “O’Brien”, “Minnesota Mountain.”, “Bohemotash Mountain.”, “Redding”, “Enterprise”, and “Palo Cedro” USGS 7.5 minute quadrangles, and their potential to occur within the BSA are described in **Table 1**. Potential for occurrence was determined by reviewing database queries from federal and state agencies and evaluating habitat characteristics. The following special-status species have potential to occur within the BSA based on the presence of suitable habitat and/or known records of species occurrence within the vicinity of the BSA.

Table 1. Special-status Species and Sensitive Natural Communities Their Potential to Occur in the BSA of the City of Shasta Lake CCSR2S (7.44 acres) Project, Shasta County, CA.

Common Name *(Scientific Name)*	**Status** Fed/State/CNPS	**Associated Habitats**	**Potential for Occurrence**
SENSITIVE NATURAL COMMUNITIES			
Great Valley Cottonwood Riparian Forest	_/SNC/_	Riparian forest.	None. There is no designated great valley cottonwood riparian forest within the BSA.
Great Valley Valley Oak Riparian Forest	_/SNC/_	Riparian forest.	None. There is no designated great valley valley oak riparian forest within the BSA.
Great Valley Willow Scrub	_/SNC/_	Riparian scrubs.	None. There is no designated great valley willow scrub within the BSA.
PLANTS			
Shasta ageratina (*Ageratina shastensis*)	_/_/1B.2	Chaparral and lower montane coniferous forest habitats with rocky, often carbonate, soils; 1,320 to 5,940 feet (BP: June – October)	None. The BSA is located below known elevation ranges for this species
Big-scale balsamroot (*Balsamorhiza macrolepis*)	_/_/1B.2	Chaparral, cismontane woodland and valley foothill grassland habitats, sometimes in serpentinite soils; 297 to 5,132 feet (BP: March – June)	None. Not observed during botanical surveys.
Sulphur Creek brodiaea (*Brodiaea matsonii*)	_/_/1B.1	Along streambanks in cismontane woodland habitat; meadows and seeps; soils are rocky, metamorphic amphibolite schist; 646 to 726 feet (BP: May – June)	None. Not observed during botanical surveys.
Silky cryptantha (*Cryptantha crinita*)	_/_/1B.2	Found along gravelly streambeds in cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, valley and foothill grassland; 200 to 4,009 feet (BP: April - May)	None**.** Not observed during botanical surveys.
Shasta limestone monkeyflower (*Erythranthe taylorii*)	_/_/1B.1	Openings, carbonate crevices and rocky outcrops in cismontane woodland, lower montane coniferous forest; 1,171 to 3,234 feet (BP: [Feb] April – May)	None. The BSA is located below known elevation ranges for this species

Common Name (*Scientific Name*)	Status Fed/State/CNPS	Associated Habitats	Potential for Occurrence
PLANTS			
Shasta fawn lily (*Erythronium shastense*)	_/_/1B.2	Usually found in carbonate, rocky soils on north-facing or shaded slopes in cismontane woodland, and lower montane coniferous forest; can form clumps due to bulb offsets; 1,155 to 3,366 feet (BP: [Feb] March - April)	None. The BSA is located below known elevation ranges for this species
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	_/SE/1B.2	Marshes and swamps; along lake margins; and vernal pools; requires clay soils; 33 to 7,838 feet (BP: April – August)	None. The BSA does not consist of any vernal pools, marshes, or swamps.
Red Bluff dwarf rush (*Juncus leiospermus var. leiospermus*)	_/_/1B.1	Vernally mesic areas in chaparral, and cismontane woodlands; meadows and seeps; vernal pools in valley and foothill grassland; 115 to 4,125 feet (BP: March – June)	None. The BSA does not consist of any vernal pools.
Legenere (*Legenere limosa*)	_/_/1B.1	Vernal pools; 115 to 4,125 feet (BP: April – August)	None. The BSA does not consist of any vernal pools.
Cantelow's Lewisia (*Lewisia cantelovii*)	_/_/1B.2	Mesic, granitic, sometimes serpentinite seeps in broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest; 1,089 to 4521 feet (BP: May – October)	None. The BSA is located below known elevation ranges for this species
Bellinger's meadowfoam (*Limnanthes floccosa ssp. bellingeriana*)	_/_/1B.2	Mesic areas in cismontane woodland; meadows and seeps; 960 to 3,630 feet (BP: April – June)	None. The BSA is located below known elevation ranges for this species
Shasta snow-wreath (*Neviusia cliftonii*)	_/ST/1B.2	Often along streamsides in cismontane woodland, lower montane coniferous forest, and riparian woodland; sometimes found in areas with carbonate, volcanic, or metavolcanic soils; 990 to 1,950 feet (BP: April – June)	None. The BSA is located below known elevation ranges for this species
Slender Orcutt grass (*Orcuttia tenuis*)	FT/SE/1B.1	Vernal pools (often gravelly); 116 to 5,808 feet (BP: May – September [October])	None. The BSA does not consist of any vernal pools.

Common Name *(Scientific Name)*	**Status** Fed/State/CNPS	**Associated Habitats**	**Potential for Occurrence**
PLANTS			
Ahart's paronychia (*Paronychia ahartii*)	_/_/1B.1	Vernal pools in cismontane woodland and valley and foothill grasslands; 99 to 1,683 feet (BP: February – June)	None. The BSA does not consist of any vernal pools.
Sanford's arrowhead (*Sagittaria sanfordii*)	_/_/1B.2	Assorted shallow freshwater marshes and swamps; 0 to 2,145 feet (BP: May – October [November])	None. The BSA does not consist of any marshes or swamps.
Maverick clover (*Trifolium piorkowskii*)	_/_/1B.2	Associated with shallow, clay rich soils around shallow vernal depressions on volcanic flats or the open banks of intermittent or perennial streams in the foothills of Shasta County; 525 to 2231 feet (BP: Apr – May)	None. The BSA does not contain vernal pools and does not have the necessary soil type around the open banks of Moody Creek.
Oval-leaved viburnum (*Viburnum ellipticum*)	_/_/2B.3	Perennial deciduous shrub. (BP: May-Jun).	None. Was not observed during botanical surveys.
INVERTEBRATES			
Vernal pool fairy shrimp *(Branchinecta lynchi)*	FT/_/_	Restricted to vernal pools in California and southern Oregon.	None. Ther BSA does not contain vernal pools.
Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)	FT/_/_	Blue elderberry shrubs (*Sambucus sp.*) usually associated with riparian areas. Prefers to lay eggs in elderberry shrubs 2-8 inches in diameter; can also use smaller elderberry shrubs as food source.	None. No blue elderberry shrubs were observed within the BSA.
FISH			
Green Sturgeon - Southern DPS (*Acipenser medirostris pop. 1*)	FT/_/_	Spawns in the Sacramento, Feather and Yuba Rivers, site fidelity. Non spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles.	None. Do not spawn in Moody Creek.

Common Name (*Scientific Name*)	**Status** Fed/State/CNPS	Associated Habitats	Potential for Occurrence
FISH			
Pacific lamprey (*Entosphenus tridentatus*)	_/SSC/_	Found in Pacific Coast streams north of San Luis Obispo County. Swift-current gravel-bottomed areas for spawning with water temps between 53 – 64°F. Ammocoetes need soft sand or mud. Typically found in a natural body of running water in major river systems.	<u>None.</u> Bedrock substrates and intermittent hydrology of Moody Creek within BSA does not support spawning or ammocoete habitat. Not known to occur in tributaries with high rural/urban/agricultural influences.
Central Valley DPS steelhead *(Oncorhynchus mykiss pop. 11)*	FT/_/_	Sacramento and San Joaquin Rivers and their tributaries. Typically spawn downstream of dams. Optimal spawning conditions include good intergravel flow, with coarse gravel in a pool or riffle and between 30°F to 52°F. Juveniles found in cool, clear, fast-flowing permanent streams and rivers where riffles predominate over pools, with ample cover from riparian vegetation or undercut banks, and abundance of invertebrates.	<u>None</u>. No suitable habitat occurs within the BSA. There are no recorded observations within Moody Creek. Not known to occur or spawn within the BSA or in upstream tributaries (Caltrans 2022).
Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha pop. 11)*	FT/ST/_	Sacramento River and its tributaries. Adults migrate upriver in spring and hold in deep pools with large bubble curtain at the head, underwater rocky ledges, and shade cover or hold in smaller "pocket" water behind large rocks in fast water. Spawn in small cobble or gravel substrate. Slow, off-channel water with debris or vegetation utilized by juveniles for rearing and refuge. Shade and wood cover have been indicated as important for juvenile holding habitat	<u>None</u>. Essential Fish Habitat occurs within Moody Creek. No suitable habitat in form of adult holding pools, suitable for juvenile rearing within the BSA. There are no recorded observations within Moody Creek. Not known to occur or spawn within the BSA or in upstream tributaries (Caltrans 2022).

Common Name *(Scientific Name)*	**Status** Fed/State/CNPS	**Associated Habitats**	**Potential for Occurrence**
FISH			
Sacramento River winter-run Chinook salmon *(Oncorhynchus tshawytscha pop. 7)*	FE/SE/_	Sacramento River below Keswick Dam. Spawns in Sacramento River, but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6° and 14°C for spawning.	None. Outside of known range.
AMPHIBIANS			
Shasta salamander (*Hydromantes shastae*)	_/ST/_	Moist limestone fissures and caves, in volcanic and other rock outcroppings, and under woody debris in mixed pine-hardwood stands near Lake Shasta 1,000-3,000 ft elevation.	None. BSA is located 4.5 miles south of Shasta Lake, is under 1,000 ft elevation, and does not contain suitable habitat.
Foothill yellow-legged frog - north coast DPS (*Rana boylii* pop. 1)	_/SSC/_	Perennial streams with riffles and rocky substrates in a variety of habitats, including valley-foothill hardwood/conifer/riparian, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types.	**Low.** Moody Creek is sub-marginal habitat (i.e. an intermittent stream, fast moving over bedrock substrate or does not have appropriate cobble substrate for oviposition sites in low flow sections within the BSA).
Western spadefoot (*Spea hammondii*)	_/SSC/_	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Open, intermittent pools are essential for breeding (January through May).	None. Seasonal ponded waters within ditches/swales provide potential habitat, however due to the high degree of historical disturbances, fragmentation, and lack of suitable habitat adjacent to the BSA, this species has no potential to occur within the BSA.
REPTILES			
Northwestern pond turtle (*Actinemys marmorata*)	PT/SSC/_	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires suitable basking sites and upland habitat for egg laying.	**High.** Moody Creek and seasonal ponded water within the BSA offer migration corridors, foraging, basking, and nesting habitat.

Common Name *(Scientific Name)*	Status Fed/State/CNPS	Associated Habitats	Potential for Occurrence
MAMMALS			
Pallid bat (*Antrozous pallidus*)	_/SSC/_	Arid regions with rocky outcroppings to open, sparsely vegetated grasslands with nearby water source. Roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of coast redwoods and giant sequoias, bole cavities of oaks, exfoliating Ponderosa pine and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges.	**Low.** There are mature trees with cavities that may provide suitable roosting habitat for bachelors, but there are no mature trees with exfoliating bark suitable to for maternity colonies within the BSA.
Townsend's big-eared bat *(Corynorhinus townsendii)*	_/SSC/_	Requires caves, mines, tunnels, buildings, or other human-made structures for roosting.	None. There is no suitable roosting habitat within the BSA.
Spotted bat (*Euderma maculatum*)	_/SSC/_	Prefers to roost in rock crevices in arid deserts, grasslands and mixed conifer forests. Occasionally found in caves and buildings. Cliffs provide optimal roosting habitat.	None. There is no suitable roosting habitat within the BSA.
Fisher *(Pekania pennanti)*	_/SSC/_	Large areas of mature, dense forest stands with snags and greater than 50% canopy closure.	None. There is no suitable habitat within the BSA.
BIRDS			
Tricolored blackbird *(Agelaius tricolor)*	_/ST,SSC/_	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles and grain fields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.	None. No suitable nesting habitat within the BSA.
Bald Eagle *(Haliaeetus leucocephalus)*	_/SE,FP/_	Requires large, old-growth trees or snags in remote, mixed stands near large bodies of water, or free flowing rivers with abundant fish	None. There is no suitable foraging or nesting habitat within the BSA.

Common Name *(Scientific Name)*	Status Fed/State/CNPS	Associated Habitats	Potential for Occurrence
BIRDS			
Northern Spotted Owl (*Strix occidentalis caurina*)	FT/ST/_	Forests characterized by dense canopy closure of mature and old-growth trees, abundant logs, standing snags, and live trees with broken tops.	None. There is no suitable nesting habitat within or near the BSA.
Purple martin (*Progne subis*)	_/SSC/_	Abandoned woodpecker holes in valley oak and cottonwood forests for nesting; also nests in vertical drainage holes under elevated freeways and highway bridges; open areas required for feeding.	None. Suitable nesting habitat can be found in some trees within the BSA; however, the only CNDDB occurrences are over 7 miles from the BSA and are exclusively around the Pit River Arm of Lake Shasta
Bank swallow (*Riparia riparia*)	_/ST/_	Restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes.	None. There are no vertical bank or cliff nesting habitat within the BSA.

CODE DESIGNATIONS	
FE = Federally-listed Endangered **FT** = Federally-listed Threatened **FC** = Federal Candidate Species **BCC** = Federal Bird of Conservation Concern **MBTA** = Protected by the federal Migratory Bird Treaty Act **SE** = State-listed Endangered **ST** = State-listed Threatened **SCT** = State Candidate Threatened **SR** = State-listed Rare **SSC** = State Species of Special Concern **S1** = State Critically Imperiled **S2** = State Imperiled **S3** = State Vulnerable **S4** = State Apparently Secure	**FP** =CDFW Fully Protected Species **SNC** = CDFW Sensitive Natural Community **CRPR 1B** = Rare or Endangered in California or elsewhere **CRPR 2** = Rare, Threatened or Endangered in California, more common elsewhere **CRPR 3** = More information is needed **CRPR 4** = Plants with limited distribution, not considered rare, threatened or endangered **0.1** =Seriously Threatened **0.2** = Fairly Threatened **0.3** = Not very Threatened
Potential for Occurrence: Any bird or bat species could fly over the BSA, but this is not considered a potential occurrence. The categories for the potential for occurrence include: **None**: The species or natural community does not occur, and has no potential to occur in the BSA based on sufficient surveys, the lack suitable habitat, and/or the BSA is well outside of the known distribution of the species. **Low**: Potential habitat in the BSA is sub-marginal and/or the species is known to occur in the vicinity of the BSA. **Moderate**: Suitable habitat is present in the BSA and/or the species is known to occur in the vicinity of the BSA. Pre-construction surveys may be required. **High**: Habitat in the BSA is highly suitable for the species and there are reliable records close to the BSA, but the species was not observed. Pre-construction surveys required. **Known**: Species was detected in the BSA or a recent reliable record exists for the BSA.	

The following special-status species have potential to occur within the BSA based on the presence of suitable habitat and/or known records of species occurrence within the vicinity of the BSA.

Endangered, Threatened and Rare Plants

A botanical habitat assessment was conducted within the BSA on December 6, 2016 and April 8, 2020. No special-status plant species were observed during these habitat assessments or rare plant survey.

Endangered, Threatened and Special Status Wildlife

A wildlife habitat assessment was conducted within the BSA on December 6, 2016 and November 26, 2023. Suitable habitat was identified for northwestern pond turtles, foothill yellow-legged frog, several avian species protected under the Migratory Bird Treaty Act (MBTA), and pallid bats.

Migratory Birds and Raptors

Nesting birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703) and the California Fish and Game Code (CFGC) (§3503). The MBTA (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance has the potential to affect bird species protected by the MBTA.

The CFGC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFGC (§3503) also states that "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

CNDDB Occurrences for Migratory Birds and Raptors

The majority of migratory birds and raptors protected under the MBTA and CFGC are not recorded on the CNDDB because they are abundant and widespread.

Status of Migratory Birds and Raptors occurring in the BSA

There is suitable nesting habitat for a variety of ground, shrub and tree nesting avian species throughout the BSA. A high diversity of avian species have the potential to nest in the BSA based on the variety of habitat types.

Pallid Bat

There has been an increase in awareness in declining bat populations across the United States, and several species of bats have been recognized as SSC in California. In addition, the CFGC and the California Code of Regulations (CCR) (CFGC §2126 & 4150; CCR §251.1) prohibit incidental or deliberate take[1] of bats. Many bat species are at-risk of population declines and some have been proposed for state and federal listing. There are no trees within the BSA that contain suitable basal cavities or sloughing bark that could support large maternity colonies of bats; however, there are deciduous trees with cavities within the BSA that provide suitable roosting habitat for tree roosting bats. Tree roosting bats with the potential to occur within the project limits include the hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), and western red bat (*Lasiurus blossevillii*). These species prefer to roost on trees that are near a body of water since their main prey items, insects, are often found near bodies of water. While pallid bat is typically a structure roosting bat species, bachelors of this species have the potential to occur in tree cavities within the BSA. The most active time for bats is spring to late summer when insects are most available and temperatures at night are warm. It is during this active period when females give birth to pups and raise their young (typically April 1 – August 31, depending on seasonal temperatures). During the fall and winter bats typically go into torpor or migrate to where temperatures are milder and are suitable for winter roosts.

CNDDB Occurrences of Pallid Bats

There are no CNDDB occurrences of pallid bats within a five-mile radius of the BSA. The nearest occurrence (CNDDB #111) is approximately 12.45 miles southwest of the BSA near Whiskeytown Lake in the "Igo" quadrangle, recorded in 2002.

Status of Pallid Bats occurring in the BSA

There are mature trees within the BSA that provide suitable bird cavities and suitable foliage for tree-roosting bat species. No trees within the BSA were observed to have sloughing bark; therefore, solitarily roosting species that roost on leaves of trees or within small avian-made cavities have a higher potential to occur, while species that require sloughing bark or basal cavities to form large maternity colonies have no potential to occur. The potential for occurrence is **low**.

Northwestern Pond Turtle

The northwestern pond turtle (NPT) is a species of special concern in California. NPT are drab, darkish-colored turtles with yellowish to cream colored heads. They range from the Washington Puget Sound to the California Sacramento Valley. NPT are frequently found within irrigation canals and drainages throughout their range in the Central Valley and are known to bask on banks and woody debris, such as logs, along the sides of perennial aquatic features. They are also known to travel up to 400 meters from aquatic habitat into upland areas to nest (Reese and Welsh 1997) and they may aestivate in upland areas along intermittent drainages for several months during dry periods (Belli 2015). Suitable aquatic habitats include slow-moving to stagnant water, such as backwaters and ponded areas of rivers and creeks, semi-permanent to permanent ponds, and irrigation ditches. Preferred habitats include features such as hydrophytic vegetation for foraging and cover and basking areas to regulate body temperature. In early spring through early summer, female turtles begin to move over land in search for nesting sites. Eggs are laid on the banks of slow-moving streams. The female digs a hole approximately 4 inches deep and lays up to 11 eggs. Afterwards, the eggs are covered with sediment and are left to incubate under the warm soil. Eggs are typically laid between March and August (Zeiner et al. 1990). Current threats facing the western pond turtle include loss of suitable aquatic habitats due to rapid changes in water regimes and removal of hydrophytic vegetation.

CNDDB Occurrences of Northwestern Pond Turtle

There are five (5) CNDDB occurrences of northwestern pond turtle within a five-mile radius of the BSA, however, none occurred in any area with a direct hydrological connection to Moody Creek. The nearest occurrence (CNDDB #656) is approximately 0.60 miles southwest of the BSA in Salt Creek, near Parker Street, Shasta Lake, CA, recorded in 2007.

Status of Northwestern Pond Turtle occurring in the BSA

Suitable habitat is present within the BSA. Since Moody Creek is an intermittent water feature, the potential for occurrence within the BSA is **high**.

Foothill Yellow-Legged Frog

The foothill yellow-legged frog (FYLF) Northwest Clade is listed as an SSC. Suitable habitat for the FYLF includes a permanent water source which may include wet meadows, and rocky steep streams in mix chaparral or woodland habitats. FYLFs utilize the rocks within their surroundings for areas of refuge from predators, basking and cover during periods of in-activity such as over wintering or cold weather. Breeding season begins at the end of the spring flood season, which can be between March and May depending on local conditions. Egg laying typically occurs at a particular site once water temperatures reach 12 to 15° C. FYLF requires shallow, even-flowing water in small to moderate sized streams with cobble/boulder substrate for oviposition. The cobble/boulder substrate also provides significant refuge for early life stages of FYLF. Eggs, tadpoles, and metamorphs are susceptible to aquatic predators such as bullfrogs, various species of fish, and garter snakes (*Thamnophis* sp.). Irregular water flows from large a seasonal precipitation events and large water releases from upstream reservoirs can scour egg masses from oviposition locations. Current threats facing the FYLF are primarily due to invasive and exotic predators such as the bullfrog. Other threats include degradation of habitat, urban development, agriculture and timber harvests.

CNDDB Occurrences of Foothill Yellow-Legged Frog
There are five (5) CNDDB occurrences of FYLF within a five-mile radius of the BSA, however, none occurred in any area with a direct hydrological connection to Moody Creek. The nearest occurrence (CNDDB #633) is approximately 2.3 miles north of the BSA within the West Fork Stillwater Creek tributary, recorded in 1945 and is now believed to be extirpated from this area.

Status of Foothill Yellow-Legged Frog occurring in the BSA
The reach of Moody Creek in the BSA provides suitable breeding habitat. Aquatic habitat is characterized by low gradient, slow moving water, dominated by a coarse, gravelly substrate with fine sands and silt as well as small to large size angular rocks and cobbles. Available amphibian habitat includes undercut banks, overhanging vegetation, and some instream woody debris. In addition, Moody Creek provides a migration corridor for this species. No FYLF has been observed within the BSA during any habitat assessment conducted in 2016, 2018, 2019, 2020 or 2023. As Moody Creek provides suitable habitat, but FYLF has not been documented within Moody Creek, the potential for occurrence with the BSA is **low**.

REGULATORY FRAMEWORK

The following describes federal, state, and local environmental laws and policies that may be relevant if the BSA were to be developed or modified.

Federal

Waters of the United States, Clean Water Act, Section 404[1]

The Corps and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into jurisdictional waters of the United States, under the Clean Water Act (§404). The term "waters of the United States" is an encompassing term that includes "wetlands" and "other waters." Wetlands have been defined for regulatory purposes as follows: "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3, 40 CFR 230.3). Wetlands generally include swamps, marshes, bogs, and similar areas." other waters of the United States are seasonal or perennial water bodies, including lakes, stream

[1] As of August 29, 2023 the EPA and Department of the Army (the agencies) issued a final rule to amend the final "Revised Definition of 'Water of the United States'" rule, published in the Federal Register on January 18, 2023.

channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for one or more of the three wetland parameters (i.e., hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4).

The Corps may issue either individual permits on a case-by-case basis or general permits on a program level. General permits are pre-authorized and are issued to cover similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits are general permits issued to cover particular fill activities. All nationwide permits have general conditions that must be met for the permits to apply to a particular project, as well as specific conditions that apply to each nationwide permit.

Clean Water Act, Section 401

The Clean Water Act (§401) requires water quality certification and authorization for placement of dredged or fill material in wetlands and Other Waters of the United States. In accordance with the Clean Water Act (§401), criteria for allowable discharges into surface waters have been developed by the State Water Resources Control Board, Division of Water Quality. The resulting requirements are used as criteria in granting National Pollutant Discharge Elimination System (NPDES) permits or waivers, which are obtained through the Regional Water Quality Control Board (RWQCB) per the Clean Water Act (§402). Any activity or facility that will discharge waste (such as soils from construction) into surface waters, or from which waste may be discharged, must obtain an NPDES permit or waiver from the RWQCB. The RWQCB evaluates an NPDES permit application to determine whether the proposed discharge is consistent with the adopted water quality objectives of the basin plan.

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect species that are endangered or threatened with extinction. The ESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

Under the FESA, species may be listed as either "endangered" or "threatened." Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. All species of plants and animals, except non-native species and pest insects, are eligible for listing as endangered or threatened. The USFWS also maintains a list of "candidate" species. Candidate species are species for which there is enough information to warrant proposing them for listing, but that have not yet been proposed. "Proposed" species are those that have been proposed for listing, but have not yet been listed.

The FESA makes it unlawful to "take" a listed animal without a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Through regulations, the term "harm" is defined as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

Migratory Bird Treaty Act

The MBTA (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance has the potential to affect bird species protected by the MBTA. Thus, vegetation removal and ground disturbance in areas with breeding birds should be conducted outside of the breeding season (approximately March 1 through August 31 in the Central Valley). If vegetation removal or ground disturbance activities are conducted during the breeding season, then a qualified biologist must determine if there are any nests of bird species protected under the MBTA present in the construction area prior to commencement of construction. If active nests are located or presumed present, then appropriate avoidance measures (e.g. spatial or temporal buffers) must be implemented.

State of California

California Endangered Species Act

The California Endangered Species Act (CESA) is similar to the ESA, but pertains to state-listed endangered and threatened species. The CESA requires state agencies to consult with the CDFW when preparing documents to comply with the California Environmental Quality Act (CEQA). The purpose is to ensure that the actions of the lead agency do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species. In addition to formal listing under the federal and state endangered species acts, "species of special concern" receive consideration by CDFW. Species of special concern are those whose numbers, reproductive success, or habitat may be threatened.

California Fish and Game Code (§3503.5)

The CFGC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (all owls except barn owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young.

Rare and Endangered Plants

The CNPS maintains a list of plant species native to California with low population numbers, limited distribution, or otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS California Rare Plant Rank (CRPR) plants receive consideration under CEQA review. The CNPS CRPR categorizes plants as follows:

- Rank 1A: Plants presumed extinct in California;
- Rank 1B: Plants rare, threatened, or endangered in California or elsewhere;
- Rank 2A: Plants presumed extirpated or extinct in California, but not elsewhere;
- Rank 2B: Plants rare, threatened, or endangered in California, but more numerous elsewhere;
- Rank 3: Plants about which we need more information; and
- Rank 4: Plants of limited distribution.

The California Native Plant Protection Act (CFGC §1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered as defined by CDFW. An exception to this prohibition allows landowners, under specific circumstances, to take listed plant species, provided that the owners first notify CDFW and give the agency at least 10 days to retrieve (and presumably replant) the plants and/or seeds before they are destroyed. Fish and game

Code §1913 exempts from the 'take' prohibition "the removal of endangered or rare native plants from a canal, lateral channel, building site, or road, or other right of way."

CFGC §2126 & 4150 and Title 14 California Code of Regulations §251.1

The CFGC §2126 states that "Except as otherwise authorized by this code or regulations made pursuant thereto, it is unlawful for any person to take any mammal as identified by Section 2118 [Order Chiroptera (bats) identified by Section 2118]."

CFGC §4150 states "A mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A nongame mammal may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission."

Title 14 of the California Code of Regulations (CCR) §251.1 states "Except as otherwise authorized in these regulations or in the Fish and Game Code, no person shall harass, herd or drive any game or nongame bird or mammal or furbearing mammal. For the purposes of this section, harass is defined as an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering. This section does not apply to a landowner or tenant who drives or herds birds or mammals for the purpose of preventing damage to private or public property, including aquaculture and agriculture crops."

Lake and Streambed Alteration Agreement, CFGC (§1602)

The CDFW is a trustee agency that has jurisdiction under the CFGC (§1600 et seq.). The CFGC (§1602), requires that a state or local government agency, public utility, or private entity must notify CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds… except when the department has been notified pursuant to Section 1601." If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures.

California Environmental Quality Act Guidelines §15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines §15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled based on the definition in the ESA and the section of the CFGC dealing with rare, threatened, and endangered plants and animals. The CEQA Guidelines (§15380) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (e.g. candidate species, species of concern) would occur. Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

CONCLUSIONS AND RECOMMENDATIONS

Endangered, Threatened and Rare Plants

A botanical habitat assessment was conducted within the BSA on December 6, 2016 and April 8, 2020.

No special-status plant species or their habitats were observed during the habitat assessment, therefore, there will be no impacts to botanical species and no avoidance and minimization measures are proposed.

Endangered, Threatened, and Special-status Wildlife

The following are the recommended minimization and mitigation measures to reduce or eliminate Project-associated impacts to special-status wildlife species. These proposed measures may be amended or superseded by the Project-specific permits issued by the regulatory agencies.

Migratory Birds and Raptors

To avoid impacts to avian species protected under the MBTA and the CFGC the following are recommended avoidance and minimization measures for migratory birds and raptors:

- Project activities including site grubbing and vegetation removal are recommended to occur September 1 – February 14, outside of the bird nesting season (February 15 – August 31).
- If Project activities cannot be initiated outside of the bird nesting season, then the following shall occur:
    - A qualified biologist shall conduct a pre-construction survey within the BSA and within 250 feet of the BSA boundary, where accessible, within 7 days of starting Project activities.
    - If an active nest (i.e. containing egg(s) or young) is observed within the BSA or in an area adjacent to the BSA where impacts could occur, then a species specific protection buffer will be established. The species protection buffer will be defined by the qualified biologist based on the species, nest type, and tolerance to disturbance. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails. Nests shall be monitored by a qualified biologist once per week and a report submitted to the CEQA lead agency weekly.

Roosting Bats

To avoid impacts to tree-roosting bat species protected under CFGC §2126 & 4150 and CCR §251.1, the following are recommended avoidance and minimization measures for tree-roosting bat species:

- Tree removal should occur September 1 – March 31, outside of the bat maternity season (typically April – September depending on seasonal temperatures) and when temperatures are above 45 degrees Fahrenheit to avoid the bat torpor season (typically October – April) when bats may be hibernating within tree hallows.

Northwestern Pond Turtle

To avoid impacts to northwestern pond turtle, the following avoidance and minimization measures are recommended:

- Immediately prior to conducting work within 200 feet of suitable aquatic habitat, a qualified biologist shall conduct a clearance survey for northwestern pond turtles.
- If northwestern pond turtles are identified in an area where they may be impacted by Project activities, all work activities shall halt within 100 feet of the observation, and the biologist shall relocate the turtles outside of the work area to appropriate habitat.
- A species protection buffer (determined by the biologist) may be installed using silt fencing along Moody Creek to exclude turtles from the work area.

- Results of clearance surveys and relocations shall be provided to CDFW.

Foothill Yellow-Legged Frog

To avoid impacts to FYLF protected by the CDFW, the following are recommended avoidance and minimization measures for FYLF:

- If Project activities will impact Moody Creek or occur within twenty-five (25) feet of the banks of Moody Creek, then a qualified biologist will conduct a pre-construction survey for FYLF within the BSA and 300 feet upstream and downstream of the BSA three (3) days prior to the initiation of construction activities.
- If work is to occur within Moody Creek, a qualified biologist shall conduct a clearance survey immediately prior to the initiation of in-water work. The qualified biologist shall relocate all FYLF individuals to nearby suitable habitat, outside of Project influences.
- Results of surveys and relocations shall be provided to CDFW.

Other Natural Resources

Waters of the United States

If activities occur within the ordinary high-water mark and/or result in fill or discharge to any waters of the United States which include but are not limited to, intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, vernal pools or natural ponds, then the following will need to be obtained:

- Prior to any discharge or fill material into waters of the United States, authorization under a Nationwide Permit or Individual Permit shall be obtained from USACE. For fill requiring a USACE permit, a water quality certification from the Regional Water Quality Board (Clean Water Act §401) shall also be obtained prior to discharge of dredged or fill material.
- Prior to any activities that would obstruct the flow of or alter the bed, channel, or bank of any perennial, intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFW, and, if required, a Lake and Streambed Alteration Agreement (§1602) shall be obtained.

Mitigation requirements for the fill of waters of the United States will be implemented through an onsite restoration plan, and/or an In Lieu Fund and/or a certified mitigation bank with a Service Area that covers the Project area. These agreements, certifications and permits may be contingent upon successful completion of the CEQA process.

Protected Tree Removal

Impacts to protected trees within the BSA must be mitigated as required by the City of Shasta Lake. The City of Shasta Lake enacted a Tree Conservation Ordinance (Chapter 12.36 of the Municipal Code) and pre-development review protocols for major projects.[1] Prior to conducting work, a *Pre-development Review for Major Projects*, which include a tree delineation map, conceptual development plans, and a *Tree Removal and Replacement Plan for Major Projects* will be required. The Tree Removal and

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[1] City of Shasta Lake. Tree Conservation, Pre-development review for major projects. Retrieved from:

https://library.municode.com/ca/shasta_lake/codes/code_of_ordinances?nodeId=TIT12STSIPUPL_CH12.36TRCO_12.36.062PVEREMAPR

Replacement Plan will contain several pieces of information including the locations of all protected trees, a tabled key which includes species names, measurement of each trees diameter at breast height (DBH), and condition/health, locations of streams, wetlands, and/or drainages, etc. “Protected trees” refers to any living tree, except gray pine (*Pinus sabiniana*), having at least one trunk of ten (10) inches or more DBH, a tree that is required to be preserved under discretionary project approval or under a tree removal permit granted by either the director or the planning commission, as well as any “heritage” tree which is any tree exceeding thirty-six (36) inches or larger DBH; or any native oak including but not limited to: Blue oak (*Quercus douglasii*), black oak (*Quercus kelloggii*), valley oak (*Quercus lobate*), interior live oak (*Quercus wislizeni*), and canyon live oak (*Quercus chrysolepis*)—twenty-four (24) inches or larger DBH; and any tree specifically designated as a heritage tree by action of the planning commission.

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LIST OF PREPARERS

Jessica Sellers. Lead Biologist. B.S. in Wildlife (Conservation Biology/Applied Vertebrate Ecology), Humboldt State University, Arcata, CA. Ms. Sellers has more than 12 years of experience conducting protocol level fisheries surveys in both marine and freshwater environments, terrestrial and aquatic wildlife surveys, inventories, and population management, habitat assessments, biological and botanical data collection, construction compliance monitoring, wildlife exclusion installations, and preparing technical documents and reports.

Nick Perazzo. Biologist. (B.S. in Fisheries and Wildlife Sciences, Oregon State University) has 4 years of experience working in biological field conducting hands on field surveys and assessments for anadromous salmonids, fish culture, data collection, and preparing technical documents and reports.

Alexander Smither. Biologist. (B.S. Recreation Administration: Parks and Natural Resources Management, California State University, Chico) has 5 years of experience working in the biological field conducting wildlife surveys and habitat assessments, field data collection, and preparing technical documents and reports.

Mitchell Hackett. GIS Analyst and Environmental Planner. (B.S. in Geography with a certificate in Geographical Information Systems, Oregon State University) has more than 5 years of experience working with GIS to create high quality maps and analysis of datasets for technical reports.

Appendix A: Species Lists

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Shasta Dam (4012264) OR Project City (4012263) OR Bella Vista (4012262) OR O'Brien (4012273) OR Minnesota Mtn. (4012272) OR Bohemotash Mtn. (4012274) OR Redding (4012254) OR Enterprise (4012253) OR Palo Cedro (4012252))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acipenser medirostris pop. 1 green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Ageratina shastensis Shasta ageratina	PDASTBX0R0	None	None	G3	S3	1B.2
Agrostis hendersonii Henderson's bent grass	PMPOA040K0	None	None	G2Q	S2	3.2
Anthicus antiochensis Antioch Dunes anthicid beetle	IICOL49020	None	None	G3	S3	
Anthicus sacramento Sacramento anthicid beetle	IICOL49010	None	None	G4	S4	
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Bombus pensylvanicus American bumble bee	IIHYM24260	None	None	G3G4	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Brodiaea matsonii Sulphur Creek brodiaea	PMLIL0C0H0	None	None	G1	S1	1B.1
Clarkia borealis ssp. borealis northern clarkia	PDONA05062	None	None	G3T4	S4	4.3
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Cryptantha crinita silky cryptantha	PDBOR0A0Q0	None	None	G2	S2	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Entosphenus tridentatus Pacific lamprey	AFBAA02100	None	None	G4	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Erythranthe taylorii Shasta limestone monkeyflower	PDPHR01080	None	None	G2	S2	1B.1
Erythronium shastense Shasta fawn lily	PMLIL0U0V0	None	None	G2	S2	1B.2
Euderma maculatum spotted bat	AMACC07010	None	None	G4	S3	SSC
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
Fritillaria eastwoodiae Butte County fritillary	PMLIL0V060	None	None	G3Q	S3	3.2
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Great Valley Valley Oak Riparian Forest Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
Great Valley Willow Scrub Great Valley Willow Scrub	CTT63410CA	None	None	G3	S3.2	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Helminthoglypta hertleini Oregon shoulderband	IMGASC2280	None	None	G3Q	S1S2	
Hydromantes shastae Shasta salamander	AAAAD09030	None	Threatened	G3	S3	
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2	1B.1
Lanx patelloides kneecap lanx	IMGASL7030	None	None	G2?	S2	
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G3G4	S3S4	
Lathyrus sulphureus var. argillaceus dubious pea	PDFAB25101	None	None	G5T1T2Q	S1S2	3
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	
Lewisia cantelovii Cantelow's lewisia	PDPOR04020	None	None	G3	S3	1B.2
Limnanthes floccosa ssp. bellingeriana Bellinger's meadowfoam	PDLIM02041	None	None	G4T3	S1	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Limnanthes floccosa ssp. floccosa woolly meadowfoam	PDLIM02043	None	None	G4T4	S3	4.2
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Margaritifera falcata western pearlshell	IMBIV27020	None	None	G5	S1S2	
Monadenia churchi Klamath sideband	IMGASC7010	None	None	G2G3	S3	
Monadenia troglodytes troglodytes Shasta sideband	IMGASC7091	None	None	G1G2T1T2	S2	
Monadenia troglodytes wintu Wintu sideband	IMGASC7092	None	None	G1G2T1T2	S2	
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Neviusia cliftonii Shasta snow-wreath	PDROS14020	None	Threatened	G2	S2	1B.2
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 11 chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5T1Q	S2	
Orcuttia tenuis slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Paronychia ahartii Ahart's paronychia	PDCAR0L0V0	None	None	G3	S3	1B.1
Pekania pennanti Fisher	AMAJF01020	None	None	G5	S2S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Rana boylii pop. 1 foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	G3T4	S4	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S3	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Sedum paradisum ssp. paradisum Canyon Creek stonecrop	PDCRA0A0U3	None	None	G3G4T3	S3	1B.3
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Trifolium piorkowskii maverick clover	PDFAB40410	None	None	G2	S2	1B.2
Trilobopsis roperi Shasta chaparral	IMGASA2030	None	None	G2	S1	
Vaccinium shastense ssp. shastense Shasta huckleberry	PDERI181Z1	None	None	G4T3	S3	1B.3
Vespericola shasta Shasta hesperian	IMGASA4070	None	None	G3	S3	
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

Record Count: 65

CNPS Rare Plant Inventory

California Native Plant Society

Search Results

37 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**4012263:4012264:4012262:4012252:4012253:4012254:4012274:4012273:4012272**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK
Adiantum shastense	Shasta maidenhair fern	Pteridaceae	perennial herb	Apr-Aug	None	None	4.3
Ageratina shastensis	Shasta ageratina	Asteraceae	perennial herb	Jun-Oct	None	None	1B.2
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	3.2
Allium incomptum	Minnesota Mountain onion	Alliaceae	perennial bulbiferous herb	Apr-May	None	None	1B.3
Allium sanbornii var. sanbornii	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	None	None	4.2
Arctostaphylos malloryi	Mallory's manzanita	Ericaceae	perennial evergreen shrub	Apr-Jul	None	None	4.3
Arnica venosa	Shasta County arnica	Asteraceae	perennial rhizomatous herb	May-Jul(Sep)	None	None	4.2
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	4.3
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	1B.2
Brodiaea matsonii	Sulphur Creek brodiaea	Themidaceae	perennial bulbiferous herb	May-Jun	None	None	1B.1
Bulbostylis capillaris	thread-leaved beakseed	Cyperaceae	annual herb	Jun-Aug	None	None	4.2
Clarkia borealis ssp. borealis	northern clarkia	Onagraceae	annual	Jun-Sep	None	None	4.3
Cryptantha crinita	silky cryptantha	Boraginaceae	annual herb	Apr-May	None	None	1B.2
Eriogonum tripodum	tripod buckwheat	Polygonaceae	perennial deciduous shrub	May-Jul	None	None	4.2
Eriogonum ursinum var. erubescens	blushing wild buckwheat	Polygonaceae	perennial herb	Jun-Sep	None	None	1B.3
Erythranthe taylorii	Shasta limestone monkeyflower	Phrymaceae	annual herb	(Feb)Apr-May	None	None	1B.1
Erythronium shastense	Shasta fawn lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Apr	None	None	1B.2
Fritillaria eastwoodiae	Butte County fritillary	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	3.2
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	1B.2
Iris bracteata	Siskiyou iris	Iridaceae	perennial rhizomatous herb	May-Jun	None	None	3.3
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	None	None	1B.1

Lathyrus sulphureus var. *argillaceus*	dubious pea	Fabaceae	perennial herb	Apr-May	None	None	3
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	1B.1
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	Apr-Jun	None	None	4.3
Lewisia cantelovii	Cantelow's lewisia	Montiaceae	perennial herb	May-Oct	None	None	1B.2
Lewisia cotyledon var. *howellii*	Howell's lewisia	Montiaceae	perennial herb	Apr-Jul	None	None	3.2
Limnanthes floccosa ssp. *bellingeriana*	Bellinger's meadowfoam	Limnanthaceae	annual herb	Apr-Jun	None	None	1B.2
Limnanthes floccosa ssp. *floccosa*	woolly meadowfoam	Limnanthaceae	annual herb	Mar-May(Jun)	None	None	4.2
Neviusia cliftonii	Shasta snow-wreath	Rosaceae	perennial deciduous shrub	Apr-Jun	None	CT	1B.2
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	FT	CE	1B.1
Paronychia ahartii	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	None	None	1B.1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	1B.2
Sedum paradisum ssp. *paradisum*	Canyon Creek stonecrop	Crassulaceae	perennial herb	May-Jun	None	None	1B.3
Sidalcea celata	Redding checkerbloom	Malvaceae	perennial herb	Apr-Aug	None	None	3
Trifolium piorkowskii	maverick clover	Fabaceae	annual herb	Apr-May	None	None	1B.2
Vaccinium shastense ssp. *shastense*	Shasta huckleberry	Ericaceae	perennial deciduous shrub	(Jun-Sep)Dec-May	None	None	1B.3
Viburnum ellipticum	oval-leaved viburnum	Viburnaceae	perennial deciduous shrub	May-Jun	None	None	2B.3

Showing 1 to 37 of 37 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 7 November 2023].

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: November 07, 2023
Project Code: 2024-0013274
Project Name: City of Shasta Lake Commercial Center

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 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 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:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.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/program/migratory-bird-permit/what-we-do.

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/library/collections/threats-birds.

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/partner/council-conservation-migratory-birds.

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".

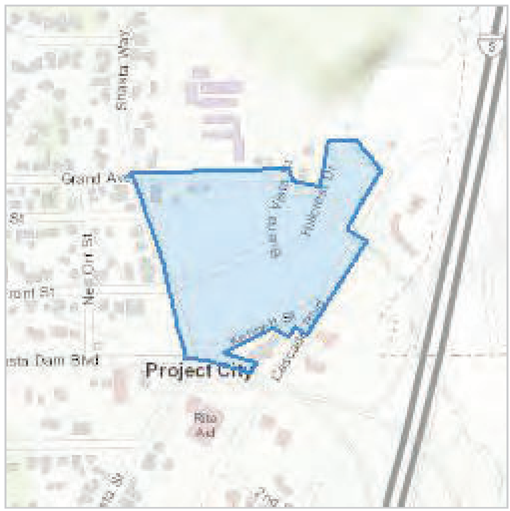
This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2024-0013274
Project Name: City of Shasta Lake Commercial Center
Project Type: New Constr - Above Ground
Project Description: Shasta Lake, CA
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.6815673,-122.3510113211878,14z



Counties: Shasta County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 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 Fisheries[1], 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.

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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.

BIRDS

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina* 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

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Shasta Crayfish *Pacifastacus fortis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8284	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* 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

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:	Private Entity
Name:	Alexander Smither
Address:	117 Meyers Street
Address Line 2:	Suite 120
City:	Chico
State:	CA
Zip:	95928
Email	alex@gallawayenterprises.com
Phone:	5303329909

City of Shasta Lake Commercial Center

Quad Name **Project City**

Quad Number **40122-F3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Lead Agency:
Sharrah Dunlap Sawyer, Inc.

Applicant:
Mike Dormer
Sharrah Dunlap Sawyer, Inc.
320 Hartnell Avenue
Redding, CA 96002

Alexander Smither
Gallaway Enterprises
530.332.9909

Appendix B: “Plant Species Observed on Project Study Area” from Salix Wetland Delineation in 2013

APPENDIX B

Shasta Way Commercial – Plants Observed - 6-14-13

Taxon	Common Name	Wetland Status
Acacia baileyana	Cootamundra wattle	-
Acmispon americanus	Spanish-clover	-
Ailanthus altissima	Tree of heaven	FACU
Amsinckia menziesii	Common fiddlneck	-
Arctostaphylos viscida	Whiteleaf manzanita	-
Avena fatua	Wild oat	-
Bromus diandrus	Ripgut grass	-
Bromus hordeaceus	Soft chess	FACU
Carduus pycnocephalus	Italian thistle	-
Ceanothus cuneatus var. cuneatus	Buck brush	-
Cenaurium venusta	Canchalagua	-
Cephalanthus occidentalis	Common buttonbush	OBL
Centaurea solstitialis	Yellow starthistle	-
Cercis occidentalis	Western redbud	-
Chlorogalum pomeridianum var. pomeridianum	Soap plant	-
Cichorium intybus	Chicory	FACU
Convolvulus arvensis	Bindweed	-
Cynodon dactylon	Bermudagrass	FACU
Cynosurus echinatus	Hedgehog dogtail	-
Cyperus eragrostis	Tall flatsedge	FACW
Cytisus scoparius	Scotch broom	-
Eleocharis macrostachya	Creeping spikerush	-
Elymus glaucus	Blue wildrye	FACU
Epilobium ciliatum	Hairy willow-herb	FACW
Geranium dissectum	Cut-leaf geranium	-
Hordeum marinum subsp. gussoneanum	Mediterranean barley	FAC
Hordeum murinum	Foxtail barley	FACU
Hypericum perforatum	Klamathweed	FACU
Juncus tenuis	Slender rush	FACW
Lactuca serriola	Prickly lettuce	FACU
Lythrum hyssopifolia	Hyssop loosestrife	OBL

Madia elegans	Common madia	-
Mentha pulegium	Pennyroyal	OBL
Mimulus guttatus	Common monkeyflower	OBL
Morus alba	White mulberry	FACU
Nasturtium officinale	Water cress	OBL
Paspalum dilatatum	Dallis grass	FAC
Pinus sabiniana	Foothill pine	-
Plantago lanceolata	English plantain	FAC
Platanus acerifolia	London plane tree	-
Polypogon monspeliensis	Annual beard grass	FACW
Populus deltoides	Fremont cottonwood	FAC
Prunus dulcis	Almond tree	-
Prunus sp.	Prunus	-
Prunus subcordata	Pacific plum	-
Quercus douglasii	Blue oak	-
Quercus lobata	Valley oak	FACU
Quercus wislizeni var. wislizeni	Interior live oak	-
Raphanus sativus	Wild radish	-
Robinia pseudoacacia	Black locust	FACU
Rosa californica	California rose	FAC
Rubus armeniacus	Himalayan blackberry	FACU
Rumex crispus	Curly dock	FAC
Salix gooddingii	Goodding's black willow	FACW
Salix lasiolepis	Arroyo willow	FACW
Spergularia rubra	Ruby sand-spurrey	FAC
Toxicodendron diversilobum	Western poison-oak	-
Tragopogon dubius	Yellow salsify	-
Trifolium hirtum	Rose clover	-
Verbascum blattaria	Moth mullein	FACW
Vicia sp.	Vetch	-
Vinca major	Periwinkle	-
Vitis californica	California wild grape	FACU

Appendix C: Observed Species from Gallaway Enterprises' in 2016, 2020, and 2023

Observed Species at COSL SR2S Project on December 6, 2016, April 8, 2020, and November 16, 2023.	
Plant and Tree Species	
Scientific Name	**Common Name**
Acacia dealbata	Silver wattle acacia
Acer saccharinum	Silver maple
Acmispon americanus	Spanish lotus
Ailanthus altissima	Tree of heaven
Alisma lanceolatum	Alisma lanceolatum
Avena barbata.	Slender wild oat
Bromus diandrus	Rip-gut brome
Bromus hordeaceus	Soft brome
Centromadia fitchii	Fitch's spikeweed
Centaurea solstitialis	Yellow star thistle
Cichorium intybus	Chicory
Cynodon dactylon	Bermuda grass
Cyperus eragrostis	Tall nutsedge
Elymus caput-medusae	Medusahead
Erodium botrys	Broadleaf filaree
Festuca perennis	Italian ryegrass
Galium aparine	Cleavers
Geranium dissectum	Cutleaf geranium
Hordeum marinum ssp. gussoneanum	Mediterranean barley
Lactuca serriola	Prickly Lettuce
Morus sp.	Mulberry
Paspalum dilatatum	Dalisgrass
Pinus sabiniana	Foothill pine
Plantago lanceolata	Narrow leaf plantain
Platanus racemose	California sycamore
Populus fremontii	Fremont's cottonwood
Populus sp./Populus x canadensis	Hybrid poplar
Prunus cerasifera	Cherry plumb
Quercus douglasii	Blue oaks
Quercus lobata	Valley oak
Quercus wislizeni	Interior live oak
Rumex crispus	Curly dock
Rosa sp.	Wild rose
Rubus armeniacus	Himalayan blackberry
Salix lasiolepis	Arroyo willow
Stipa pulchra	Purple needlegrass
Symphyotrichum subulatum var. parviflorum	Annual saltmarsh aster
Torilis arvensis	Hedge parsley
Toxicodendron diversilobum	Poison oak
Typha latifolia	Cattails
Vicia villosa	Vetch
Vinca major	Periwinkle

Vitis californica	Wild grape
Animal Species	
Scientific Name	**Common Name**
Cathartes aura	Turkey vulture
Pseudacris regilla	Pacific tree frog (audible observance)
Regulus calendula	Ruby-crowned kinglet
Sayornis nigricans	Black phoebe
Sciurus griseus	Western gray squirrel
Spinus psaltria	Lesser goldfinch
Spinus tristis	American Goldfinch

Appendix D: Site Photos taken on November 16, 2023

Photos Taken on November 16, 2023

	
Eastern portion of BSA, facing northwest.	Front street running east to west through BSA, facing northeast.
	
Eastern portion of BSA, facing west.	Middle portion of the BSA, facing south.
	
Northwest portion of the BSA, facing southwest.	Western portion of the BSA, facing southeast.

Southwest portion of the BSA, facing southeast.

Southern portion of the BSA, facing east.

Northeast portion of the BSA, facing northeast.

Moody creek portion flowing along the northern boundary of the BSA, facing east.

Moody creek portion flowing through the northeast portion of the BSA, facing south.

Drainage ditch and man-made berm at the southeast portion of the BSA, facing northeast.

<table>
<tr><td></td><td></td></tr>
<tr><td>Culvert directing water toward Moody creek from drainage ditch running east to west through the BSA, facing northeast.</td><td>Culvert opening directing water into Moody creek at the eastern portion of the BSA, facing northeast.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Culvert directing water into Moody creek at the eastern portion of the BSA, facing northeast.</td><td>Interior live oak observed within the BSA.</td></tr>
</table>

	
Blue oak observed within the BSA.	Armenian blackberry observed within the BSA.
	
Hybrid poplar observed within the BSA.	Fremont cottonwood observed within the BSA.

	
Silver maple observed within the BSA.	Valley oak observed within the BSA.

Appendix C

Draft Delineation of Aquatic Resources

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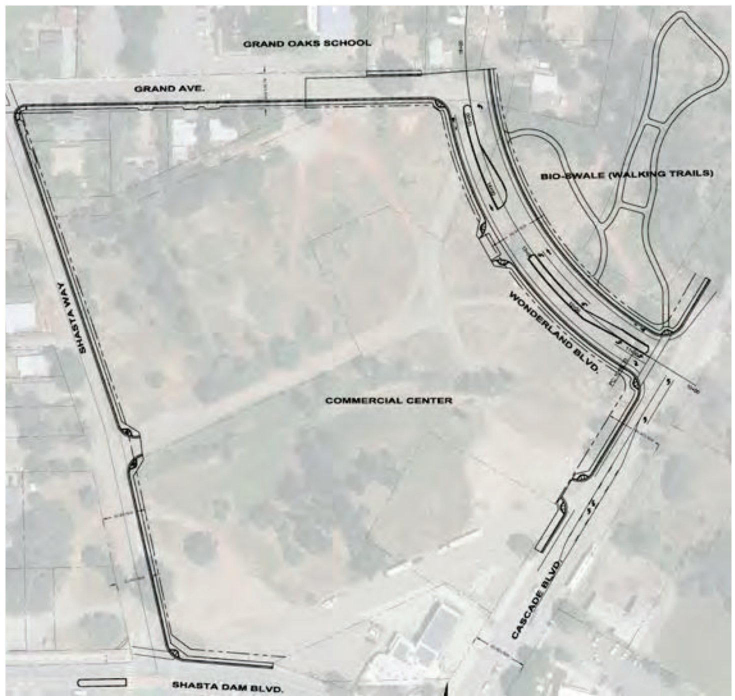
DRAFT DELINEATION OF AQUATIC RESOURCES



City of Shasta Lake Commercial Center Safe Routes to School

City of Shasta Lake, Shasta County, California

June 2024

Prepared for:
City of Shasta Lake
P.O. Box 777
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Prepared by:
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DRAFT DELINEATION OF AQUATIC RESOURCES

City of Shasta Lake Commercial Center Safe Routes to School (SR2S)

Introduction and Project Location

Gallaway Enterprises (GE) conducted a Delineation of Aquatic Resources including waters of the United States (WOTUS) for the City of Shata Lake Commercial Center Safe Routes to School (SR2S) Project (Project/Survey Area) consisting of an approximately 7.44-acre site located on the northeast corner of the intersection of Shasta Dam Boulevard (CA-151) and Shasta Way in the City of Shasta Lake (City), Shasta County, CA (Figure 1 and 2). The Survey Area has historically been disturbed and altered as a result of development. The Project is located off of Shasta Dam Boulevard, within the City of Shasta Lake, Shasta County, California, Latitude 40.681725, Longitude -122.350822, within the USGS “Project City” quadrangle, Section 29 & 32, Township 33N, Range 04W.

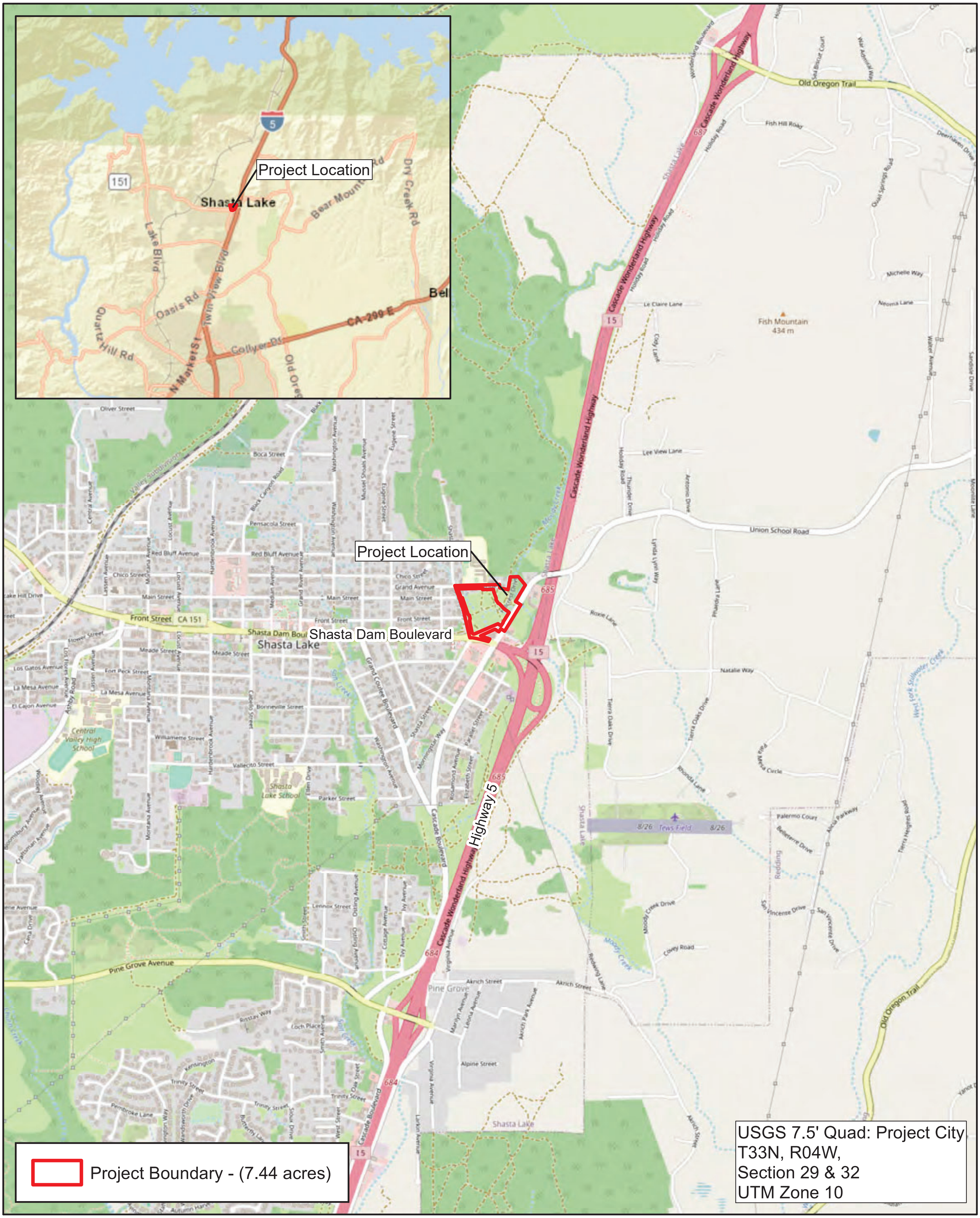
To access the site; take Interstate 5 north to Shasta Lake, take exit 685 for Shasta Dam Blvd/CA-151 and continue straight onto Shasta Dam Blvd, then turn right onto Shasta Way. The Survey Area consists of the roadways that surround the proposed commercial center (Shasta Way, Grand Avenue, Wonderland Boulevard, Cascade Boulevard and a portion of Shast Dam Boulevard) including an area to the northeast that consists of a proposed bio-swale and walking trails.

A survey of WOTUS was conducted on November 16, 2023 by GE biologists Jessica Sellers and Nick Perazzo. Previous surveys for WOTUS at the site were conducted on December 6, 2016, April 10, 2018 and April 8, 2020 by GE senior botanist Elena Gregg. The previous surveys included the center portion of the site (labeled as “Not a Part”), but not the northwest corner of the site at the corner of Shasta Way and Grand Avenu. The aquatic resources within the previously survey site was verified by the United States Army Corps of Engineers (USACE) on February 21, 2020 (SPK-2019-00856).

Data regarding the location and extent of waters of the United States and other aquatic resources were collected using a Trimble Geo Explorer 6000 Series GPS Receiver. The survey involved an examination of botanical resources, soils, hydrological features, and determination of wetland characteristics based on the *United States Army Corps of Engineers Wetlands Delineation Manual* (1987) (1987 Delineation Manual); the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (2008) (Arid West Manual); the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (2007); the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (2008), and the *2022 Arid West Regional Wetland Plant List* and the *2020 National Wetland Plant List.* In addition, the South Pacific Division Regulatory Program *Wetlands Determination and Delineation Procedures for Irrigated Lands* (2012) was also used in preparing this report. Gallaway Enterprises has prepared this report in compliance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (January 2016).

Environmental Setting and Site Conditions

The Survey Area has been historically altered with the exception of the northeast corner of the site where Moody Creek flows through the site. The Survey Area is bound by Grand Avenue to the north, Cascade Boulevard to the east, Shasta Dam Boulevard to the south, and Shasta Way to the west. The Survey Area is situated in the foothills bordering the furthest northern portion of the Sacramento Valley, approximately 4.5 miles south of Lake Shasta.



NORTH

1:24,000 1 inch = 2,000 feet

0 0.25 0.5 Miles

Data Sources: ESRI, OpenStreetMap, City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Regional Location
Figure 1

gallaway ENTERPRISES

GE: #23-114 Map Date: 12/07/2023

NORTH

1:2,400 1 inch = 200 feet

0 100 200 Feet

Data Sources: ESRI, Maxar 09/16/2022
City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Project Location
Figure 2

gallaway ENTERPRISES

GE: #23-114 Map Date: 01/11/2024

Annual grassland, blue oak-foothill pine, urban, valley foothill riparian, riverine, lacustrine, and barren habitats are found within the Survey Area and Moody Creek, an intermittent tributary, runs through the northeast corner of the Survey Area from north to south. The surrounding area consists of suburban and commercial development, blue oak-foothill pine and blue oak woodland. Due to the disturbed nature of the Survey Area, non-native vegetation predominates much of the site. The overall topography of the Survey Area is relatively flat to gently sloping. Soils within the Survey Area are loams or silty loams with a restrictive layer ranging from 20 to 28 inches in depth. The average annual precipitation for the area is 32.15 inches and the average annual temperature is 63.1° F (WRCC 2024).

A series of man-made ditches were constructed to convey water run-off from Shasta Way and Grand Avenue. Precipitation and surface irrigation runoff from the site and surrounding land function as the main hydrological inputs within the Survey Area for these features. Although the Survey Area has been historically altered, the disturbance occurred no later than 1996, and are, thus, not recent. Therefore, conditions within the Survey Area are not considered atypical since these conditions have been present for more than 20 years and are considered "normal" to the site.

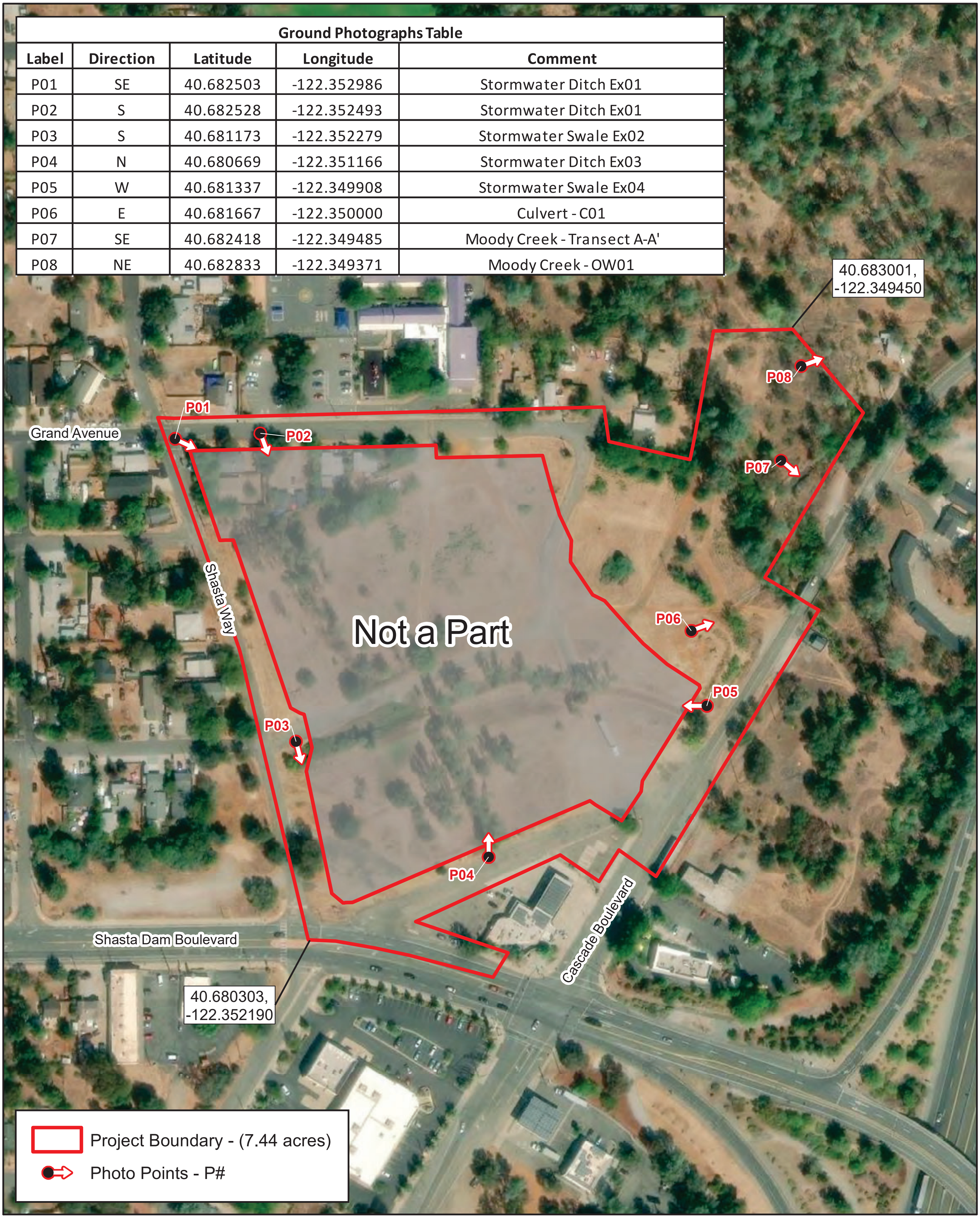
Survey Methodology

The entire Survey Area was walked on-foot by Gallaway Enterprises staff on November 16, 2023 to identify any potentially jurisdictional features. The survey, mapping efforts, and report production were performed according to the current valid legal definitions of WOTUS in effect on September 8, 2023. The boundaries of non-tidal, non-wetland waters, when present, were delineated at the ordinary high-water mark (OHWM) as defined in 33 Code of Federal Regulations (CFR) 328.3. The OHWM represents the limit of United States Army Corps of Engineers (Corps) jurisdiction over non-tidal waters (e.g., streams and ponds) in the absence of adjacent wetlands (33 CFR 328.04) (Curtis, et. al. 2011). Historic aerial photographs available on Google Earth were analyzed prior to conducting the field visit. Areas identified as having potential wetland or unusual aerial signatures were assessed in the field to determine the current conditions.

Field data sheets from the previously developed wetland delineation were reviewed (**Appendix A**). Wetland perimeters based on the 1987 Delineation Manual and the Arid West Manual were recorded, if observed, and defined according to their topographic and hydrologic orientation. Only areas exhibiting the necessary wetland parameters according to the 1987 Delineation Manual and Arid West Manual on the date surveyed were mapped as wetlands. Sample points were established for each wetland and the corresponding upland zone. Test pit sampling was performed in areas displaying potential wetland signatures on past aerial photographs and problem areas. Sampling points involved physical sampling of soils and vegetation, and investigation regarding hydrological connectivity. Only areas exhibiting the necessary wetland/other waters parameters were mapped as aquatic features. Photographs were taken to show aquatic features and/or areas identified as having unusual aerial signatures. The locations of the photo points are depicted in **Figure 3** and the associated photographs are provided at the end of the report.

Ground Photographs Table

Label	Direction	Latitude	Longitude	Comment
P01	SE	40.682503	-122.352986	Stormwater Ditch Ex01
P02	S	40.682528	-122.352493	Stormwater Ditch Ex01
P03	S	40.681173	-122.352279	Stormwater Swale Ex02
P04	N	40.680669	-122.351166	Stormwater Ditch Ex03
P05	W	40.681337	-122.349908	Stormwater Swale Ex04
P06	E	40.681667	-122.350000	Culvert - C01
P07	SE	40.682418	-122.349485	Moody Creek - Transect A-A'
P08	NE	40.682833	-122.349371	Moody Creek - OW01



NORTH

1:2,400 1 inch = 200 feet

0 100 200 Feet

Data Sources: ESRI, Maxar 09/16/2022
City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Ground Photographs
Figure 3

gallaway ENTERPRISES

GE: #23-114 Map Date: 01/11/2024

Many of the terms used throughout this report have specific meanings relating to the federal wetland delineation process. Term definitions are based on the Corps 1987 Delineation Manual; the Arid West Manual; *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, (*Lichvar and McColley 2008*)* and the March 20, 2023 *Revised Definition of "Waters of the United States"* published in the Federal Register, Vol.88, No. 11 (2023 WOTUS Rule) and the September 8, 2023 Revised Definition of "waters of the United states" published in the Federal Register, document 2023-18929 (final rule). The terms defined below have specific meaning relating to the delineation of WOTUS as prescribed by §404 of the Clean Water Act (CWA) and described in 33 CFR Part 328 and 40 CFR Parts 110, 112, and 116, and 122.

Determination of Hydrophytic Vegetation

The presence of hydrophytic vegetation was determined using the methods outlined in the 1987 Delineation Manual and the Arid West Manual. Areas were considered to have positive indicators of hydrophytic vegetation if they pass the dominance test, meaning more than 50 percent of the dominant species are obligate wetland, facultative wetland and facultative plants. Plant species were identified to the lowest taxonomy possible. Plant indicator status was determined by reviewing the 2022 Arid West Region Wetland Plant List and the 2020 National Wetland Plant List. In situations where dominance can be misleading due to seasonality, the prevalence index will be used to determine hydrophytic status of the community surrounding sample sites.

Plant indicator status categories:

Obligate wetland plants (OBL) – plants that occur almost always (estimated probability 99%) in wetlands under normal conditions, but which may also occur rarely (estimated probability 1%) in non-wetlands.

Facultative wetland plants (FACW) - plants that usually occur (estimated probability 67% to 99%) in wetlands under normal conditions, but also occur (estimated probability 1% to 33%) in non-wetlands.

Facultative plants (FAC) – Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands.

Facultative upland plants (FACU) – Plants that occur sometimes (estimated probability1% to 33%) in wetlands, but occur more often (estimated probability 67% to 99%) in non-wetlands.

Obligate upland plants (UPL) – Plants that occur rarely (estimated probability 1%) in wetlands, but occur almost always (estimated probability 99%) in non-wetlands under natural conditions.

Determination of Hydric Soils

Soil survey information was reviewed for the current site condition. Field samples, when taken, were evaluated by using the Munsell soil color chart (2009 Edition), hand texturing, and assessing soil features (e.g. oxidized root channels, evidence of hardpan, Mn and Fe concretions). Information regarding local soil and series descriptions is provided in **Appendix B.** The current Natural Resources Conservation Service (NRCS) *Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS 2018) was used in conjunction with the Arid West Manual to determine the presence of hydric soil indicators when necessary.

Determination of Wetland Hydrology

Wetland hydrology was determined to be present if a site supported one or more of the following characteristics:

- Landscape position and surface topography (e.g. position of the site relative to an up-slope water source, location within a distinct wetland drainage pattern, and concave surface topography),
- Inundation or saturation for a long duration either inferred based on field indicators or observed during repeated site visits, and
- Residual evidence of ponding or flooding resulting in field indicators such as scour marks, sediment deposits, algal matting, surface soil cracks and drift lines.

The presence of water or saturated soil for approximately 12% or 14 consecutive days during the growing season typically creates anaerobic conditions in the soil, and these conditions affect the types of plants that can grow and the types of soils that develop (Wetland Training Institute 1995).

Historic aerial photographs were analyzed to look for primary and secondary wetland hydrology indicators of inundation or saturation. The historic aerial imagery reviewed was the public, readily available imagery provided on Google Earth. If aerial signatures demonstrated the presence of surface water on 1 or more of the historic aerial photographs viewed, inundation and a primary indicator of wetland hydrology was determined to be present. Saturation, a secondary indicator of wetland hydrology, was determined to be present if saturation, "darker patches within the field," were observed on 1 or more of the historic aerial photographs viewed and the presence of hydric soils was confirmed in these areas during the field survey.

Determination of Ordinary High Water Mark

Gallaway utilized methods consistent with the Arid West Manual and *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, (2008)* to determine the OHWM. The lateral extents of non-tidal water bodies (e.g. intermittent and ephemeral streams) were based on the OHWM, which is "the line on the shore established by the fluctuations of water" (Corps 2005). The OHWM was determined based on multiple observed physical characteristics of the area, which can include scour, multiple observed flow events (from current and historical aerial photos), shelving, and changes in the character of soil, presence of mature vegetation, deposition, and topography. If any other physical indicators as described in the Arid West OHWM Field Guide are observed, these indicators are also utilized to help determine the location of the OHWM.

Representative OHWM widths were measured in the field in feet incrementally throughout each drainage feature mapped as required by the Corps *Final Map and Drawing Standards for the South Pacific Division Regulatory Program* (2012). The widths measured in the field were used to ensure that other waters of the United States identified within the Project are mapped and calculated at the appropriate average width for each channel segment based on the Corps definition of OHWM as defined in the Arid West OHWM Field Guide and the *Ordinary High Water Mark Identification RGL 05-05 (2005)* (RGL 05-05). When applicable the extents and jurisdictional status of features previously verified through the AJD process for SPK-2019-00856 were used.

Aquatic Resource Boundary Determination and Acreage Calculation

The wetland-upland boundary was determined based on the presence or inference of positive indicators of all mandatory criteria. The site was traversed on foot to identify wetland features and boundaries. The spatial data obtained during the preparation of this wetland delineation was collected using a Trimble Geo Explorer 6000 Series GPS Receiver. No readings were taken with fewer than 5 satellites. Point data locations were recorded for at least 25 seconds at a rate of 1 position per second. Area and line data were recorded at a rate of 1 position per second while walking at a slow pace. All GPS data were differentially corrected for maximum accuracy. In some cases, when visual errors and degrees of precision are identified due to environmental factors negatively influencing the precision of the GPS instrument (i.e. dense tree cover, steep topography, and other factors affecting satellite connection) mapping procedures utilized available topographic and aerial imagery datasets in order to improve accuracy in feature alignment and location. When applicable the extents and jurisdictional status of features previously verified through the AJD process for SPK-2019-00856 were used.

Non-Wetland and Non-Jurisdictional Feature Boundary Determination

Areas were determined to be non-wetlands if they did not meet the necessary wetland test parameters (hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4) and were determined to be potentially Corps non-jurisdictional if they were consistent with the description of non-jurisdictional features as presented in the 2023 WOTUS Rule and recent supreme court decisions (final rule). When applicable the extents and jurisdictional status of features previously verified through the AJD process for SPK-2019-00856 were used.

Results

Table 1 Summarizes the area calculations for the pre-jurisdictional features within the Survey Area. A complete Draft Delineation of Aquatic Resources map, utilizing a 1” to 200’ scale, is included as **Figure 4**.

Table 1. Draft Delineation of Aquatic Resources Results Table for the City of Shasta Lake Commercial Center SR2S Project

Draft Delineation of Aquatic Resources							
Other Waters of the U.S.							
Label	**Previously Verified**	**Cowardin**	**Description**	**Width (ft)***	**Length (ft)**	**Area (sq ft)**	**Acres****
OW01	Yes	R4	Tributary	30.0	442.9	10456.0	0.240
OW02	Yes	R4	Tributary	9.2	54.4	498.5	0.011
				Other Waters Totals =	**497.2**	**10954.5**	**0.25**
Excluded Features							
Label	**Previously Verified**	**Cowardin**	**Description**	**Width (ft)***	**Length (ft)**	**Area (sq ft)**	**Acres****
EX01	No	EXCLDB6	Stormwater Ditch	6.0	142.3	849.6	0.020
EX02	Yes	EXCLDB6	Stormwater Swale	6.0	30.4	183.5	0.004
EX03	Yes	EXCLDB6	Stormwater Ditch	5.4	4.7	25.6	0.001
EX04	Yes	EXCLDB6	Stormwater Swale	3.5	12.0	41.9	0.001
				Excluded Features Totals =	**189.4**	**1100.7**	**0.03**
				Aquatic Resources Totals =	**686.6**	**12055.1**	**0.28**
*Widths are represented as averages							
**Acreages are rounded to the nearest thousandth							

Draft Delineation of Aquatic Resources

Other Waters of the U.S.

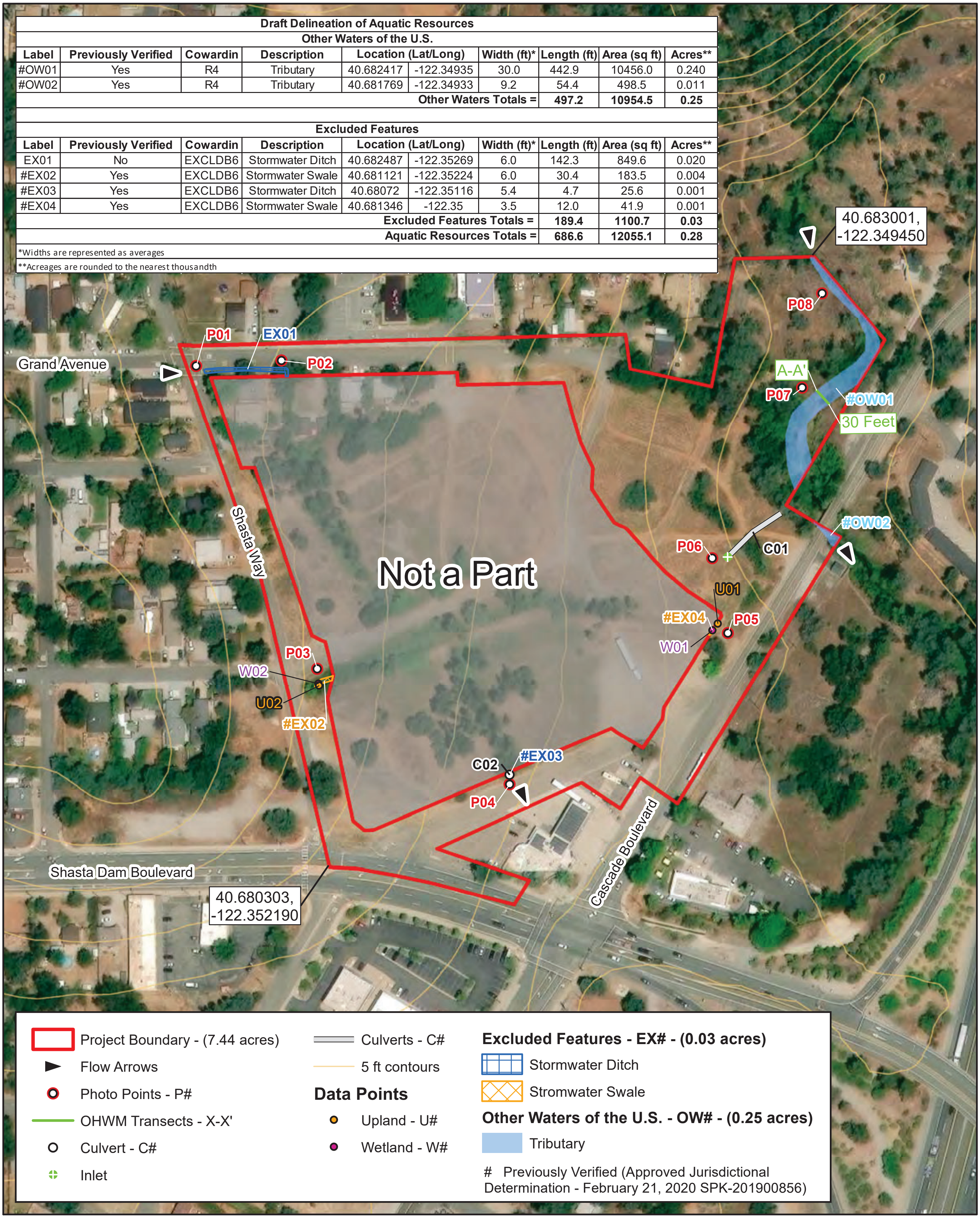
Label	Previously Verified	Cowardin	Description	Location (Lat/Long)		Width (ft)*	Length (ft)	Area (sq ft)	Acres**
#OW01	Yes	R4	Tributary	40.682417	-122.34935	30.0	442.9	10456.0	0.240
#OW02	Yes	R4	Tributary	40.681769	-122.34933	9.2	54.4	498.5	0.011
					Other Waters Totals =		**497.2**	**10954.5**	**0.25**

Excluded Features

Label	Previously Verified	Cowardin	Description	Location (Lat/Long)		Width (ft)*	Length (ft)	Area (sq ft)	Acres**
EX01	No	EXCLDB6	Stormwater Ditch	40.682487	-122.35269	6.0	142.3	849.6	0.020
#EX02	Yes	EXCLDB6	Stormwater Swale	40.681121	-122.35224	6.0	30.4	183.5	0.004
#EX03	Yes	EXCLDB6	Stormwater Ditch	40.68072	-122.35116	5.4	4.7	25.6	0.001
#EX04	Yes	EXCLDB6	Stormwater Swale	40.681346	-122.35	3.5	12.0	41.9	0.001
					Excluded Features Totals =		**189.4**	**1100.7**	**0.03**
					Aquatic Resources Totals =		**686.6**	**12055.1**	**0.28**

*Widths are represented as averages

**Acreages are rounded to the nearest thousandth



NORTH

1:2,400 1 inch = 200 feet

0 100 200 Feet

Data Sources: ESRI, Maxar 09/16/2022
City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Draft Delineation of Waters of the U.S.
Figure 4

gallaway ENTERPRISES

GE: #23-114 Map Date: 01/11/2024

Waters of the United States: Other Waters

There is one feature (Moody Creek) identified as a tributary to a TNW (Sacramento River) per the Final Rule within the Study Area (Figure 4). Moody Creek flows into the West Fork of Stillwater Creek and subsequently into the Sacramento River. Tributaries are waters that exhibit physical indicators of flow, which include a bed, banks, and ordinary high-water mark (OHWM), but lack positive indicators for one or more of the three wetland test parameters. The boundaries of all other waters identified within the Property were delineated based on the observed OHWM, including physical characteristics such as natural lines impressed on the bank, shelving, changes in the character of the soil, the destruction of terrestrial vegetation, debris lines and other appropriate indicators.

The vegetation within the OHWM of Moody Creek included willow and cottonwood species, however, the area outside of the OHWM of Moody Creek was dominated by upland species and did not meet the criteria to be considered jurisdictional riparian.

Waters of the United States: Wetlands

No wetland features were observed to occur within the Survey Area.

Non-Jurisdictional By Rule

There are a series of lateral/perpendicular man-made ditches and swales present (EX01, EX02, EX03, EX04) that are considered excluded ditches as defined in paragraphs (b)(3) and (b)(6) of the Final Rule (Section IV.F.) and Clean Water Act Section (CWA) 404(f). These ditches and swales are stormwater control features that were constructed in upland within the site immediately after removing a housing development that had previously occurred on the Property. These stormwater control features were constructed solely to convey stormwater runoff and are not excavated in or part of a relocated tributary. Further, EX01, EX02 and EX04 only flow immediately after rain events and completely lacked an OHWM. Therefore, features EX01, EX02, EX03, and EX04 are not jurisdictional per the final rule. Additionally, EX02, EX03 and EX04 were previously determined to be non-jurisdictional as documented in the Approved Jurisdictional Determination provided by the USACE on February 21, 2020 (**Appendix C**).

Soils

Gallaway Enterprises collected soil data at various locations throughout the Property. Field observations of soil characteristics included soil color, texture, structure, and the visual assessment of soil features (e.g. the presence, or absence of redoximorphic features and the depth of restrictive layers such as hardpans). Field observations of soil characteristics (utilizing the applicable test pit data from the AJD) are included in the data sheet forms presented in **Appendix A**. Gallaway Enterprises' soil texture evaluations rendered predominately loams and silty loams. The geographic region in which the Property is found is often characterized as having a naturally occurring restrictive layer composed of lithic bedrock. Hardpans restrict root growth, limit water infiltration, and cause perching of the water table in certain locations. Gallaway queried the National Cooperative Soil Survey database to further evaluate the current soil conditions. Two (2) soil map units occur within the Property. The 2 identified map units are listed below in **Table 2**. Based on the soil survey and Gallaway Enterprises' review, none of the soil map units identified within the Property contain hydric components. A copy of the soil survey map and a description of mapped soil units for the Property are included as **Appendix B**.

Table 2. Soil Map Units, NRCS hydric soil designation, and approximate totals

Map Unit Symbol	Map Unit Name	% Hydric Component in Map Unit	Landform of Hydric Component	% Map Unit in Survey Area
AnB	Auburn loam, 0 to 8 percent slopes	0%	0%	87.5%
ArD	Auburn very stony loam, 8 to 30 percent slopes	0%	0%	12.5%
Totals for Area of Interest		0%	0%	100%

Vegetation

Identifiable vegetation within the seasonal swales present included cattails (*Typha latifolia*) (OBL), arroyo willow (*Salix lasiolepis*) (FACW), dalisgrass (*Paspalum dilatatum*) (FAC), tall nutsedge (*Cyperus eragrostis*) (FACW), Mediterranean barley (*Hordeum marinum ssp. gussoneanum*) (FAC), perennial rye-grass (*Festuca perennis*) (FAC), and curly dock (*Rumex crispus*) (FAC). The areas lining the man-made drainages within the Survey Area were dominated by a tree canopy of cottonwoods (*Populus fremontii*) (FAC) with a few scattered arroyo willows and non-native trees including silver wattle (*Acacia dealbata*) (NL) and cherry plumb (*Prunus cerasifera*) (NL), and an understory of periwinkle (*Vinca major*) (NL), Himalayan blackberry (*Rubus armeniacus*) (FAC), and dalisgrass. The area lining Moody Creek was dominated by a tree canopy of valley oak (*Quercus lobata*) (FACU), tree of heaven (*Ailanthus altissima*) (FACU), live oak (*Quercus wislizeni*) (NL), and a few cottonwoods, sycamores (*Platanus racemosa*) (FAC), and foothill pines (*Pinus sabiniana*) (UPL). In the upland portions of the site, vegetation was dominated by yellow-star thistle (*Centaurea solstitialis*) (UPL), Spanish lotus, medusahead (*Elymus caput-medusae*) (UPL), rose clover (*Trifolium hirtum*) (NL), Fitch's spikeweed (*Centromadia fitchii*) (FACU), wild oats (*Avena* sp.) (UPL), and long-beaked stork's-bill (*Erodium botrys*) (FACU). The upland portions of the Property also contained patches of periwinkle.

Hydrology

Precipitation, surface and irrigation runoff from the Survey Area and surrounding land function as the main hydrological inputs within the Survey Area. The only natural jurisdictional WOTUS present within the Property is Moody Creek (OW01-OW02), which occurs along the northeastern boundary of the site. Moody Creek is a tributary of the West Fork of Stillwater Creek, which is a tributary to Stillwater Creek, which in turn is a tributary of the Sacramento River, a TNW.

The remainder of the Survey Area is composed of upland that has been highly disturbed and primarily consists of roadways. A series of ditches, swales and berms were created on the internal portion of the Survey Area as part of the City's open stormwater control system. Since these ditches and swales were created in upland to convey stormwater runoff, these features are all considered non-jurisdictional per the Final Rule. Due to the influence of runoff from the adjacent residential homes and athletic field to the north of the Property three of the stormwater ditches (EX01and EX03) flow for more than 3 months of the year. The other portions of this stormwater control system function as ephemeral swales (EX02 and EX04). The vegetation on the top of the bank and berms of the ditches are primarily non-native invasive species such as cherry plum and periwinkle. This stormwater control system becomes piped as it leaves the Property boundary via a culvert under Kennett Street (C02) and connects to the City's underground stormwater system.

Site Photos Taken on November 16, 2023 and June 14, 2024

P01 – Looking southeast at EX01

P02 – Looking south at EX01

P03 – Looking south at EX02

P04 – Looking north at EX03

P05 – EX04

P06 – Looking east at drop inlet

P08 – Looking east at OW01

P07 – Looking southeast at OW01

Glossary

Abutting: When referring to wetlands that are adjacent to a tributary, abutting defines those wetlands that are not separated from the tributary by an upland feature, such as a berm or dike.

Adjacent: Adjacent as used in "Adjacent to traditional navigable water," is defined in Corps and EPA regulations as "bordering, contiguous, or neighboring." Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes and the like are 'adjacent wetlands. A wetland "abuts" a tributary if it is not separated from the tributary by uplands, a berm, dike, or similar feature.

While all wetlands that meet the agencies' definitions are considered adjacent wetlands, only those adjacent wetlands that have a continuous surface connection because they directly abut the tributary (e.g., they are not separated by uplands, a berm, dike, or similar feature) are considered jurisdictional under the plurality standard. (CWA Jurisdiction Following Rapanos v US and Carabell v US 12-02-08).

The regulations define "adjacent" as follows: "[t]he term adjacent means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are 'adjacent wetlands.'" Under this definition, a wetland does not need to meet all criteria to be considered adjacent. The agencies consider wetlands to be bordering, contiguous, or neighboring, and therefore "adjacent" if at least one of following three criteria is satisfied:

(1) There is an unbroken surface or shallow sub-surface hydrologic connection between the wetland and jurisdictional waters; or

(2) The wetlands are physically separated from jurisdictional waters by "manmade dikes or barriers, natural river berms, beach dunes, and the like;" or,

(3) Where a wetland's physical proximity to a jurisdictional water is reasonably close, that wetland is "neighboring" and thus adjacent. For example, wetlands located within the riparian area or floodplain of a jurisdictional water will generally be considered neighboring, and thus adjacent. One test for whether a wetland is sufficiently proximate to be considered "neighboring" is whether there is a demonstrable ecological interconnection between the wetland and the jurisdictional waterbody. For example, if resident aquatic species (e.g., amphibians, reptiles, fish, mammals, or waterfowl) rely on both the wetland and the jurisdictional waterbody for all or part of their life cycles (e.g., nesting, rearing, feeding, etc.), that may demonstrate that the wetland is neighboring and thus adjacent. The agencies recognize that as the distance between the wetland and jurisdictional water increases, the potential ecological interconnection between the waters is likely to decrease.

The agencies will also continue to assert jurisdiction over wetlands "adjacent" to traditional navigable waters as defined in the agencies' regulations. Under EPA and Corps regulations and as used in this guidance, "adjacent" means "bordering, contiguous, or neighboring." Finding a continuous surface connection is not required to establish adjacency under this definition. The Rapanos decision does not affect the scope of jurisdiction over wetlands that are adjacent to traditional navigable waters. The agencies will assert jurisdiction over those adjacent wetlands that have a continuous surface connection with a relatively permanent, non-navigable tributary, without the legal obligation to make a significant nexus finding.

Atypical situation (significantly disturbed): In an atypical (significantly disturbed) situation, recent human activities or natural events have created conditions where positive indicators for hydrophytic vegetation, hydric soil, or wetland hydrology are not present or observable.

Channel. "An open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water" (Langbein and Iseri 1960:5).

Channel bank. The sloping land bordering a channel. The bank has steeper slope than the bottom of the channel and is usually steeper than the land surrounding the channel.

Cobbles. Rock fragments 7.6 cm (3 inches) to 25 .4 cm (10 inches) in diameter.

Debris flow. A moving mass of rock fragments, soil, and mud where more than 50% of the particles are larger than sand-sized.

Ditch. A constructed or excavated channel used to convey water.

Drift. Organic debris oriented to flow direction(s) (larger than small twigs).

Ephemeral stream. An ephemeral stream has flowing water only in direct response to precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Facultative wetland (FACW). Wetland indicator category; species usually occurs in wetlands (estimated probability 67–99%) but occasionally found in non-wetlands.

Flat. A level landform composed of unconsolidated sediments usually mud or sand. Flats may be irregularly shaped or elongate and continuous with the shore, whereas bars are generally elongate, parallel to the shore, and separated from the shore by water.

Gravel. A mixture composed primarily of rock fragments 2mm (0 .08 inch) to 7.6 cm (3 inches) in diameter. Usually contains much sand.

Growing season. The frost-free period of the year (see U.S. Department of Interior, National Atlas 1970:110-111 for generalized regional delineation).

Herbaceous. With the characteristics of an herb; a plant with no persistent woody stem above ground.

Hydric soil. Soil is hydric that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic (oxygen-depleted) conditions in its upper part (i.e., within the shallow rooting zone of herbaceous plants).

Hydrophyte, **hydrophytic.** Any plant growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

Intermittent stream. An intermittent stream has flowing water during certain times of the year and more than in direct response from precipitation, when elevated groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water.

Jurisdictional Waters. Features that meet the definition of waters of the Unites States provided below and that fall under Corps regulations pursuant to Section 404 of the CWA are considered jurisdictional features.

Litter. Organic debris oriented to flow direction(s) (small twigs and leaves).

Man-induced wetlands. A man-induced wetland is an area that has developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities.

Non-Relatively Permanent Water: A non-relatively permanent water (NRPW) is defined as a tributary that is not a TNW and that typically flows for periods for less than 3 months. NRPWs are jurisdictional when they have a documented significant nexus to TNWs. All NRPWs must also contain appropriate morphology of bed, bank and scour and be clearly connected to a TNW.

Normal circumstances. This term refers to the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed.

Obligate hydrophytes. Species that are found only in wetlands e.g., cattail (*Typha latifolia*) as opposed to ubiquitous species that grow either in wetland or on upland-e.g., red maple (*Acer rubrum*).

Obligate wetland (OBL). Wetland indicator category; species occurs almost always (estimated probability 99%) under natural conditions in wetlands.

Other Waters of the United States. Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for one or more of the three wetland parameters (hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4).

Palustrine the Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 parts per thousand. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2 m (6.6 feet) at low water; and (4) salinity due to ocean-derived salts is less than 0.5 parts per thousand.

Perennial stream. A perennial stream has flowing water year-round during atypical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Ponded. Ponding is a condition in which free water covers the soil surface (e.g., in a closed depression) and is removed only by percolation, evaporation, or transpiration.

Problem area. Problem areas are those where one or more wetland parameters may be lacking because of normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events**.**

Relatively Permanent Waters of the U.S. Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months).

Scour. Soil and debris movement.

Sheetflow. Overland flow occurring in a continuous sheet; a relatively high-frequency, low-magnitude event.

Shrub. A woody plant which at maturity is usually less than 6 m(20 feet) tall and generally exhibits several erect, spreading, or prostrate stems and has a bushy appearance ; e.g., speckled alder (*Alnus rugosa*) or buttonbush (*Cephalanthus occidentalis*).

Succession. Changes in the composition or structure of an ecological community.

Traditional Navigable Waters (TNWs)."[a]ll waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide." These waters are referred to in this guidance as traditional navigable waters. The traditional navigable waters include all of the "navigable waters of the United States," as defined in 33 C.F.R. Part 329 and by numerous decisions of the federal courts, plus all other waters that are navigable-in-fact (for example, the Great Salt Lake, UT, and Lake Minnetonka, MN). Thus, the traditional navigable waters include, but are not limited to, the "navigable waters of the United States" within the meaning of Section 10 of the Rivers and Harbors Act of 1899 (also known as "Section 10 waters").

Tree. A woody plant which at maturity is usually 6 m (20 feet) or more in height and generally has a single trunk, unbranched for 1 m or more above the ground, and a more or less definite crown; e.g., red maple (*Acer rubrum*), northern white cedar (*Thuja occidentalis*).

Typical Year. Defined by the EPA and Corps as meaning when precipitation and other climactic variables are within the normal periodic range for the geographic area based on a rolling thirty-year period.

Water table. The upper surface of a zone of saturation. No water table exists where that surface is formed by an impermeable body.

Waters of the United States (WOTUS). This is the encompassing term for areas under federal jurisdiction pursuant to Section 404 of the CWA. Waters of the United States are divided into "wetlands" and "other waters of the United States."

Watershed (drainage basin). An area of land that drains to a single outlet and is separated from other watersheds by a divide.

Wetland. Wetlands are defined as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 [b], 40 CFR 230.3). To be considered under potential federal jurisdiction, a wetland must support positive indicators for hydrophytic vegetation, hydric soil, and wetland hydrology.

Woody plant. A seed plant (gymnosperm or angiosperm) that develops persistent, hard, fibrous tissues, basically xylem; e.g., trees and shrubs.

Xeric. Relating or adapted to an extremely dry habitat.

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Appendix A: Wetland Delineation and Ordinary High Water Mark Data Sheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Commercial Center Property City/County: Shasta Lake, Shasta County Sampling Date: 12-6-16

Applicant/Owner: City of Shasta Lake State: CA Sampling Point: W 01

Investigator(s): E. Gregg Section, Township, Range: Section 29, T 33N, R 4W

Landform (hillslope, terrace, etc.): hillslope/terrace Local relief (concave, convex, none): concave Slope (%): 0.5

Subregion (LRR): C - Mediterranean California Lat: 40.681349 Long: -122.349997 Datum: NAD 83

Soil Map Unit Name: Auburn loam, 0 to 8 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )
Hydric Soil Present?	Yes (●)	No ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? Yes (●) No ( )

Remarks: The site was highly disturbed in 1994-1996 but these disturbance occurred so long ago that they are now a part of the "normal circumstances" of the site.
Area is within a man-made ditch.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	30 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 70 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 = 0
FACW species		x 2 = 0
FAC species	30	x 3 = 90
FACU species		x 4 = 0
UPL species		x 5 = 0
Column Totals:	30 (A)	90 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: W 01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/3	99					silty loam	lots of roots
4-10	5 YR 4/4	50	10 YR 6/6	15	C	M	clay	
	7.5 YR 3/3	35						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks: Soil sample was taken at sufficient depth to determine the presence/absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Commercial Center Property City/County: Shasta Lake, Shasta County Sampling Date: 12-6-16

Applicant/Owner: City of Shasta Lake State: CA Sampling Point: U 01

Investigator(s): E. Gregg Section, Township, Range: Section 29, T 33N, R 4W

Landform (hillslope, terrace, etc.): hillslope/terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 40.681379 Long: -122.349966 Datum: NAD 83

Soil Map Unit Name: Auburn loam, 0 to 8 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)
Hydric Soil Present?	Yes (•)	No ( )
Wetland Hydrology Present?	Yes ( )	No (•)

Is the Sampled Area within a Wetland? Yes ( ) No (•)

Remarks: The site was highly disturbed in 1994-1996 but these disturbance occurred so long ago that they are now a part of the "normal circumstances" of the site.
Area is within a man-made ditch.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Torilis arvensis*	40	Yes	UPL
2. *Vicia villosa*	40	Yes	Not Listed
3. *Elymus caput-medusae*	10	No	UPL
4. *Festuca perennis*	10	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ___ % % Cover of Biotic Crust ___ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	10	x 3 =	30
FACU species		x 4 =	0
UPL species	90	x 5 =	450
Column Totals:	100 (A)		480 (B)

Prevalence Index = B/A = 4.80

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks:

SOIL

Sampling Point: U 01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 4/4	98	2.5 YR 4/8	2	C	PL	loam	
4-10	7.5 YR 4/4	65	10 R 4/8	20	C	PL		
			2.5 YR 4/8	5	C	M		
			10 YR 7/4	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks: Soil sample was taken at sufficient depth to determine the presence/absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? **Yes** ○ **No** ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No drainage patterns or ordinary high water mark present in this portion of the man-made ditch.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Commercial Center Property   City/County: Shasta Lake, Shasta County   Sampling Date: 12-6-16

Applicant/Owner: City of Shasta Lake   State: CA   Sampling Point: W 02

Investigator(s): E. Gregg   Section, Township, Range: Section 29, T 33N, R 4W

Landform (hillslope, terrace, etc.): hillslope/terrace   Local relief (concave, convex, none): concave   Slope (%): 0.5

Subregion (LRR): C - Mediterranean California   Lat: 40.681108   Long: -122.352272   Datum: NAD 83

Soil Map Unit Name: Auburn loam, 0 to 8 percent slopes   NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )
Hydric Soil Present?	Yes (●)	No ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? **Yes** (●) **No** ( )

Remarks: The site was highly disturbed in 1994-1996 but these disturbance occurred so long ago that they are now a part of the "normal circumstances" of the site.
Area is within a man-made ditch.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus racemosa*	30	Yes	FAC
2.			
3.			
4.			
Total Cover:	30 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Typha latifolia*	70	Yes	OBL
2. *Cyperus eragrostis*	10	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 %   % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species	10	x 2 =	20
FAC species	30	x 3 =	90
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	110 (A)		180 (B)

Prevalence Index = B/A = 1.64

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** (●) **No** ( )

Remarks: bare ground contained leaf debris.

SOIL

Sampling Point: W 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 3/3	95	7.5 YR 6/8	5	C	PL	silty loam	lots of roots
3-10	5 YR 4/4	50	Gley1 5/10 GY	15	D	PL	clay	
	7.5 YR 3/3	29	10 YR 6/6	1	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks: Soil sample was taken at sufficient depth to determine the presence/absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): 0-2
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Portions of this feature contained ponded water.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Commercial Center Property City/County: Shasta Lake, Shasta County Sampling Date: 12-6-16

Applicant/Owner: City of Shasta Lake State: CA Sampling Point: U 02

Investigator(s): E. Gregg Section, Township, Range: Section 29, T 33N, R 4W

Landform (hillslope, terrace, etc.): hillslope/terrace Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 40.681100 Long: -122.352268 Datum: NAD 83

Soil Map Unit Name: Auburn loam, 0 to 8 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	Is the Sampled Area
Wetland Hydrology Present?	Yes ○	No ◉	within a Wetland? Yes ○ No ◉

Remarks: The site was highly disturbed in 1994-1996 but these disturbance occurred so long ago that they are now a part of the "normal circumstances" of the site.
Area is on the top of a berm.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Elymus caput-medusae*	95	Yes	UPL
2. *Lactuca serriola*	5	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	5	x 4 =	20
UPL species	95	x 5 =	475
Column Totals:	100 (A)		495 (B)

Prevalence Index = B/A = 4.95

Hydrophytic Vegetation Indicators:

- ○ Dominance Test is >50%
- ○ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: U 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5 YR 3/3	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains [2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil sample was taken at sufficient depth to determine the presence/absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: City of Shasta Lake SR2S **Project Number:** 23-114 **Stream:** Moody Creek **Investigator(s):** Jessica Sellers	**Date:** 11/16/23 **Time:** 10:00am **Town:** City of Shasta Lake **State:** CA **Photo begin file#:** **Photo end file#:**
Y ☑ / N ☐ Do normal circumstances exist on the site?	**Location Details:**
Y ☐ / N ☑ Is the site significantly disturbed?	**Projection:** **Datum:** WGS 84 **Coordinates:** 40°40'56.36 122 20 57.7999

Potential anthropogenic influences on the channel system:
None

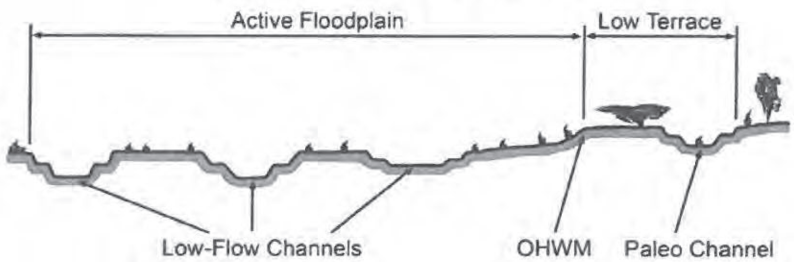
Brief site description:
Creek runs through an area of rock (basalt?). Some cottonwood + pine trees

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

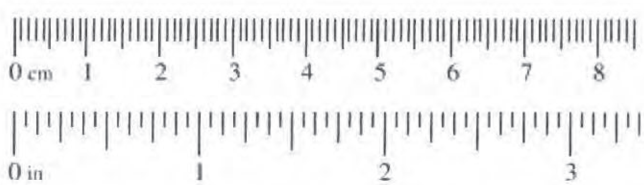


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   ☐ Mapping on aerial photograph ☐ GPS
   ☑ Digitized on computer ☐ Other:

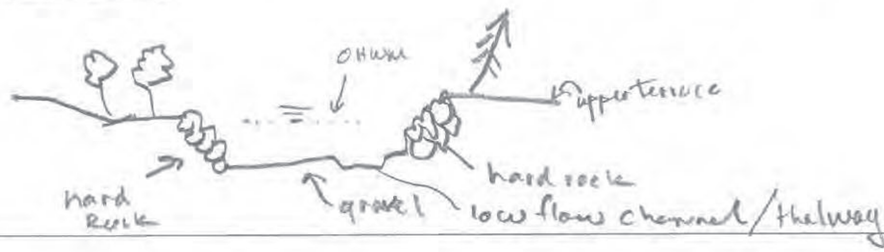
Wentworth Size Classes

Inches (in)		Millimeters (mm)	Wentworth size class	
			Boulder	Gravel
	10.08	256		
			Cobble	Gravel
	2.56	64		
			Pebble	Gravel
	0.157	4		
			Granule	Gravel
	0.079	2.00		
			Very coarse sand	Sand
	0.039	1.00		
			Coarse sand	Sand
	0.020	0.50		
			Medium sand	Sand
1/2	0.0098	0.25		
			Fine sand	Sand
1/4	0.005	0.125		
			Very fine sand	Sand
1/8	0.0025	0.0625		
			Coarse silt	Silt
1/16	0.0012	0.031		
			Medium silt	Silt
1/32	0.00061	0.0156		
			Fine silt	Silt
1/64	0.00031	0.0078		
			Very fine silt	Silt
1/128	0.00015	0.0039		
			Clay	Mud



Project ID: 23-114 **Cross section ID:** A-A' **Date:** 11/16/23 **Time:** 10:00AM

Cross section drawing:



OHWM

GPS point: A-A'

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [x] Other: drift debris
- [ ] Other: ______

Comments:

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: /

Characteristics of the floodplain unit:

Average sediment texture: gravel/cobble

Total veg cover: 20 % Tree: ___ % Shrub: 5 % Herb: 15 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [x] Surface relief
- [ ] Other: ______
- [ ] Other: ______
- [ ] Other: ______

Comments:

Water present

Project ID: 23-114 **Cross section ID:** A-A' **Date:** 11/16/23 **Time:** 10:00 AM

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: A-A

Characteristics of the floodplain unit:

Average sediment texture: ____

Total veg cover: 90 % Tree: 50 % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: ____
- ☐ Other: ____
- ☐ Other: ____

Comments:

some willow / cottonwood

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: ____

Characteristics of the floodplain unit:

Average sediment texture: ____

Total veg cover: ____ % Tree: ____ % Shrub: ____ % Herb: ____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: ____
- ☐ Other: ____
- ☐ Other: ____

Comments:

Appendix B: NRCS Soils Map and Soil Series Description

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for
Shasta County Area, California

COSL SR2S

May 29, 2024

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Soil Map

Map Scale: 1:2,680 if printed on A landscape (11" x 8.5") sheet.

0 35 70 140 210 Meters

0 100 200 400 600 Feet

N

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 1:20,000.

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 County Area, California
Survey Area Data: Version 19, Aug 28, 2023

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

Date(s) aerial images were photographed: 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 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
AnB	Auburn loam, 0 to 8 percent slopes	6.0	80.1%
ArD	Auburn very stony loam, 8 to 30 percent slopes	1.5	19.9%
Totals for Area of Interest		**7.4**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Shasta County Area, California

AnB—Auburn loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: hflm
Elevation: 120 to 3,000 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 55 to 63 degrees F
Frost-free period: 175 to 275 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Auburn

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from metavolcanics

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 24 inches: gravelly loam
H3 - 24 to 28 inches: unweathered bedrock

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 24 to 28 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
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 3.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R017XD086CA - SHALLOW LOAMY
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Landform: Hillslopes

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Auberry

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

ArD—Auburn very stony loam, 8 to 30 percent slopes

Map Unit Setting

National map unit symbol: hflp
Elevation: 300 to 2,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 175 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Auburn

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from metavolcanics

Typical profile

H1 - 0 to 8 inches: very stony loam
H2 - 8 to 20 inches: gravelly loam
H3 - 20 to 24 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 30 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: 20 to 24 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium

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: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: R015XD093CA - SHALLOW LOAMY
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Tailings and placer diggings

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

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Appendix C: Approved Jurisdictional Determination SPK-2019-00856

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers
IF THE RIGHT-CLICK OPERATED DROPDOWNS ARE NOT FUNCTIONING, CTRL+CLICK HERE
This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION
A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): January 14, 2020

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Sacramento District, **Shasta Lake Commercial Center Project**, **SPK-2019-00856**

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: **California** County: **Shasta County** City: **Redding**
Center coordinates of site (lat/long in degree decimal format): Lat. **40.68170°**, Long. **-122.35157°**
Universal Transverse Mercator: **10 554795.38 4503626.07**
Name of nearest waterbody: **Moody Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Moody Creek**
Name of watershed or Hydrologic Unit Code (HUC): **Clear Creek-Sacramento River, 18020154**
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form:

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: January 14, 2019
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS
A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **appear to be no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are and are not** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area (check all that apply): [1]
☐ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
☐ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☒ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:
Non-wetland waters: 1,471 linear feet, and 0.27 acres.
Wetlands: 0.37 acres.

c. Limits (boundaries) of jurisdiction based on: **Established by OHWM**
Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):[3]
☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: A total of 0.15 acre of ditches were identified in the November 26, 2019, *Draft Delineation of Waters of the United States*, prepared by Gallaway Enterprises. EX01, EX02, EX03, EX04, EX05, and EX06 are constructed drainage ditches that are approximately six to ten feet wide and approximately 998 linear feet long. The ditch appears to be constructed wholly in and draining only uplands. The ditch has ephemeral flow which occur from precipitation events. The following aquatic resources are generally not regulated by the Corps of Engineers as it is a manmade ditch created solely in uplands and draining only uplands that do not carry a

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

relatively permanent flow of water. EX01, EX02, EX03, EX04, EX05, and EX06 ditches (including roadside ditches) are excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

WF01, is an isolated wetland. Based on the attached Lidar map, WF01 is in a depression with no topographical break. With no hydrologic connection to any other waters. Based on a February 23, 2017 aerial photo the hydrology of the wetland appears to stay within the confines of WF01. Based on the California Data Exchange Center, this area received a cumulative amount approximately 8.29 inches of precipitation within the last seven days of the photo. Therefore, we have determined that WF01 is an isolated, intrastate water with no interstate or foreign commerce connection.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: The site does not support a TNW.

Summarize rationale supporting determination: N/A

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 438,802 **acres**
Drainage area: 2,718 **acres**
Average annual rainfall: 65.68 inches
Average annual snowfall: 0.4 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** tributaries before entering TNW.

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **15-20** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW[5]: Moody Creek is the RPW within the study area, which flows south into West fork Stillwater Creek, which flows south into Stillwater Creek, and flows into the Sacramento River, which is a TNW.
Tributary stream order, if known: Moody Creek is a stream order 2, West Fork Stillwater Creek is a Stream order 3, Stillwater Creek is a stream order 4, and the Sacramento River is a stream order 6.

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):
Average width: Varies, 20-30 feet
Average depth: Varies
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☒ Cobbles ☒ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/% cover: Varies
☐ Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:
Presence of run/riffle/pool complexes. Explain: None
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): Gradient varies

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: Varies

Other information on duration and volume: Based on previous delineation report on SPK-2005-00827, Moody Creek flows approximately 6-8 months of the year.

-

Surface flow is: **Confined.** Characteristics: **Flow typically stays within banks.**

Subsurface flow: **Unknown**. Explain findings:
☐ Dye (or other) test performed:

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☒ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☒ leaf litter disturbed or washed away ☒ scour
☒ sediment deposition ☐ multiple observed or predicted flow events
☐ water staining ☒ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.[7] Explain:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- ☐ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☐ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: The tributaries within the watershed collect, retain, filter and more slowly release runoff from surrounding roads, housing, pastures, farms, and other surrounding land uses. Collection of runoff onto these wetlands and stream on the site reduces chemicals and other pollutants normally found in runoff water.

Identify specific pollutants, if known: Non-point source pollution from adjacent properties mainly comprised of agriculture land and residential roads.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☒ Habitat for:
  - ☐ Federally Listed species. Explain findings:
  - ☐ Fish/spawn areas. Explain findings:
  - ☒ Other environmentally-sensitive species. Although there is no potential habitat for federally listed species, the Lower reached provides potential habitat for state listed western pond turtle.
  - ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is**:** **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

- ☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain:
  - ☐ Ecological connection. Explain:
  - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width):
☐ Vegetation type/percent cover. Explain:
☐ Habitat for:
  ☐ Federally Listed species. Explain findings:
  ☐ Fish/spawn areas. Explain findings:
  ☐ Other environmentally-sensitive species. Explain findings:
  ☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately   acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet,   wide, Or   acres.

☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: OW01, OW02, OW03, and OW04 all have observed flow on aerial photography dated April 15, 2015, and May 24, 2017. Based on previous delineation report on SPK-2005-00827, Moody Creek flows approximately 6-8 months of the year. The applicant has also stated that Moody Creek is an intermittent stream.

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☒ Tributary waters: **OW01, OW02, OW02, and OW04, which are a total of 0.27 acre (473 linear feet).**
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters:

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: linear feet, wide.
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

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[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain:
☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet, wide.
☐ Other non-wetland waters: acres.
Identify type(s) of waters:
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☒ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, wide.
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource:
☒ Wetlands: **0.1** acre.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, wide.
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource:
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: *Draft Delineation of Waters of the United States*, dated November 26, 2019.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☒ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps:
☐ Corps navigable waters' study:
☒ U.S. Geological Survey Hydrologic Atlas: 18020154
☒ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **1:24K; Project City**
☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
☐ National wetlands inventory map(s). Cite name:
☐ State/Local wetland inventory map(s):
☐ FEMA/FIRM maps:
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Digital Globe aerial photos, dated April 8, 2018, and February 23, 2017. Google Earth aerial photos dated April 15, 2015, and May 24, 2017. Aerial 1993, and 1969 photos from www.historicalaerials.com.
or ☐ Other (Name & Date):
☒ Previous determination(s). File no. and date of response letter: SPK-2005-00827, dated April 23, 2008.
☐ Applicable/supporting case law:

☐ Applicable/supporting scientific literature:
☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

OW01 (0.06 acre), OW02 (0.17 acre), OW03 (0.01 acre), and OW04 (0.03 acre) are relatively permanent waters that flow indirectly into the Sacramento River (Traditional Navigable Water), therefore these waters are waters of the United States.

WF01 (0.1 acre) is an isolated, intrastate water with no interstate or foreign commerce connection.

EX01 (0.02 acre), EX02 (0.03 acre), EX03 (0.03 acre), EX04 0.04 (acre), EX05 (0.003 acre), and EX06 (0.03 acre) ditches (including roadside ditches) are excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water, therefore, these waters are not jurisdictional based on the November 13, 1986, Federal Register (Page 41217), Part 328(a).

REFERENCES:

1. **Regulatory Programs of the Corps of Engineers, as amended (33 CFR 328), dated November 13, 1986.**
2. **Regulatory Guidance Letter 16-01 on Jurisdictional Determinations effective October, 2016.**
3. **Clean Water Act Jurisdiction Memorandum, dated December 2, 2008.**
4. **U.S. Army Corps of Engineers Jurisdictional Determinations Form Instructional Guidebook, dated May 30, 2007.**

Draft Delineation of Waters of the U.S.

Other Waters of the U.S.

Label	Cowardin	Description	Location (Lat/Long)		Width (ft)*	Length (ft)	Area (sq ft)	Acres
OW01	R4	Tributary	40.682831	-122.34926	16.7	162.0	2700.6	0.06
OW02	R4	Tributary	40.682373	-122.34934	30.0	240.0	7201.5	0.17
OW03	R4	Tributary	40.681853	-122.34942	9.8	41.0	401.0	0.01
OW04	R4	Tributary	40.682066	-122.3495	45.0	29.9	1346.4	0.03
				Other Waters Totals =		473.0	11649.4	0.27

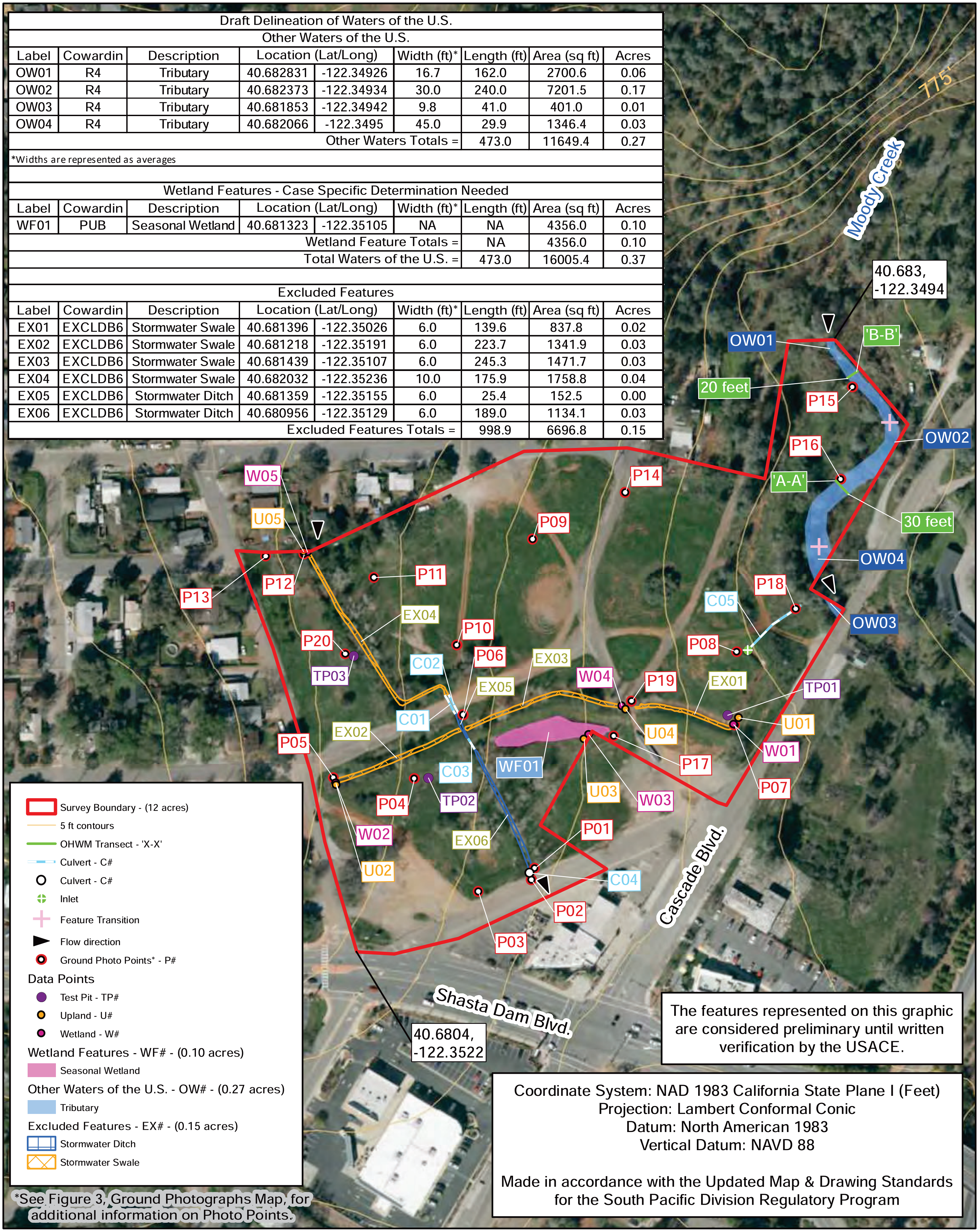
*Widths are represented as averages

Wetland Features - Case Specific Determination Needed

Label	Cowardin	Description	Location (Lat/Long)		Width (ft)*	Length (ft)	Area (sq ft)	Acres
WF01	PUB	Seasonal Wetland	40.681323	-122.35105	NA	NA	4356.0	0.10
				Wetland Feature Totals =		NA	4356.0	0.10
				Total Waters of the U.S. =		473.0	16005.4	0.37

Excluded Features

Label	Cowardin	Description	Location (Lat/Long)		Width (ft)*	Length (ft)	Area (sq ft)	Acres
EX01	EXCLDB6	Stormwater Swale	40.681396	-122.35026	6.0	139.6	837.8	0.02
EX02	EXCLDB6	Stormwater Swale	40.681218	-122.35191	6.0	223.7	1341.9	0.03
EX03	EXCLDB6	Stormwater Swale	40.681439	-122.35107	6.0	245.3	1471.7	0.03
EX04	EXCLDB6	Stormwater Swale	40.682032	-122.35236	10.0	175.9	1758.8	0.04
EX05	EXCLDB6	Stormwater Ditch	40.681359	-122.35155	6.0	25.4	152.5	0.00
EX06	EXCLDB6	Stormwater Ditch	40.680956	-122.35129	6.0	189.0	1134.1	0.03
				Excluded Features Totals =		998.9	6696.8	0.15



The features represented on this graphic are considered preliminary until written verification by the USACE.

Coordinate System: NAD 1983 California State Plane I (Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88

Made in accordance with the Updated Map & Drawing Standards for the South Pacific Division Regulatory Program

NORTH

1:2,400 1 inch = 200 feet

0 50 100 Feet

Data Sources: ESRI, City of Redding 2016 SRTA (3/17/2016)

City of Shasta Lake Commercial Center
Draft Delineation of Waters of the U.S.
Exhibit A

Map by: C. Davis and V. Birdseye
Delineation by: D. Machek and E. Gregg
GE: #17-168

gallaway ENTERPRISES

Map Date: 11/26/19

WETS Table

WETS Station: SHASTA DAM, CA								
Requested years: 1991 - 2020								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	54.2	40.5	47.4	10.81	4.08	13.07	10	0.2
Feb	57.5	41.7	49.6	12.11	5.07	14.73	10	0.0
Mar	62.6	44.0	53.3	9.79	4.31	11.93	9	0.0
Apr	68.6	47.5	58.1	4.92	2.95	5.97	7	0.1
May	78.0	55.4	66.7	3.17	0.99	3.77	5	0.0
Jun	87.2	63.0	75.1	1.58	0.62	1.73	2	0.0
Jul	96.1	69.0	82.5	0.14	0.00	0.04	0	0.0
Aug	95.0	67.5	81.3	0.18	0.00	0.11	0	0.0
Sep	89.4	62.9	76.1	0.54	0.00	0.46	1	0.0
Oct	76.3	54.6	65.5	3.54	0.90	3.66	3	0.0
Nov	61.5	46.1	53.8	6.65	2.91	8.11	7	0.0
Dec	53.1	40.5	46.8	12.24	4.82	14.84	10	0.1
Annual:					49.34	74.40		
Average	73.3	52.7	63.0	-	-	-	-	-
Total	-	-	-	65.68			65	0.4

GROWING SEASON DATES			
Years with missing data:	24 deg = 4	28 deg = 5	32 deg = 2
Years with no occurrence:	24 deg = 26	28 deg = 21	32 deg = 2
Data years used:	24 deg = 26	28 deg = 25	32 deg = 28
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	No occurrence	2/11 to 12/28: 320 days
70 percent *	No occurrence	No occurrence	1/29 to 1/11: 347 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)													
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1943	10.46	3.04	5.81	5.33	2.65	3.60	0.00	0.00	0.00	1.73	4.91	2.11	39.64
1944	6.11	14.74	2.82	3.71	1.52	4.80	0.00	0.44	0.00	4.58	9.97	8.89	57.58
1945	3.93	10.73	8.50	0.75	6.56	0.69	0.00	0.10	0.00	11.45	8.62	21.14	72.47
1946	4.98	3.71	3.29	0.96	1.59	0.00	1.07	0.00	0.06	0.94	8.53	5.12	30.25
1947	1.82	6.94	M13.02	1.05	0.93	5.08	0.25	0.35	0.11	11.88	1.13	2.43	44.99
1948	10.24	2.66	8.14	14.22	3.19	2.55	0.37	0.34	1.86	1.44	4.06	5.14	54.21
1949	1.26	7.69	19.36	0.14	3.21	0.09	T	0.00	0.15	0.02	M2.66	2.06	36.64
1950	14.01	4.61	5.15	1.56	M1.01	0.98	0.00	0.00	0.53	17.38	4.98	9.57	59.78

1951	10.13	9.48	2.47	2.36	3.68	0.00	0.00	0.03	0.03	4.51	12.19	19.74	64.62
1952	13.46	6.52	6.51	1.62	2.34	3.29	0.10	MT	0.20	0.42	4.54	24.52	63.52
1953	18.11	0.84	7.94	M4.50	3.94	1.85	0.00	0.65	0.27	2.22	9.42	3.18	52.92
1954	21.34	10.13	9.37	8.10	T	2.21	0.01	4.14	0.28	1.75	10.01	9.63	76.97
1955	6.32	2.59	0.95	7.04	0.09	0.02	0.06	0.00	0.36	0.73	11.38	33.98	63.52
1956	18.40	16.12	0.16	1.60	3.77	1.14	0.17	0.00	0.19	4.87	0.47	0.20	47.09
1957	8.57	15.18	7.31	4.34	5.29	0.07	0.00	0.00	6.14	8.45	5.75	10.18	71.28
1958	12.96	30.79	11.15	8.89	2.30	6.10	0.91	0.17	0.42	0.35	1.25	4.02	79.31
1959	25.86	13.19	4.72	4.99	0.28	0.05	0.00	0.23	7.87	0.03	0.05	2.78	60.05
1960	12.41	11.99	10.73	2.92	5.20	0.00	0.00	0.00	M0.00	0.53	8.29	13.04	65.11
1961	8.70	6.51	8.51	0.98	3.32	1.00	0.21	0.05	0.38	1.25	11.49	9.48	51.88
1962	4.35	20.77	9.11	0.82	0.41	0.07	0.00	1.19	1.52	10.92	3.62	6.82	59.60
1963	4.00	6.97	9.20	13.99	1.97	0.23	0.00	0.01	0.18	3.82	16.43	1.63	58.43
1964	8.78	0.17	2.99	0.34	1.00	1.41	0.10	0.00	0.27	4.41	14.67	30.49	64.63
1965	9.56	1.29	1.06	13.20	0.31	0.14	0.00	1.42	0.00	0.10	22.08	2.38	51.54
1966	13.42	9.01	3.81	1.87	0.00	0.07	0.00	0.20	0.37	0.00	16.44	12.07	57.26
1967	14.94	1.06	11.25	10.22	1.30	2.22	0.02	T	0.05	1.23	4.06	6.55	52.90
1968	10.36	11.48	5.93	0.43	2.82	0.50	0.00	2.64	0.11	4.18	5.36	16.40	60.21
1969	24.18	18.56	3.92	4.70	0.04	0.67	0.00	0.00	0.06	1.68	2.10	22.31	78.22
1970	34.13	3.79	4.04	0.20	0.26	2.01	0.00	0.00	0.02	3.80	25.72	16.40	90.37
1971	8.17	0.22	10.66	1.51	2.84	0.80	0.03	0.15	0.74	0.79	7.63	7.02	40.56
1972	6.86	3.65	5.36	5.32	2.58	1.56	0.00	0.08	1.42	4.52	13.36	6.58	51.29
1973	18.96	13.88	8.41	0.02	0.86	0.21	0.16	0.00	1.37		27.62	11.70	83.19
1974	15.96	4.56	19.02	5.83	0.46	0.57	4.03	0.25	0.00	3.16	2.82	9.24	65.90
1975	3.34	16.62	23.16	3.95	0.00	0.31	0.57	0.47	0.00	7.83	2.15	4.18	62.58
1976	0.74	9.15	3.14	5.72	0.03	T	0.00	5.47	1.71	0.07	1.56	0.40	27.99
1977	3.31	2.48	2.96	1.26	5.34	0.03	0.01	0.27	8.89	1.89	4.77	13.38	44.59
1978	32.67	10.04	15.59	10.63	0.20	0.25	0.04	0.01	5.00	0.00	2.95	0.38	77.76
1979	14.78	13.84	7.29	4.15	2.24	0.00	0.02	0.79	0.42	7.99	7.76	7.71	66.99
1980	6.35	22.51	6.03	4.82	1.84	1.69	0.00	0.00	1.44	0.83	0.96	15.47	61.94
1981	15.05	7.85	10.34	3.12	4.07	0.00	0.11	0.00	1.20	6.55	21.39	15.08	84.76
1982	8.80	9.65	10.60	11.52	0.00	2.31	0.59	0.33	0.92	5.96	8.67	14.52	73.87
1983	17.35	20.70	34.55	6.89	2.44	0.24	0.25	1.58	2.47	3.26	17.09	23.66	130.48
1984	0.58	4.68	5.99	2.59	1.22	1.02	0.03	0.58	0.19	2.74	20.37	3.02	43.01

1985	1.21	3.18	4.34	0.67	0.25	2.14	1.09	0.25	6.38	4.05		6.57	30.13
1986	14.93	24.09	12.89	1.76	4.95	0.00	0.00		4.60	1.43	0.35	3.55	68.55
1987	9.17	8.99	13.32	0.22	1.90	0.15	0.21	0.00	0.00	0.47	3.83	17.90	56.16
1988	11.12	0.10	0.34		5.96	1.61	0.25	0.00	0.00	0.70	17.16	6.39	43.63
1989	2.34	1.30	14.92	2.13	1.31	0.13	0.03	0.15	5.17	6.06	1.35	0.00	34.89
1990	10.63	3.33	3.01	1.93	12.76	0.18	0.01	1.08	0.53	1.99	0.65	0.77	36.87
1991	1.49	3.76	22.26	1.78	1.73	1.72	0.01	0.00	T	2.44	1.58	5.66	42.43
1992	4.33	19.72	10.04	5.70	0.06	6.78	0.14	0.00	0.00	6.73	3.04	16.43	72.97
1993	14.96	10.09	13.63	4.95	6.33	2.48	0.00	0.02	0.00	1.67	1.78	11.35	67.26
1994	7.66	7.10	0.57	4.80	1.48	1.67	0.00	0.00	0.11	0.07	6.35	6.25	36.06
1995	38.21	2.66	28.87	7.73	3.45	3.60	0.00	0.00	0.00	0.00	0.27	19.93	104.72
1996	10.38	20.68	3.55	4.55	6.82	0.22	0.00	0.00	0.81	3.41	11.71	27.82	89.95
1997	16.73	1.22	3.06	2.81	0.38	4.37	0.27	1.10	1.73	1.83	16.33	4.94	54.77
1998	22.65	36.73	14.24	5.74	9.53	1.78	0.04	0.00	0.20	1.48	15.92	5.01	113.32
1999	8.79	14.03	8.62	3.04	M0.76	0.60	0.00	0.08	0.00	1.98	8.22	1.85	47.97
2000	16.59	26.06	6.89	5.40	1.94	1.07	0.01	0.00	3.62	21.24	1.25	3.39	87.46
2001	8.79	15.22	4.59	M6.74	0.29	2.36	0.04	0.00	0.95	2.88	17.26	20.19	79.31
2002	M29.83	5.21	4.91	1.80	2.67	0.28	0.00	0.00	0.00	0.00	5.22	37.83	87.75
2003	6.79	2.99	7.37	11.98	1.23	0.00	0.10	1.47	0.15	0.00	10.75	21.28	64.11
2004	7.66	19.40	4.24	2.91	0.91	0.70	0.00	0.00	0.09	8.09	1.84	18.12	63.96
2005	7.51	5.96	10.03	4.41	9.82	1.90	0.00	0.48	0.23	0.87	9.53	22.84	73.58
2006	14.08	8.21	16.67	13.72	M11.26	0.55	0.00	0.00	0.00	0.24	6.98	11.69	83.40
2007	1.25	13.57	0.63	3.12	0.88	0.12	2.68	0.01	0.30	4.16	0.60	10.24	37.56
2008	16.64	10.52	0.28	M0.76	0.94	0.08	0.00	0.00	0.00	4.43	4.01	4.33	41.99
2009	0.52	20.77	8.43	3.31	7.45	2.35	0.00	0.00	0.02	8.13	M0.81	6.62	58.41
2010	21.78	12.02	5.24	M10.37	3.80	0.54	0.00	0.29	0.48	7.07	9.02	14.63	85.24
2011	1.87	6.24	18.75	2.06	5.27	4.29	0.28	0.00	0.17	3.99	3.59	0.69	47.20
2012	7.60	2.85	19.28	M5.30	0.60	0.49	0.06	M0.00	M0.00	1.59	15.62	19.66	73.05
2013	M0.88	0.63	4.47	1.84	0.54	3.58	0.00	0.00	2.12	0.03	2.30	0.32	16.71
2014	0.48	13.18	12.78	2.18	M0.20	M0.00	0.02	0.45	2.54	4.97	M4.99	22.87	64.66
2015	0.58	11.14	M1.15	2.07	1.33	1.22	0.41	0.52	1.18	0.52	2.06	M13.04	35.22
2016	23.30	M3.18	17.35	1.77	2.37	1.46	0.00	0.00	0.00	13.08	M8.47	M9.97	80.95
2017	22.42	25.47	7.85	M10.29	M0.19	M0.42	0.00	0.08	0.27	M0.49	M10.37	0.09	77.94
2018	7.37	0.15	M11.36	4.44	2.25	0.00	0.00	0.00	0.26	1.14	10.45	M6.14	43.56

2019	11.40	23.48	M16.68	7.13	7.55	0.00	0.00	0.78	0.56	0.25	2.61	11.81	82.25
2020	M2.75												2.75
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.													
Data missing for all days in a month or year is blank.													
Creation date: 2016-07-22													

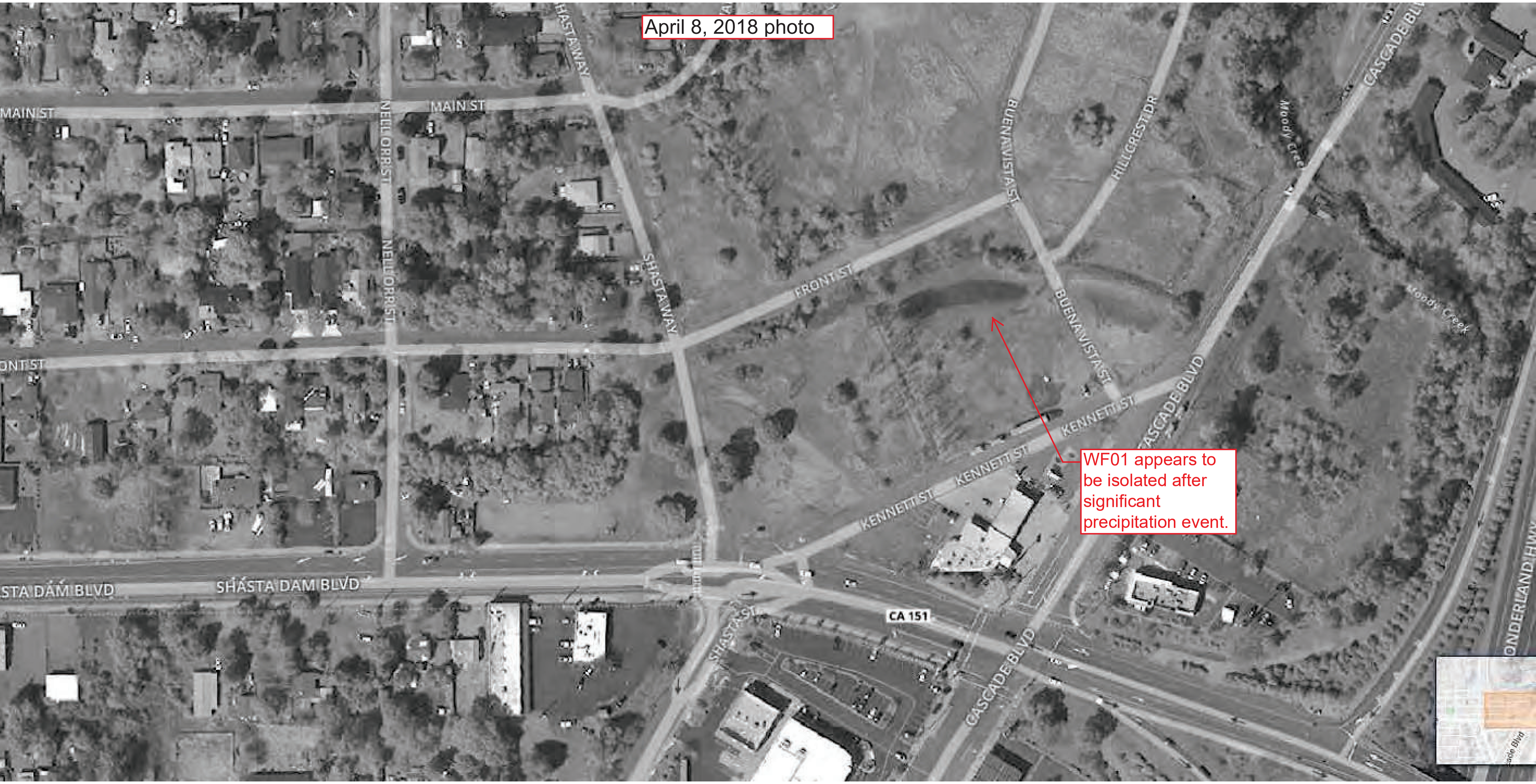
Climatological Data for SHASTA DAM, CA - February 2017

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2017-02-01	50	39	44.5	5	0	0.00	0.0	0
2017-02-02	55	39	47.0	7	0	0.08	0.0	0
2017-02-03	50	42	46.0	6	0	1.71	0.0	0
2017-02-04	54	43	48.5	9	0	1.78	0.0	0
2017-02-05	52	47	49.5	10	0	1.99	0.0	0
2017-02-06	53	46	49.5	10	0	2.05	0.0	0
2017-02-07	58	45	51.5	12	2	2.89	0.0	0
2017-02-08	63	51	57.0	17	7	0.10	0.0	0
2017-02-09	64	48	56.0	16	6	2.17	0.0	0
2017-02-10	59	49	54.0	14	4	4.12	0.0	0
2017-02-11	57	42	49.5	10	0	0.20	0.0	0
2017-02-12	59	40	49.5	10	0	0.00	0.0	0
2017-02-13	67	41	54.0	14	4	0.00	0.0	0
2017-02-14	60	41	50.5	11	1	0.00	0.0	0
2017-02-15	63	43	53.0	13	3	0.00	0.0	0
2017-02-16	62	42	52.0	12	2	1.03	0.0	0
2017-02-17	61	43	52.0	12	2	0.15	0.0	0
2017-02-18	60	43	51.5	12	2	1.71	0.0	0
2017-02-19	58	42	50.0	10	0	0.33	0.0	0
2017-02-20	M	M	M	M	M	S	0.0	0
2017-02-21	52	42	47.0	7	0	5.03A	0.0	0
2017-02-22	62	42	52.0	12	2	0.02	0.0	0
2017-02-23	61	40	50.5	11	1	0.02	0.0	0
2017-02-24	61	41	51.0	11	1	0.00	0.0	0
2017-02-25	54	33	43.5	4	0	0.04	0.0	0
2017-02-26	61	37	49.0	9	0	0.00	0.0	0
2017-02-27	49	32	40.5	1	0	0.05	0.0	0
2017-02-28	50	33	41.5	2	0	0.00	0.0	0
Average|Sum	57.6	41.7	49.6	267	37	25.47	0.0	0.0

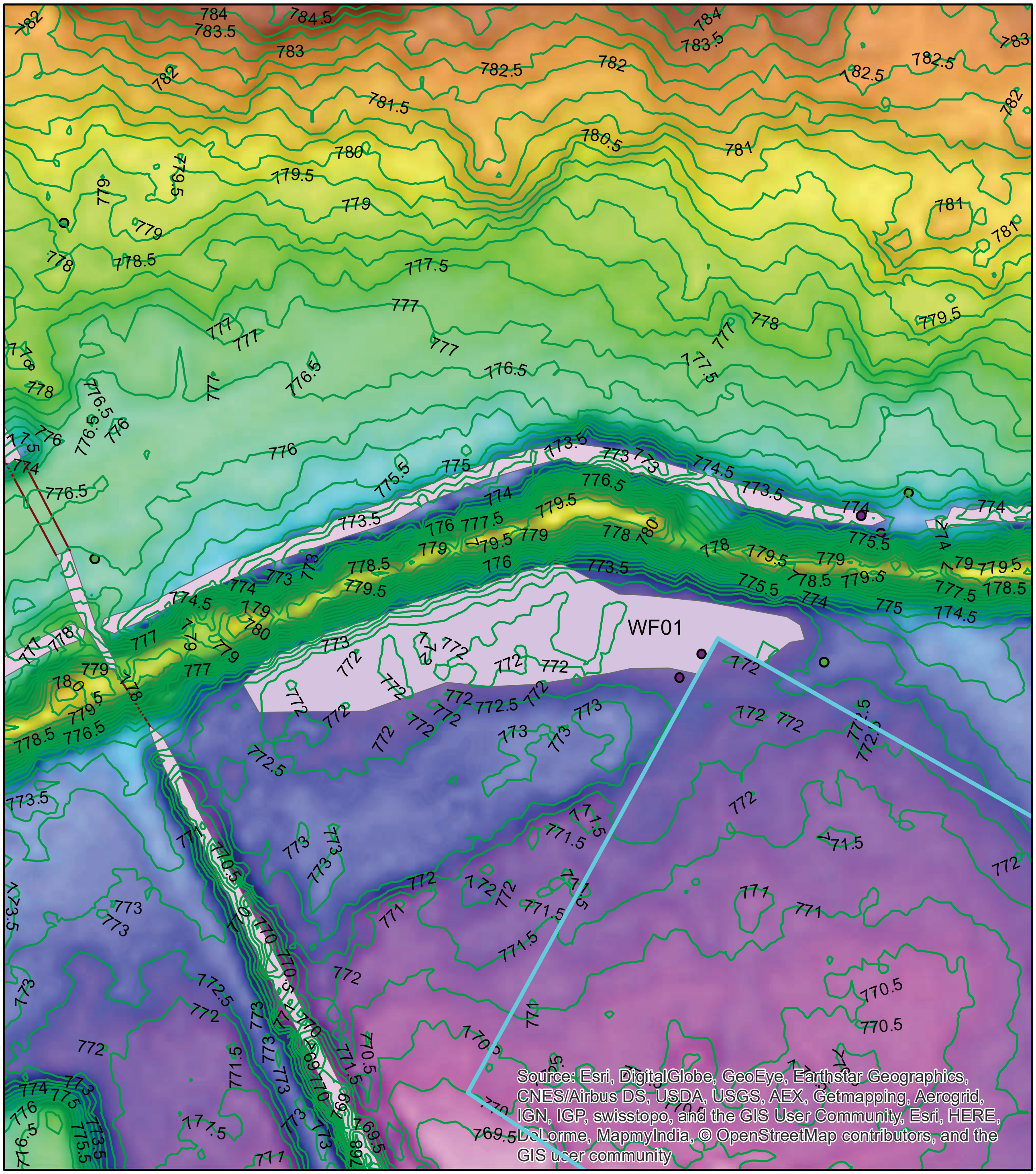

February 23, 2017
After large series of storm events WF01 appear to be isolated. On the northern portion of WF01 is a berm that prevents connection to EX03.

Climatological Data for SHASTA DAM, CA - April 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-04-01	78	51	64.5	25	15	0.00	0.0	0
2018-04-02	80	52	66.0	26	16	0.00	0.0	0
2018-04-03	67	49	58.0	18	8	0.00	0.0	0
2018-04-04	74	49	61.5	22	12	0.00	0.0	0
2018-04-05	75	53	64.0	24	14	0.00	0.0	0
2018-04-06	60	48	54.0	14	4	1.30	0.0	0
2018-04-07	57	49	53.0	13	3	2.54	0.0	0
2018-04-08	66	44	55.0	15	5	0.00	0.0	0
2018-04-09	65	48	56.5	17	7	0.00	0.0	0
2018-04-10	82	55	68.5	29	19	0.00	0.0	0
2018-04-11	68	51	59.5	20	10	0.00	0.0	0
2018-04-12	61	37	49.0	9	0	0.26	0.0	0
2018-04-13	60	37	48.5	9	0	0.00	0.0	0
2018-04-14	68	38	53.0	13	3	0.00	0.0	0
2018-04-15	70	40	55.0	15	5	0.00	0.0	0
2018-04-16	73	41	57.0	17	7	0.12	0.0	0
2018-04-17	56	37	46.5	7	0	0.02	0.0	0
2018-04-18	61	42	51.5	12	2	0.00	0.0	0
2018-04-19	61	43	52.0	12	2	0.00	0.0	0
2018-04-20	70	45	57.5	18	8	0.00	0.0	0
2018-04-21	79	54	66.5	27	17	0.00	0.0	0
2018-04-22	85	58	71.5	32	22	0.00	0.0	0
2018-04-23	83	59	71.0	31	21	0.00	0.0	0
2018-04-24	85	61	73.0	33	23	0.00	0.0	0
2018-04-25	86	56	71.0	31	21	0.00	0.0	0
2018-04-26	87	55	71.0	31	21	0.00	0.0	0
2018-04-27	82	48	65.0	25	15	0.00	0.0	0
2018-04-28	M	M	M	M	M	0.00	0.0	0
2018-04-29	56	44	50.0	10	0	0.19	0.0	0
2018-04-30	63	48	55.5	16	6	0.01	0.0	0
Average|Sum	71.0	48.0	59.5	571	286	4.44	0.0	0.0


April 8, 2018 photo
WF01 appears to
be isolated after
significant
precipitation event.
MAIN ST
NELL ORR ST
SHASTA WAY
FRONT ST
BUENA VISTA ST
HILLCREST DR
KENNETT ST
CASCADE BLVD
SHASTA DAM BLVD
SHASTA ST
CA 151
Moody Creek

WF01 Lidar SPK-2019-00856



Legend

Elevation (Feet)

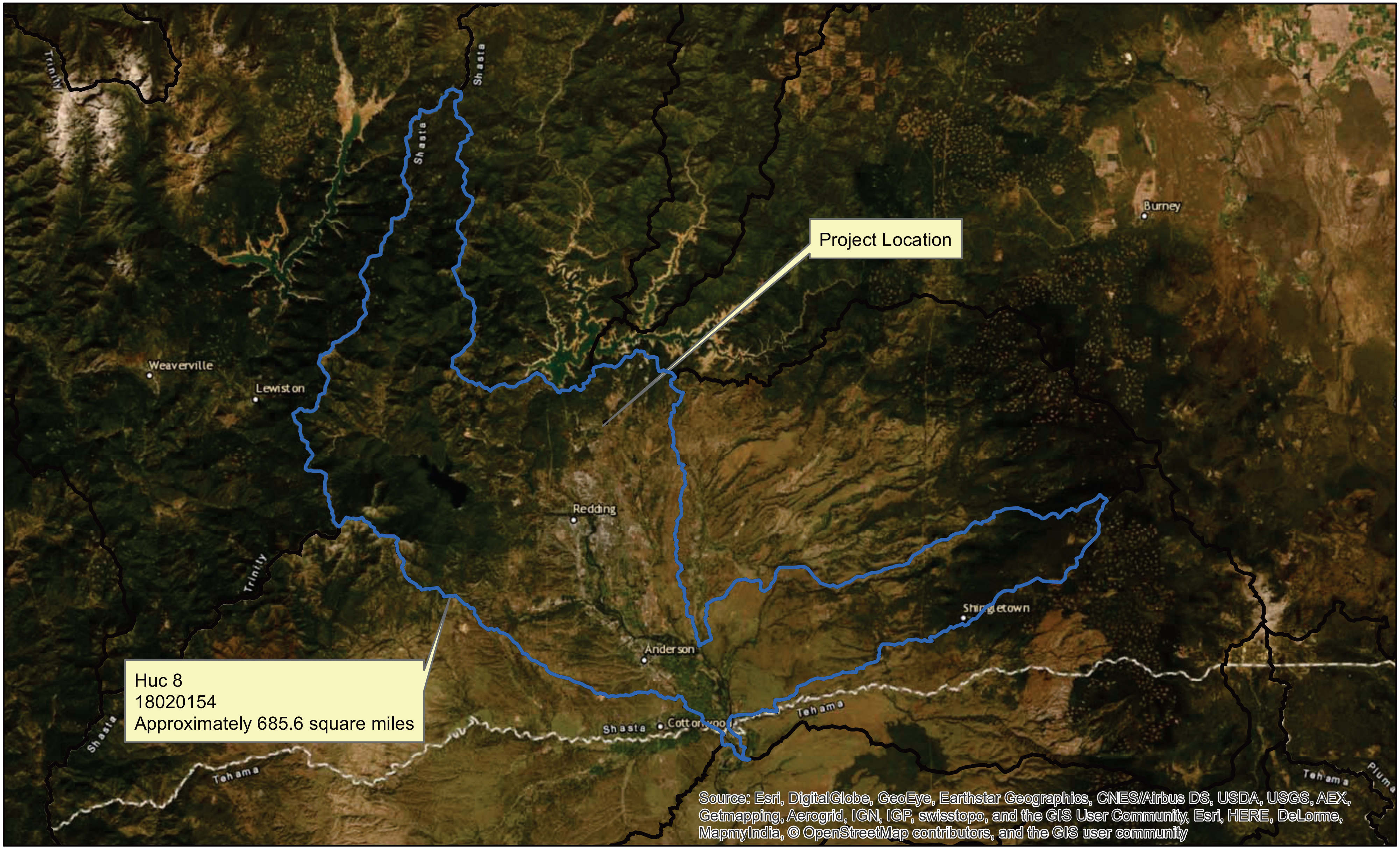
Value

High : 784.929

Low : 767.486

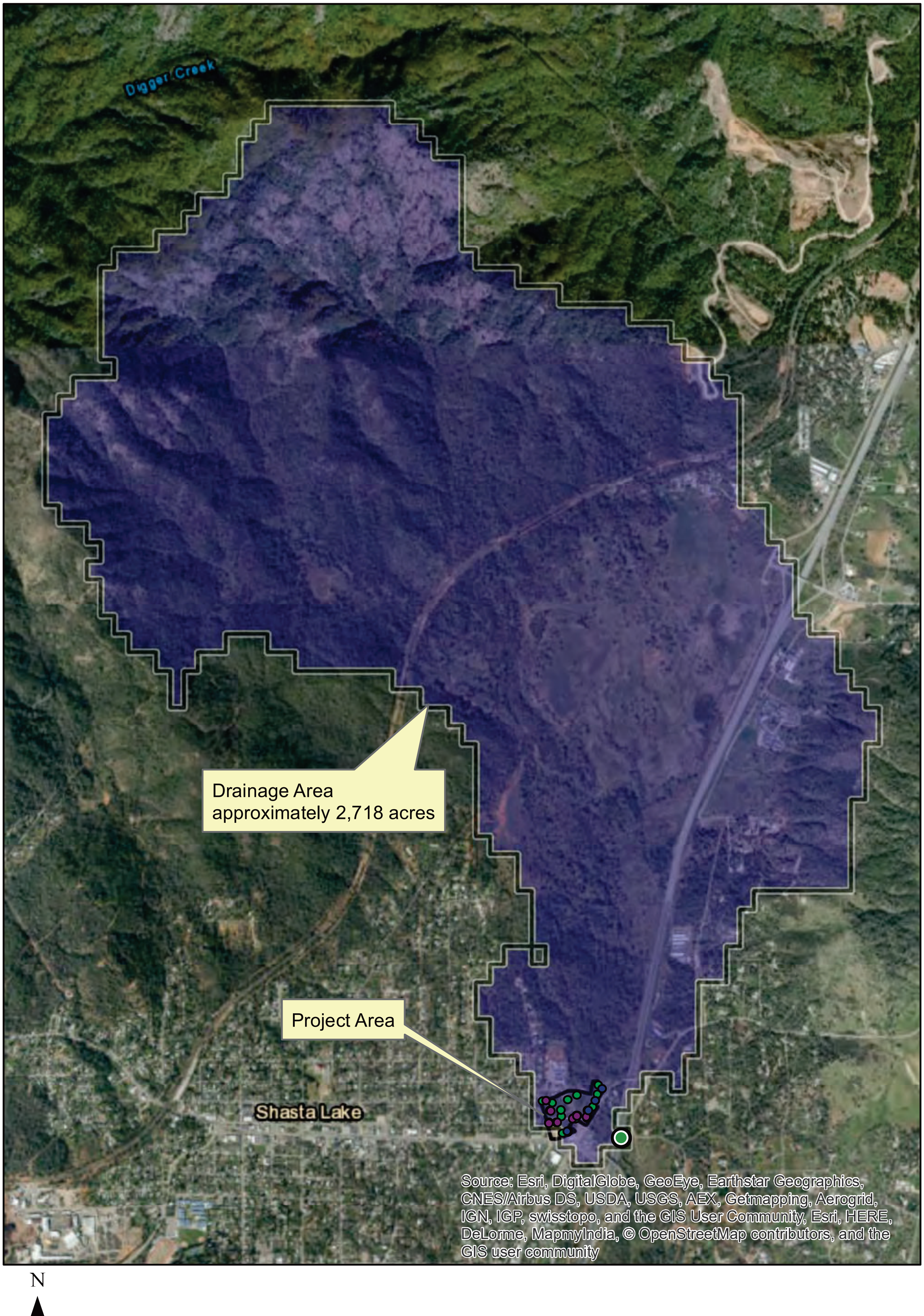
Date: 1/13/2020 Author: Matthew Roberts

HUC 8 Watershed



Author: Matthew Roberts Date: 1/16/2020

Drainage Area (SPK-2019-00856)



Author: Matthew Roberts Date: 1/21/2020

Appendix D

Cultural Resources Inventory Study

CULTURAL RESOURCES INVENTORY SURVEY

Commercial Center Safe Route to School Development Project
c. 5-acres
City of Shasta Lake, Shasta County, California.

Prepared for

Gallaway Enterprises, Inc.
117 Meyers Street, Suite 120
Chico, CA 95928

Author

Sean Michael Jensen, M. A.

Keywords *for Information Center Use:*
Cultural Resources Inventory Survey, circa 5-acres, Shasta County, CEQA, USGS Project City, Ca. 7.5' Quadrangle, No Significant Historical Resources, No Unique Archaeological Resources

December 11, 2023

ABSTRACT

This report details the results of a cultural resources inventory survey of approximately 7.44-acres of land located in and around the intersection of Grand Avenue, Shasta Way, Cascade Boulevard and Shasta Dam Boulevard, a short distance west of Interstate 5, within the City of Shasta Lake, Shasta County, California.

The proposed Project will generate a seamless network of complete streets creating safe routes to Grand Oaks School and connections to improved open space areas, trails, residential neighborhoods, shopping, employment centers, government facilities, tribal owned land, recreation areas, and other local destinations. The Project activities will include improvements to numerous existing roads, construction of a new roadway, and an improvement of a 2-acre open space area adjacent to Moody Creek that will integrate green space, native landscaping, improved trails, and green sustainable stormwater infrastructure. These improvements will serve the needs of all transportation users including pedestrians, bicyclists, people with disabilities, transit riders, and motorists. The area of potential effects (APE) consists of the 7.44-acres depicted on the attached Location Map and
Survey Area Map, with a maximum vertical APE of 3-feet below the existing ground surface.

Existing records at the NEIC document that all of the present APE had been subjected to previous archaeological investigation, and that no cultural resources had been documented within the APE. As well, the present effort included an intensive-level pedestrian survey. The pedestrian survey failed to identify any cultural resources within the APE.

Consultation was undertaken with the Native American Heritage Commission (NAHC) re. sacred land listings for the property. An information request letter was delivered to the NAHC on November 3, 2023. The NAHC responded with a letter dated December 8, 2023, indicating that a search of their Sacred Lands files returned negative results. The NAHC findings will be provided to the lead agency which will engage in formal consultation in compliance with California law.

The probability of encountering buried archaeological sites within the APE is low. This conclusion is derived in part from the observed soil matrices which comprise the exposed soil cuts associated with road construction and wholesale demolition of the commercial center property which has exposed culturally-sterile subsurface soils. Evidence of ground disturbance assisted in determining whether or not subsurface resources were present within the APE. Overall, the soil types present and contemporary disturbance would warrant a finding of low probability for encountering buried archaeological sites.

Based on the absence of significant historical resources/unique archaeological resources within the APE, archaeological/cultural resources clearance is recommended for the project/undertaking as presently proposed.

CONTENTS

1. INTRODUCTION

Project Background

This report details the results of a cultural resources inventory survey of approximately 7.44-acres of land located in and around the intersection of Grand Avenue, Shasta Way, Cascade Boulevard and Shasta Dam Boulevard, a short distance west of Interstate 5, within the City of Shasta Lake, Shasta County, California.

The proposed Project will generate a seamless network of complete streets creating safe routes to Grand Oaks School and connections to improved open space areas, trails, residential neighborhoods, shopping, employment centers, government facilities, tribal owned land, recreation areas, and other local destinations. The Project activities will include improvements to numerous existing roads, construction of a new roadway, and an improvement of a 2-acre open space area adjacent to Moody Creek that will integrate green space, native landscaping, improved trails, and green sustainable stormwater infrastructure. These improvements will serve the needs of all transportation users including pedestrians, bicyclists, people with disabilities, transit riders, and motorists. The area of potential effects (APE) consists of the 7.44-acres depicted on the attached Location Map and Survey Area Map, with a maximum vertical APE of 3-feet below the existing ground surface.

Since the project could ultimately involve physical disturbance to ground surface and sub-surface components in conjunction with road safety development, it has the potential to impact cultural resources that may be located within the APE. In this case, the APE consists of the 7.44-acres depicted on the attached Location Map and Survey Area Map. Evaluation of the project's potential to impact cultural resources must be undertaken in conformity with both City of Shasta Lake and Shasta County rules and regulations, and in compliance with requirements of the California Environmental Quality Act of 1970, Public Resources Code, Section 21000, et seq. (CEQA), and The California CEQA Environmental Quality Act Guidelines, California Administrative Code, Section 15000 et seq. (Guidelines as amended).

Regulatory Context

The following section provides a summary of the applicable regulations, policies and guidelines relating to the proper management of cultural resources.

The California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Public Resources Code (PRC) Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR were developed to be in accordance with previously established criteria developed for listing in the NRHP. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
(2) Is associated with the lives of persons important in our past
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
(4) Has yielded, or may be likely to yield, information important in prehistory or history

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)). The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of a historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County Coroner has examined the remains (Section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the County Coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

PRC Sections 21083.2(b)–(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource, even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

(1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

(2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA [CEQA Guidelines Section 15064.5(b)(2)].

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2(a), (b), and (c)).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described in the following text, these procedures are detailed in PRC Section 5097.98.

Native American Historic Cultural Sites

State law (PRC Section 5097 et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and established the Native American Heritage Commission (NAHC).

In the event that Native American human remains or related cultural material are encountered, Section 15064.5(e) of the CEQA Guidelines (as incorporated from PRC Section 5097.98) and California Health and Safety Code Section 7050.5 define the subsequent protocol. In the event of the accidental discovery or recognition of any human remains, excavation or other disturbances shall be suspended of the site or any nearby area reasonably suspected to overlie adjacent human remains or related material. Protocol requires that a county-approved coroner be contacted in order to determine if the remains are of Native American origin. Should the coroner determine the remains to be Native American, the coroner must contact the NAHC within 24 hours. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 (14 CCR 15064.5(e)).

Scope of Work

Compliance with CEQA (and County rules and regulations) requires completion of projects in conformity with the amended (October 1998) Guidelines, including in particular Section 15064.5. Based on these rules, regulations and Guidelines, the following specific tasks were considered an adequate and appropriate Scope of Work for the present archaeological survey:

- Conduct a records search at the Northeast Information Center of the California Historical Resources Information System and consult with the Native American Heritage Commission. The goals of the records search and consultation are to determine (a) the extent and distribution of previous archaeological surveys, (b) the locations of known archaeological sites and any previously recorded archaeological districts, and (c) the relationships between known sites and environmental variables. This step is designed to ensure that, during subsequent field survey work, all significant/eligible cultural resources are discovered, correctly identified, fully documented, and properly interpreted.

- Conduct a pedestrian survey of the APE in order to record and evaluate any previously unidentified cultural resources. Based on map review, a complete coverage, intensive survey was considered appropriate, given the presence of moderate archaeological sensitivity within the property. The purpose of the pedestrian survey is to ensure that any previously identified sites are re-located and evaluated in relation to the present project/undertaking. For any previously undocumented sites discovered, the field survey would include formally recording these resources on State of California DPR-523 Forms.

- Upon completion of the records search and pedestrian survey, prepare a Final Report that identifies project effects and recommends appropriate mitigation measures for sites that might be affected by the undertaking and that are considered significant or potentially significant per CEQA, and/or eligible or potentially eligible for inclusion on the California Register of Historical Resources.

The remainder of the present document constitutes the Final Report for this project, detailing the results of the records search, consultation and pedestrian survey and providing recommendations for treatment of significant/eligible archaeological and historic sites. All field survey work followed guidelines provided by the Office of Historic Preservation (Sacramento) and conforms to accepted professional standards.

2. Location, Environmental and Cultural Context

Location

The present APE incorporates approximately 7.44-acres of land located in and around the intersection of Grand Avenue, Shasta Way, Cascade Boulevard and Shasta Dam Boulevard, a short distance west of Interstate 5, within the City of Shasta Lake, Shasta County, California. Lands affected are located within a portion of Sections 29 & 32 of Township 33 North, Range 4 West, as shown on the USGS Project City, California, 7.5' Series Quadrangle (see attached ***APE Map***).

Environment

The project area occupies the relatively flat terrain which forms the upper western margin of Moody Creek which eventually merges with the West Fork Stillwater Creek approximately 3.5-miles to the south before reaching a confluence with the Sacramento River much further south, within the extreme north end of the Sacramento Valley. The Sacramento Valley is bordered by the Sierra Nevada mountain range to the east, the Cascade and Klamath ranges to the north, and the Coast Ranges to the west. Surface waters within the project vicinity generally flow through a number of north-south trending drainages, and eventually discharge into the Sacramento River.

Prehistory

The earliest residents in the Great Central Valley are represented by the Fluted Point and Western Pluvial Lakes Traditions, which date from about 11,500 to 7,500 years ago (Moratto 2004). Within portions of the Central Valley of California, fluted projectile points have been found at Tracy Lake (Heizer 1938) and around the margins of Buena Vista Lake in Kern County. Similar materials have been found to the north, at Samwel Cave near Shasta Lake and near McCloud and Big Springs in Siskiyou County. These early peoples are thought to have subsisted using a combination of generalized hunting and lacustrine exploitation (Moratto 2004).

These early cultural assemblages were followed by an increase in Native population density after about 7,500 years ago. One of the most securely dated of these assemblages in north-central California is from the Squaw Creek Site located north of Redding. Here, a charcoal-based C-14 date suggests extensive Native American presence around 6,500 years ago, or 4,500 B.C. Most of the artifactual material dating to this time period has counterparts further south, around Borax (Clear) Lake to the west, and the Farmington Area in a Valley setting east of Stockton. Important artifact types from this time period include large wide-stemmed projectile points and manos and metates. The possibility exists that this early culture represents Hokan-speaking peoples who were also ancestral to those who subsequently expanded into the southern Cascade, the southern Klamath, the North Coast Range, and the lower reaches of the northern Sierra Nevada.

Sometime around AD 200-400, the first major disruption of this possibly Hokan-speaking population by Penutian immigrants is believed to have occurred. Arriving ultimately from southern Oregon and the Columbia and Modoc Plateau region and proceeding down the major drainage systems (including the Sacramento, Feather, Yuba and American Rivers), these Penutian-speaking arrivals eventually displaced Hokan populations as far west as the Sacramento Valley floor and the margins of the Sacramento River. At the time of contact with Euroamerican populations (*circa*. AD 1850), these Penutian-speaking peoples were still expanding into areas previously occupied by the earlier-arriving Hokan-speaking peoples. Presumably introduced by the Penutians were more extensive use of bulbs and other plant foods, animal and fishing products more intensively processed with mortars and pestles, and perhaps the bow and arrow and associated small stemmed- and corner-notched projectile points. In the Redding area, the so-called Shasta (archaeological) Complex represents the material culture record of the local Penutian speakers.

Ethnography

The project area is located within lands traditionally claimed by the Keswick subgroup of Wintu Indians (Du Bois 1935: Map 1; La Pena 1978: Figure 1). The basic social unit for the Wintu was the family, although the village may also be considered a social, political and economic unit. Villages were usually located on flats adjoining streams, and were inhabited mainly in the winter as it was necessary to go out into the hills and higher elevation zones to establish temporary camps during food gathering seasons (i.e., spring, summer and fall). Villages frequently contained a scattering of bark houses, numbering from four or five to several dozen in larger villages, each house containing a single family of from three to seven people. Larger villages containing from twelve to fifteen houses, especially those along the Sacramento River and other major water courses in the area, might also have an earth lodge.

As with all northern California Indian groups, economic life for the Wintu revolved around hunting, fishing and the collecting of plant foods, with deer, acorns, and salmon representing primary staples. Collecting and then processing these various food resources were accomplished with the use of a wide variety of wooden, bone and stone artifacts. These groups were also very sophisticated in terms of their knowledge of the uses of local animals and plants, and of the availability of raw material sources that could be used in manufacturing an immense array of primary and secondary tools and implements. However, only fragmentary evidence of their material culture remains, due in part to perishability, and in part to the impacts to archaeological sites resulting from later (historic) land uses. Based on the results of previous survey work within the general region (e.g., Jensen 1993; Johnson and Theodoratus 1984), the range of potentially-present Native American site types for the area included the following:

- Surface scatters of lithic artifacts and debitage, often but not always associated with dark brown to black "midden" deposits, resulting from village encampments. Typically, such sites are located adjacent or close to permanent surface water sources.
- Surface scatters of lithic artifacts and debitage without associated middens, resulting from short-term occupation and/or specialized economic activities.
- Bedrock milling stations, including both mortar holes and metate slicks, located in areas where bedrock is exposed, particularly along stream channels.
- Petroglyphs, especially "pitted" or "cupped" bedrock outcrops.
- Isolated finds of aboriginal artifacts and flakes.

Clearly, it was not expected that all of these site types would be present within the project area, but that these represent the most likely ***types*** present based on the results of previous surveys in the general project vicinity.

Historic Context

The history of the project area has been summarized in Hamusek, Kowta and Dreyer (1990), with an historical context for mining activities in west-central Shasta County available in Hamusek-McGann with Vaughan (1999). Much of this information has been partially summarized in survey reports by Vaughan (1998) and Dwyer (2001), both of which involved nearby BLM lands. The reader is referred to the Hamusek, Kowta and Dreyer (1990) historic overview for general information and historic trends as these relate to the project vicinity. Presented below is additional specific information for the project area.

As indicated above, the primary historic theme for the project area is mining. While specific written accounts linking the project area with the earliest historic mining activities in Shasta County are not available, the general area was nevertheless subject to mining immediately following Reading's discovery of gold on Clear Creek in 1848. By 1850, virtually every stream flowing into the Sacramento River from the Klamath Range to the west was being mined for its placer deposits. Small tent camps grew into larger communities, including Hogtown (which later became Kett, and eventually a stop along the railroad [Smith 1995]), a small historic community located several miles southwest of the present APE.

As the miners began to extend their camps from the community of Shasta and focus their attention on lands easterly of the Sacramento River, the River itself posed the single most significant obstacle to movement. One of the better river crossings was located at a point historically referenced as The Narrows, just below the mouth of Rock Creek. Here, Joseph

Waugh established a ferry in 1883, realizing that such a facility would be routinely utilized by miners seeking a safe crossing to communities and mine fields on the east side of the Sacramento River.

When the California & Oregon Railroad arrived in Redding in 1872, the residents of Shasta hoped that a spur would be extended to Shasta and thereby help sustain its importance as the County grew in population. However, the final routing decision resulted in bypassing Shasta, proceeding northward along the west side of the Sacramento River. When finally extended in the early 1880's, the railroad cut off Waugh's access to the River, for which he negotiated a cash settlement. The road to Shasta was of course largely abandoned, except for west-side users, including miners and others within and near the present project area. Waugh took his cash settlement and undertook an entirely new project downstream, at the mouth of Middle Creek with the Sacramento River. In 1882 and 1883, the Middle Creek Road was constructed to connect Shasta with the extended railroad line and the new stop at "Waugh" or Middle Creek Station.

In the earliest days of mining, placer gold was sought by individuals and small parties, and undoubtedly gold pans and sluices were utilized all along Rock Creek, Middle Creek, and the smaller unnamed streams and arroyos in the area into the 1850's. As the easily recovered placer deposits were depleted, however, the focus shifted to lode mining with its attendant mills and more sophisticated methods of ore processing and extraction.

Eventually, these more involved processes required larger associations of miners to undertake and fund more expansive operations and more expensive equipment. An underlying requirement for operational success was, of course, available water supply, and it is no accident therefore that one of the first and most important of the early associations was that which led to the Shasta County Mining and Water Company, in April 1853, and eventually to construction of the Clear Creek Ditch. Generally smaller operations were undertaken within the present project vicinity, although consolidation led in some cases to relatively larger operations in terms of the land area held.

In addition to gold mining, copper mining became a major industry in the 1880's, replacing gold mining in revenues by about 1896. As historian Smith notes (Smith 1995:v), "Copper was mined until 1969 with peak production years occurring from 1897 to 1919 and during 1924 and 1925." Processing copper involved substantial smelters, the fumes from which denuded the watershed from below Keswick Dam to north of Shasta Dam (ibid: 32-33). During normal years, winters see an average of about 60" of rain within the area; during the several decades when this deluge fell on denuded slopes and hillsides, erosion was severe, with numerous gullies created, topsoil eroded, prehistoric lithic artifacts relocated, and other cultural deposits located within low-lying areas partially concealed or completely buried by slope wash and siltation.

The City of Shasta Lake was incorporated in 1993, combining five of the historic "boomtowns" in the area which coincided with the construction of Shasta Dam in the late 1930s. Approval and funding of the Shasta Dam construction occurred in 1935, while construction began in 1938. The influx of workers for this project resulted in the rapid development of the region, with the intensification of commercial and residential developments a primary artifact. Upon completion of the dam in 1945 and the end of World War II, many of the former dam workers and veterans returning home, maintained residences and opened new businesses.

3. RECORDS SEARCH and SOURCES CONSULTED

Several types of information were considered relevant to evaluating the types of archaeological sites and site distribution that might be encountered within the project area. The information evaluated prior to conducting the pedestrian survey includes data maintained by the Northeast Information Center, and available published and unpublished documents relevant to regional prehistory, ethnography, and early historic developments.

Northeast Information Center Records

The official Shasta County archaeological records were examined on November 19, 2023 (IC File # NE23-494). This search documented the following existing conditions for the APE, and for a 0.25-mile radius surrounding the APE.

- According to the Information Center's records, no cultural resources have been documented within the APE. Two (2) cultural resource has been documented within the 0.25-mile search radius, but outside of the APE.

- According to the Information Center, six (6) cultural resources investigations have been conducted within the APE. Five (5) additional investigations have been conducted within the 0.25-mile search radius. All eleven (11) investigations involving pedestrian survey include:

NEIC #	Date	Author(s)
001015	1989	Jensen
001498	1996	Jensen
005600	2003	Vaughan
006385	2005	Jensen
006477	2005	Jensen
006890	2006	Wiant, Tuttle
007051	2006	Dalu
008096	1993	Jensen
011280	2010	Wiant
012349	2013	Meyer
014341	2016	King, Hildebrandt, and Waechter

Other Sources Consulted

In addition to examining the archaeological site and survey records of Shasta County maintained at the Northeast Information Center, the following sources were also included in the search conducted at the Information Center, or were evaluated separately:

- The National Register of Historic Places (1986, Supplements).
- The California Register of Historical Resources.
- The California Inventory of Historic Resources (State of California 1976).
- The California Historical Landmarks (State of California 1996).
- The California Points of Historical Interest (May 1992 and updates).
- The Historic Property Data File (OHP 2012).
- Determination of Effects (OHP 2012).
- 1882 GLO Plat, T33N, R4W.
- Red Bluff, CA USGS 1:250,000 (1890).
- Redding, CA USGS 15' (1944).
- NETR Topographic Maps (1946, 1957, 1958, 1964, 1970, 1975, 2003, 2012, 2015, 2018, 2022), and aerial photos (1943, 1955, 1969, 1983, 1993, 1998, 2005, 2009, 2010, 2012, 2014, 2016, 2018, 2020).
- Existing published and unpublished documents relevant to prehistory, ethnography, and early historic developments in the vicinity. These sources, reviewed below, provided a general environmental and cultural context by means of which to assess likely site types and distribution patterns for the project area.

4. CULTURAL RESOURCES SURVEY and CULTURAL INVENTORY

Survey Strategy and Field Work

All of the APE was subjected to intensive pedestrian survey by means of walking parallel transects, spaced at 10-meter intervals.

In searching for cultural resources, the surveyor considered the results of background research and was alert for any unusual contours, soil changes, distinctive vegetation patterns, exotic materials, artifacts, feature or feature remnants and other possible markers of cultural sites.

Fieldwork was undertaken on December 3, 2023, by Principal Investigator, Sean Michael Jensen, M.A. Mr. Jensen is a professional archaeologist, historian and architectural historian, with 37 years of experience in archaeology, architectural history and history, who meets the professional requirements of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (Federal Register, Vol. 48, No. 190), as demonstrated in his listing on the California Historical Resources Information System list of qualified archaeologists, architectural historians and historians. No special problems were encountered, and all survey objectives were satisfactorily achieved.

General Field Observations

The present field survey confirmed that the property had been subjected to ground disturbing impacts along virtually the entire APE. Road construction and ongoing maintenance has contributed to nearly all of the APE being subjected to intensive ground disturbance. Similarly, buried utilities have further impacted subsurface soils to an even greater depth than road construction. Finally, decades of residential construction and ultimately wholesale demolition within the commercial center lands, and the lands within the eastern and northern portions of the APE have further resulted in ground surface and subsurface disturbances likely to have destroyed any cultural resources that may have once been present (see photos, below).


APE margins, view north


APE margins, view south-souteast

Examination of the variously sourced map materials for the APE provided a relatively clear history of the property over the past eight decades. Both the USGS quadrangles (1946, 1957, 1958, 1964, 1970, 1975, 2003, 2012, 2015, 2018, 2022), and the aerial photos (1943, 1955, 1969, 1983, 1993, 1998, 2005, 2009, 2010, 2012, 2014, 2016, 2018, 2020) depict the APE without buildings, structures, or other built environmental components. The commercial center lands are depicted with buildings and structures (primarily residences) on all of these sources.

Prehistoric Resources

No evidence of prehistoric use or occupation was observed within the APE. The absence of such materials might best be explained by the degree of disturbance to which the entire APE has been subjected.

Historic Resources

No evidence of historic-era resources was observed within the APE. The absence of such resources is best be explained by the level of disturbance within, and adjacent to the APE.

5. ELIGIBILITY CRITERIA

Sites identified within the project area were to be evaluated for significance in relation to CEQA significance criteria. Historical resources per CEQA are defined as buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. CEQA requires that, if a project results in an effect that may cause a substantial adverse change in the significance of a historical resource, alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed. Therefore, before developing mitigation measures, the significance of cultural resources must be determined in relation to criteria presented in PRC 15064.5, which defines a historically significant resource (one eligible for listing in the California Register of Historical Resources, per PRC SS5024.1) as an archaeological site which possess one or more of the following attributes or qualities:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2. Is associated with the lives of persons important in our past
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4. Has yielded, or may be likely to yield, information important in prehistory or history

In addition, CEQA further distinguishes between archaeological sites that meet the definition of a significant historical resource as described above (for the purpose of determining effects), and "unique archaeological resources." An archaeological resource is considered "unique" (Section 21083.2(g)) when the resource not merely adds to the current body of knowledge, but when there is a high probability that the resource also:

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

In the present case, no cultural resources were identified within the APE.

6. PROJECT EFFECTS

A project may have a significant impact or adverse effect on cultural resources/historic properties if the project will or could result in the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance or values of the historic resource would be materially impaired. Actions that would materially impair a cultural resource or historic property are actions that would alter or diminish those attributes of a site that qualify the site for inclusion on the California Register of Historical Resources.

Based on the specific findings detailed above under ***Cultural Resources Survey and Cultural Inventory***, significant historical resources, or unique archaeological resources are located within the APE.

7. NATIVE AMERICAN CONSULTATION

Consultation was undertaken with the Native American Heritage Commission (NAHC) concerning sacred land listings for the property. An information request letter was delivered to the NAHC on November 3, 2023. The NAHC responded on December 8, 2023, indicating that a search of their Sacred Lands File was negative. The consultation list from the NAHC included the following:

- John Hayward, Cyndie Childress and Tracy Foster-Olstad, Nor-Rel-Muk Wintu Nation.
- Jack Potter, Redding Rancheria.
- Roy Hall, Shasta Nation.
- Mark Miyoshi and Caleen Sisk, Winnemem Wintu Tribe.
- Melissa Rogers, Gary Rickard, Shawna Garcia, Jeremy Hogue, and Cindy Hogue, Wintu Tribe of Northern California.

The NAHC findings will be provided to the lead agency which will engage in formal consultation in compliance with California law.

8. PROJECT SUMMARY

This report details the results of a cultural resources inventory survey of approximately 7.44-acres of land located in and around the intersection of Grand Avenue, Shasta Way, Cascade Boulevard and Shasta Dam Boulevard, a short distance west of Interstate 5, within the City of Shasta Lake, Shasta County, California.

The proposed Project will generate a seamless network of complete streets creating safe routes to Grand Oaks School and connections to improved open space areas, trails, residential neighborhoods, shopping, employment centers, government facilities, tribal owned land, recreation areas, and other local destinations. The Project activities will include improvements to numerous existing roads, construction of a new roadway, and an improvement of a 2-acre open space area adjacent to Moody Creek that will integrate green space, native landscaping, improved trails, and green sustainable stormwater infrastructure. These improvements will serve the needs of all transportation users including pedestrians, bicyclists, people with disabilities, transit riders, and motorists. The area of potential effects (APE) consists of the 7.44-acres depicted on the attached Location Map and Survey Area Map, with a maximum vertical APE of 3-feet below the existing ground surface.

Existing records at the NEIC document that all of the present APE had been subjected to previous archaeological investigation, and that no cultural resources had been documented within the APE. As well, the present effort included an intensive-level pedestrian survey. The pedestrian survey failed to identify any cultural resources within the APE.

Consultation was undertaken with the Native American Heritage Commission (NAHC) re. sacred land listings for the property. An information request letter was delivered to the NAHC on November 3, 2023. The NAHC responded with a letter dated December 8, 2023, indicating that a search of their Sacred Lands files returned negative results. The NAHC findings will be provided to the lead agency which will engage in formal consultation in compliance with California law.

The probability of encountering buried archaeological sites within the APE is low. This conclusion is derived in part from the observed soil matrices which comprise the exposed soil cuts associated with road construction and wholesale demolition of the commercial center property which has exposed culturally-sterile subsurface soils. Evidence of ground disturbance assisted in determining whether or not subsurface resources were present within the APE. Overall, the soil types present and contemporary disturbance would warrant a finding of low probability for encountering buried archaeological sites.

Based on the absence of significant historical resources/unique archaeological resources within the APE, archaeological/cultural resources clearance is recommended for the project/undertaking as presently proposed, although the following general provisions are considered appropriate:

1. ***Consultation in the event of inadvertent discovery of cultural material***: The present evaluation and recommendations are based on the findings of an inventory-level surface survey only. There is always the possibility that important unidentified cultural materials could be encountered on or below the surface during the course of future construction or other ground disturbing activities. This possibility is particularly relevant considering the constraints generally to archaeological field survey, and particularly where past ground disturbance activities (e.g., road construction, utility placement, etc.) may have obscured historic ground surface visibility, as in the present case. In the event of an inadvertent discovery of previously unidentified cultural material, archaeological consultation should be sought immediately.

2. ***Consultation in the event of inadvertent discovery of human remains***: In the event that human remains are inadvertently encountered during trenching or other ground-disturbing activity or at any time subsequently, State law shall be followed, which includes, but is not limited to, immediately contacting the County Coroner's office upon any discovery of human remains.

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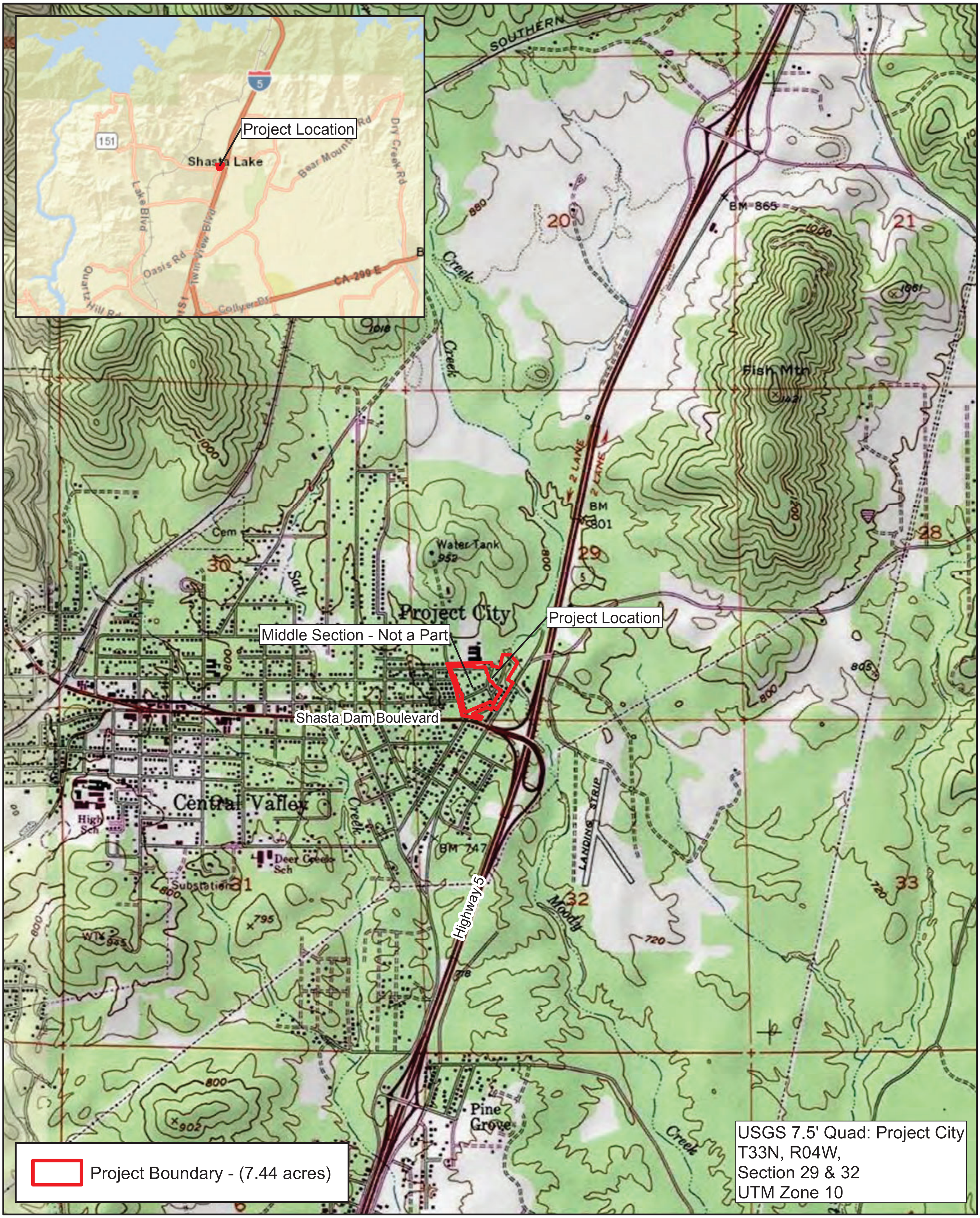
CULTURAL RESOURCES INVENTORY SURVEY

Commercial Center Safe Route to School Development Project
c. 5-acres
City of Shasta Lake, Shasta County, California.

ATTACHMENTS

- Location Map
- Survey Area Map
- Records Search from Northeast Information Center
- Consultation letter to the Native American Heritage Commission (NAHC)
- Response from the NAHC



NORTH

1:24,000 1 inch = 2,000 feet

0 0.25 0.5 Miles

Data Sources: ESRI, USGS, City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Location Map

gallaway ENTERPRISES

GE: #23-114 Map Date: 12/07/2023

NORTH

1:2,400 1 inch = 200 feet

0 100 200 Feet

Data Sources: ESRI, Maxar 09/16/2022
City of Shasta Lake, SDS

City of Shasta Lake Commercial Center
Safe Routes to School Project
Survey Area
Figure 2

gallaway ENTERPRISES

GE: #23-114 Map Date: 12/07/2023

California Historical Resources Information System

BUTTE
GLENN
LASSEN
MODOC
PLUMAS
SHASTA

SIERRA
SISKIYOU
SUTTER
TEHAMA
TRINITY

Northeast Information Center
1074 East Avenue, Suite F
Chico, California 95926
Phone (530) 898-6256
neinfocntr@csuchico.edu

November 19, 2023

Sean Jensen
Genesis Society
123 East Swift Creek Way
Kalispell, MT 59901

IC File # NE23-494
Data Request - Standard

RE: CCSR2S Project
T33N, R4W, Section 29 & 32 MDBM
USGS Project City 7.5' (1969) & Redding 15' (1957) quadrangle maps
15 acres (Shasta County)

Sean Jensen:

In response to your request, a records search for the project cited above was conducted by examining the official maps and records for cultural resources and reports in Shasta County. Please note, the search includes the requested ¼-mile radius surrounding the project area.

RESULTS:

Resources within project area:	No resources were located in the project area
Resources within ¼-mile radius:	P-45-001083 & P-53-001084
Reports within project area:	NEIC-1015, 1498, 5600, 6385, 12349, & 14341
Reports within ¼-mile radius:	NEIC-6477, 6890, 7051, 8096, & 11280

As indicated on your data request form, the locations of resources and reports are provided in the following format: ☒ Custom Maps ☐ GIS Data ☐ N/A

Resource Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Other Reports: *	☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Built Environment Resources Directory:	☐ enclosed	☐ not requested	☒ nothing listed
Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☐ not requested	☒ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☒ enclosed	☐ not requested	☐ nothing listed
Local Inventories:	☐ enclosed	☐ not requested	☒ nothing listed
GLO and/or Rancho Plat Maps:	☒ enclosed	☐ not requested	☐ nothing listed
Shipwreck Inventory:	☐ enclosed	☒ not requested	☐ nothing listed

Notes: *These are classified as studies that are missing maps or do not have a field work component.
Please refer to the NRCS Soil Survey website for current soil survey information:
https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if it is for public distribution.

The provision of California Historical Resources Information System (CHRIS) Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archaeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation (OHP), or the State Historical Resources Commission.

Due to processing delays and other factors, it is possible that not all reports and resource records that have been submitted to the OHP are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for cultural resource management work in the search area. Additionally, Native American tribes have cultural resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

An invoice will follow from Chico State Enterprises for billing purposes. Thank you for your concern in preserving California's cultural heritage, and please feel free to contact us if you have any questions or need any further information.

Sincerely,
Ashlyn Weaver

Ashlyn Weaver, M.A.
Coordinator & GIS Specialist
Northeast Information Center
(530) 898-6256

GENESIS SOCIETY

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Historic Preservation Services

November 3, 2023

Native American Heritage Commission
1550 Harbor Boulevard,
West Sacramento, California 95691

Subject: ***Commercial Center Safe Routes to School (CCSR2S) Project, circa 5-acres, Shasta County, California.***

Dear Commission:

We have been requested to conduct the archaeological survey, for the above-cited project, and are requesting any information you may have concerning archaeological sites or traditional use areas for this area. Any information you might supply will be used to supplement the archaeological and historical study being prepared for this project.

Project Name:	CCSR2S Project
County:	Shasta
Map:	USGS Project City, CA 7.5'
Location:	Portion of T33N, R4W, 29 & 32 Section

Thanks in advance for your assistance.

Regards,

Sean Michael Jensen

Sean Michael Jensen, Administrator

(530) 680-6170

Montana Office
123 E Swift Creek Way
Kalispell, MT 59901

California Office
2398 Azalea Street
Kingsburg, CA 93631

seanjensen@comcast.net

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

December 8, 2023

Sean Michael Jensen
GENESIS SOCIETY

Via Email to: seanjensen@comcast.net

Re: Commercial Center Safe Routes to School (CCSR2S) Project, Shasta County

Dear Mr. Jensen:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

Attachment