


City of Calistoga

Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project

Draft Initial Study/Mitigated Negative Declaration

June 2021

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PANORAMA ENVIRONMENTAL, INC.

City of Calistoga

Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project

Draft Initial Study/Mitigated Negative Declaration

June 2021

Prepared for:

City of Calistoga Public Works Department
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Acronyms and Abbreviations

2017 CAP	2017 Bay Area Clean Air Plan
AB	Assembly Bill
APE	area of potential effect
asl	above sea level (asl
BAAQMD	Bay Area Air Quality Management District
BMPs	best management practices
BSA	biological study area
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CCIC	Central California Information Center
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of Calistoga
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO_{2e}	carbon dioxide equivalent
CRHR	California Register of Historical Resources
dB	decibels

ACRONYMS AND ABBREVIATIONS

dBA	A-weighted decibels
DPS	distinct population segment
EIR	Environmental Impact Report
EOP	Emergency Operations Plans
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zones
FYLF	foothill yellow-legged frog
GHG	greenhouse gas
HMGP	Hazard Mitigation Grant Program
IS/MND	Initial Study/Mitigated Negative Declaration
LRAs	Local Responsibility Areas
MLD	most likely descendant
mph	miles per hour
MT	metric tons
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NBA	North Bay Aqueduct
NOAA Fisheries	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NOx	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPT	northwestern pond turtle
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center

ACRONYMS AND ABBREVIATIONS

OSHA	Occupational Safety and Health Administration
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
PRC	Public Resources Code
project	Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project
RCRA	Resource Conservation and Recovery Act
ROGs	reactive organic gases
Scoping Plan	Climate Change Scoping Plan
SFBAAB	San Francisco Bay Area Air Basin
SFHA	Special Flood Hazard Area
SR	State Route
SRAs	State Responsibility Areas
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traffic Control Plan
USFWS	U.S. Fish and Wildlife Service
WUI	wildland-urban interface

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1 Introduction

1.1 Introduction

The City of Calistoga (City) is the lead agency in accordance with the California Environmental Quality Act (CEQA) for the proposed Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project (project). The City of Calistoga has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the project. This IS/MND was prepared pursuant to the requirements of CEQA (California Public Resources Code [PRC] Sections 21000 et seq.) and State CEQA Guidelines (Code of Regulations, Title 14, Division 6, Chapter 3).

1.2 Purpose of Initial Study

This IS/MND is an informational document to be used in the decision-making process. After completion of the public review period for this document, this IS/MND, along with a summary of public comments submitted to the City and the City's response to those comments, will be brought before City Council for their consideration.

The IS/MND describes the project and its environmental setting, including the project site's existing conditions, and applicable regulatory requirements in Chapter 2, Project Description This IS/MND also evaluates potential environmental impacts from the project on 20 environmental factors in Chapter 3, Environmental Factors Potentially Affected, and Chapter 4, Environmental Impact Evaluation.

1.3 Initial Study Review

The City of Calistoga is circulating this IS/MND for a 30-day public and agency review period. Agencies and interested members of the public are invited to review and comment on the IS/MND. All comments received prior to 5:00 p.m. on the date identified for closure of the public comment period in the Notice of Availability/Intent to Adopt (Appendix A) would be considered. Please include a name, address, and telephone number of a contact person in your agency (if affiliated with an agency) for all future correspondence on this subject.

Please send comments to:

Mailed Comments	Email Comments
Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project Hamid Heidary, P.E., Senior Civil Engineer Public Works Department City of Calistoga 414 Washington Street Calistoga, CA 94515	hheidary@ci.calistoga.ca.us

2 Project Description

Project Title

Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project

Lead Agency Name and Address

City of Calistoga
414 Washington Street
Calistoga, CA 94515

Contact Person and Phone Number

Hamid Heidary, P.E.
Senior Civil Engineer
Public Works Department
City of Calistoga
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2.1 Introduction

The City of Calistoga (City) proposes the Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project (project). The project would upgrade an underground segment of the existing North Bay Aqueduct (NBA) pipeline that crosses the Conn Creek floodway. Approximately 100 linear feet of the underground NBA pipeline alignment is proposed to be relocated to an elevated position on the new Conn Creek Bridge, which was replaced by the California Department of Transportation (Caltrans) in 2020. In addition, the project includes replacement of up to 3,000 linear feet of 12-inch-diameter underground pipeline with new 16-inch-diameter underground pipeline in the same location parallel to and along the south side of Silverado Trail, which is a two-lane public roadway and a portion of which is also Highway 128.

The project is one of three projects identified in the City's grant application for Water Reliability Transmission Distribution Improvement projects. Grant funding was awarded in 2018 under the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP).

2.2 Project Location

The project is located in unincorporated central Napa County (Figure 2.2-1). The proposed pipeline would be installed parallel to Silverado Trail, predominantly within the southern road shoulder (Figure 2.2-2). All proposed permanent project elements would occur within rights-of-way owned by Napa County and Caltrans.

Figure 2.2-1 Project Location

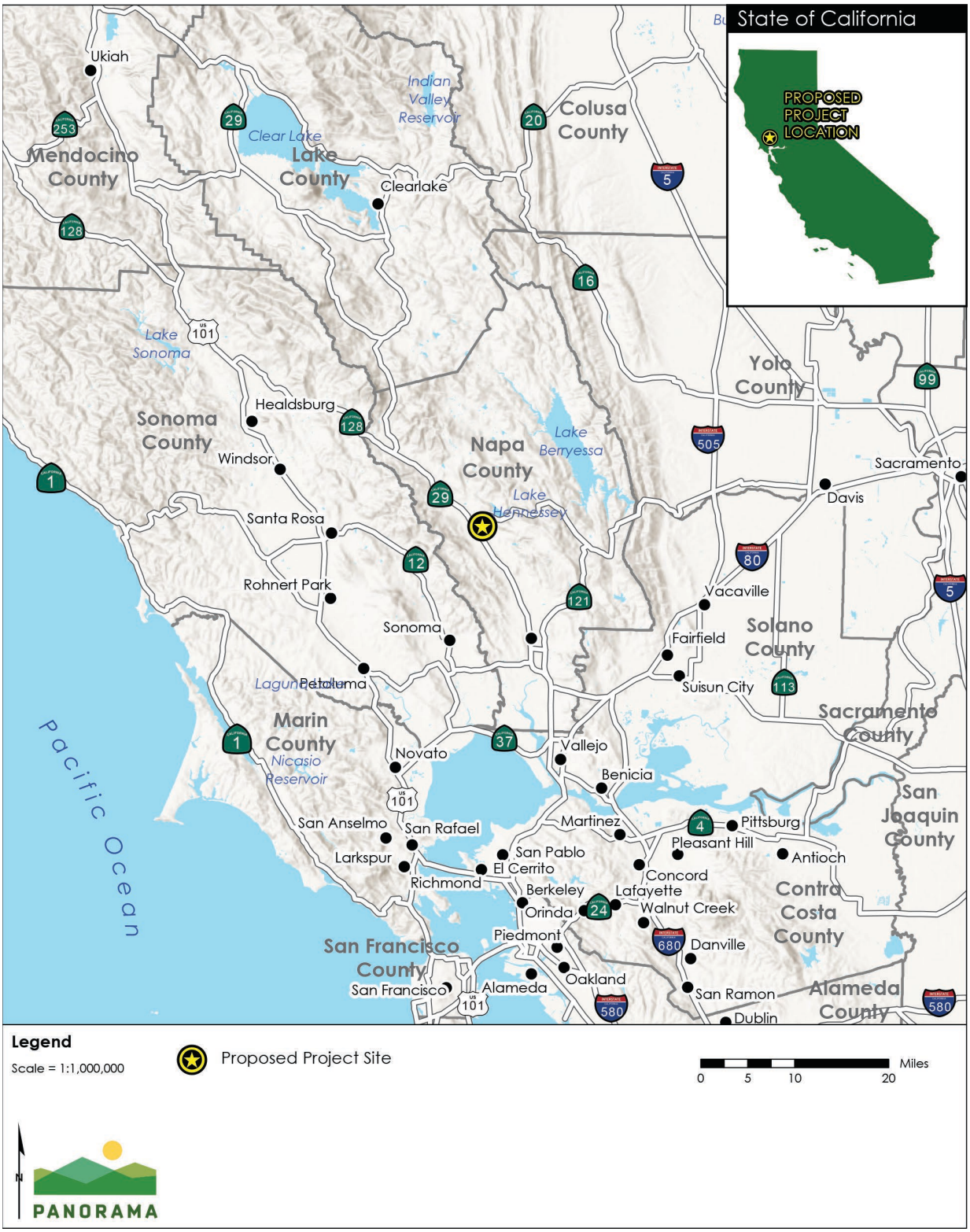

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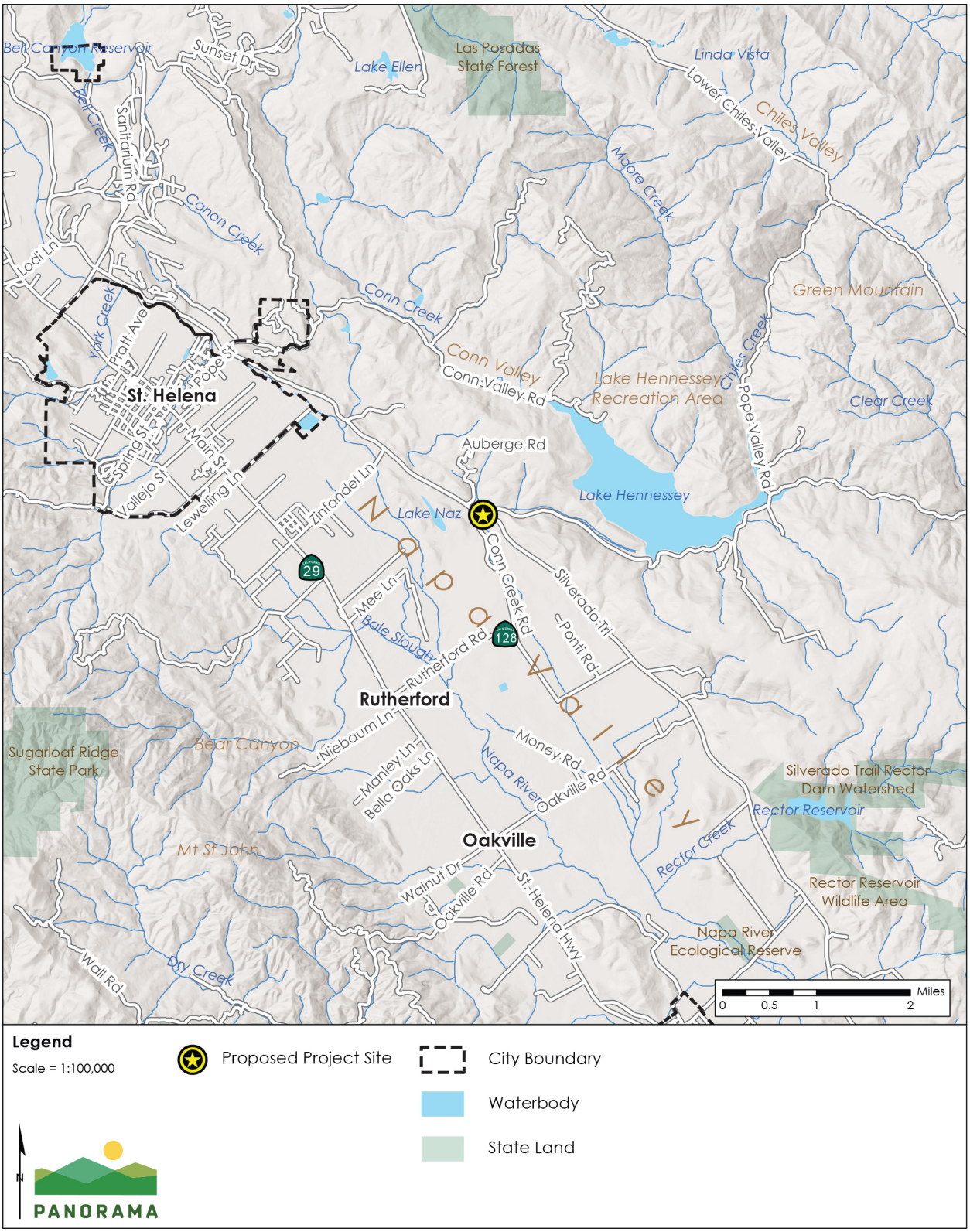
Figure 2.2-2 Project Vicinity



*Sources: **Invalid source specified.***

2.3 General Plan Designation and Zoning

The project area is defined in the Napa County General Plan as Agriculture, Watershed & Open Space. The zoning for the project site is undefined.

2.4 Project Background

2.4.1 Water Supply

The NBA is an underground pipeline that runs from Barker Slough in the Delta to Cordelia Forebay in western Fairfield and services Napa County (Solano County Water Agency, 2020). The purpose of the project is to improve the resiliency of the City's critical water infrastructure, the NBA, and local water pipelines to natural hazards such as earthquakes, wildfires, floods, and other hazards. Project improvements would reduce the risk of critical water transmission infrastructure failure in the event of such hazards and their associated impacts, thereby improving reliability and ensuring adequate water resources for the City.

2.4.2 Conn Creek Flood Channel

Conn Creek flows from north to south through the proposed project site. The creek was dammed approximately 1.5 miles upstream of the project footprint in 1945, creating Lake Hennessey. Conn Creek runs approximately 6.5 miles from the Lake Hennessey dam to its confluence with the Napa River. The dam is owned by the City of Napa, and Lake Hennessey is the City of Napa's primary municipal water source. The dam does not have gateways or infrastructure elements to allow for controlled water releases. Seasonal drying of the entire channel below the dam by mid-June is typical in most years (Napa County Resource Conservation District, 2005).

A portion of the NBA pipeline crosses Conn Creek within a Special Flood Hazard Area (SFHA) Zone AE (Napa County, 2020).[1] Because of its location in Conn Creek, excessive erosion and scour has resulted in pipe exposure in the creek bed. In 2006, the NBA pipeline crossing and cap experienced particularly heavy erosion and scour, which exposed the water pipeline beneath the creek and required the City to complete an emergency repair to replace the crossing, including both the pipeline and concrete cap. The repeated erosion and scour damage to the NBA pipeline at the Conn Creek crossing has resulted in excessive damage and exposure of the concrete cap and replacement and relocation of the NBA pipeline crossing is required. In addition, the California Department of Fish and Wildlife (CDFW) has indicated that the existing pipe and concrete cap present an impediment to anadromous fish passage and both CDFW and

[1] Zone AE are areas that present a 1 percent annual chance of flooding.

the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) are supportive of removing the pipeline from the creek bottom.

2.4.3 Conn Creek Bridge Replacement

Caltrans replaced the Conn Creek Bridge in 2020 to address scour damage. The new bridge was designed to be able to structurally support the NBA pipeline over the creek, with inserts placed along the southerly deck to allow for the new pipe attachment. Construction of the bridge replacement was completed in the summer of 2020.

2.5 Project Objective

The objective of the project is to protect and extend the life of critical water infrastructure from scour and flooding conditions, which may interrupt service, by relocating the existing NBA pipeline out of Conn Creek. Replacement of damaged and aging pipeline infrastructure in the vicinity of the creek crossing would provide decades of useful life to the water transmission system. Additionally, the removal of the existing pipe and concrete cap would result in improved fish passage for anadromous fish in the creek.

2.6 Project Design

The project includes replacement of up to a total of 3,000 linear feet of pipeline, including an approximate 100-foot-long segment suspended from Conn Creek Bridge. The existing segment of pipeline and a protective concrete cap would be removed from Conn Creek. Engineering plans for the pipeline replacement are provided in Appendix B.

2.6.1 Pipeline Replacement

The City would replace up to approximately 3,000 linear feet of existing 12-inch-diameter ductile iron pipeline with 16-inch-diameter ductile iron pipeline. The new pipeline would be roughly parallel to and within 5 feet to 10 feet of the existing NBA pipeline. The existing 12-inch-diameter pipeline would remain in service while the replacement pipeline is constructed.

Approximately 100 linear feet of pipeline would be installed along the southern side of the recently replaced Conn Creek Bridge. The bridge was designed to support the new pipeline and includes engineered pipeline suspension inserts, which would be used to hang the new pipeline. The new pipeline would be located at an elevation above the flood level within the creek. The pipeline would transition underground where the bridge deck meets the ground. A wingwall from the recently replaced bridge acts as a retaining wall on the western creek bank and presents a minor conflict with the proposed pipeline. A small portion near the top of the wingwall would be removed to avoid conflict with the pipeline.

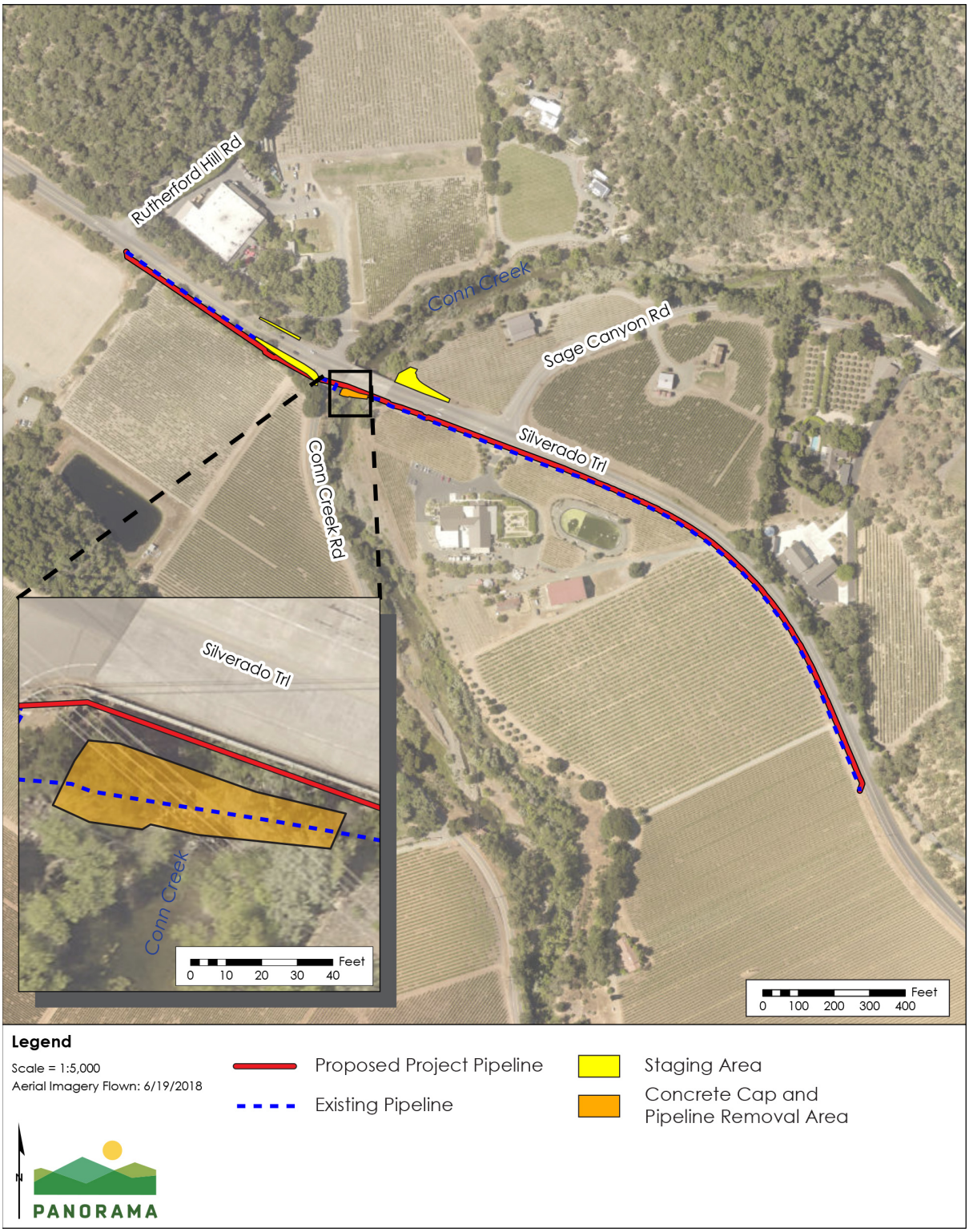
After the new pipeline is tested, disinfected, and connected to the existing NBA pipeline system, the portion of the 12-inch-diameter pipeline that is not within the streambed would be capped

at each end and abandoned in place. The 12-inch-diameter pipeline within the streambed would be removed as discussed below. The extents of the replaced pipeline are summarized in Table 2.6-1 shown on Figure 2.6-1.

Table 2.6-1 Pipeline Replacement Segments

Pipeline Segment	Maximum Length of Pipeline (linear feet)
Conn Creek Crossing (on Conn Creek Bridge)	100
East of Conn Creek (Down-Valley)	1,800
West of Conn Creek (Up-Valley)	up to 1,100
Total	**3,000**

Figure 2.6-1 Project Elements



Sources: (U.S. Geological Survey, 2016; Vollmar Natural Lands Consulting, 2020; The County of Napa, 2018; KASL Consulting Engineers, 2020)

2.6.2 Pipeline and Concrete Cap Removal

The approximately 0.03-acre (1,400 square feet) concrete cap, which was originally constructed to provide scour protection for the existing pipeline, would be removed from the creek. Approximately 80 linear feet of existing pipeline under the concrete cap would also be removed from the creek bed. The concrete cap area is shown on Figure 2.6-1.

2.6.3 Conn Creek Restoration

Restoration of the streambed would be required after removal of the concrete cap and pipeline. A total of approximately 0.03 acre (1,400 square feet) of creek bed and riparian habitats would be disturbed during work within Conn Creek. Creek restoration would involve installation of native and imported material into the trenched area created by removing the concrete cap and pipeline. Native and imported fill would be used to backfill the trench to an elevation approximately three feet below the creek bed and the top three feet would be filled with imported, clean engineered streambed rock material. Engineering requirements for the imported streambed material would be consistent with the requirements presented in Table 2.6-2

Any non-native species observed in the construction area, such as Himalayan blackberry (*Rubus armeniacus*) and water iris (*Iris pseudacorus*), would be removed from the creek restoration footprint. All disturbed soils on the banks of the creek would be hydroseeded with a native seed mix and covered with jute netting to deter the spread of non-native species from locations upstream and stabilize exposed soils.

Table 2.6-2 Engineered Streambed Material Requirements

Engineered Streambed Rock Material	Percentage by Volume
Class IV (300#)	15
Class III (150#)	15
Class II (60#)	20
5-10 inches	20
Void Filler [a]	30
Total	**100**

[a] Void filler is used to fill the space between the larger rock and must satisfy specific gradation requirements.

2.7 Project Construction

2.7.1 Construction Overview

Construction of the project would include five phases. The construction phases are summarized in Table 2.7-1 and described in detail below.

Table 2.7-1 Construction Phases

Phase	Description of Work Performed During Phase
1. Site Preparation and Mobilization	Establish material staging and storage areas.
2. Pipeline Installation	Construct the new 16-inch-diameter pipeline parallel to the existing pipeline east and west of Conn Creek. Apply temporary paving within paved roadways (across Conn Creek Road). Install erosion control best management practices (BMPs) to disturbed soils. Construct the bridge-suspended segment of new pipeline.
3. Service Transfer	Transfer water service from the existing NBA pipeline to the newly constructed pipeline.
4. Existing NBA Pipeline Removal/Abandonment	Remove the existing NBA pipeline and the concrete cap from Conn Creek. The existing NBA pipeline along Silverado Trail, outside the creek, would be abandoned in place.
5. Creek Restoration	Install engineered streambed material and void filer within the void from the removal of the pipeline and concrete cap.

2.7.2 Site Mobilization and Preparation

Materials would be transported to the site daily during construction to minimize the amount of material stored in staging areas. Material staging and storage yards would be established adjacent to Silverado Trail, as shown in Figure 2.6-1 and described in Section 2.7.7. The pipeline alignment would also be marked during this phase.

2.7.3 Pipeline Installation

Installation of Pipeline over Conn Creek

Construction would be completed using heavy equipment staged along Silverado Trail, Conn Creek Road, and in upland areas adjacent to the creek. Temporary scaffolding would be constructed along the southern side of the bridge, above the creek, to provide a work platform for the construction crew. A loader operating from the eastbound lane of Silverado Trail on Conn Creek Bridge would be used to lift and hold the pipe segment adjacent to the south side of the southern rail of Conn Creek Bridge while the crew secures the pipe in place.

Installation of Up-Valley and Down-Valley Pipeline

Construction would be completed using standard open-trench construction methods. The limits of the trench would be cut using a concrete saw and trenches would be excavated to a width of approximately 3 feet and a depth of approximately 5 feet. If shoring is necessary, excavated

trenches would be shored pursuant to shoring plans prepared by a California licensed engineer in accordance with Occupational Safety and Health Administration (OSHA) requirements. Trenches would be excavated in short sections of approximately 200 to 500 feet per day (depending on the location and depth of the pipe) using an excavator. Excavated soils would be loaded directly into trucks staged alongside the trench or stockpiled adjacent to the trench, space permitting.

The pipeline would be installed in segments of approximately 200 to 500 feet per day, depending on the amount of trenching completed each day. The pipeline would be bedded in granular material, with the balance of the trench backfilled with suitable native material, import, or class 2 aggregate base rock compacted to a minimum 95 percent relative compaction or bedded and backfilled with controlled density fill. Native backfill would be used as much as possible if appropriate compaction can be achieved. Excess trench spoils would be disposed of properly at a permitted disposal site. All open trenches would be plated with traffic-rated metal plates at the end of each workday.

Following construction activities, disturbed areas would be restored by reestablishing existing topography, including repaving impacted road shoulders and reseeding disturbed soils with a native seed mix in unpaved disturbed areas.

2.7.4 Service Transfer

Connections between the segment of new pipeline and existing NBA pipeline up-valley and down-valley would occur at eastern and western termini of the new pipeline segment. The existing pipeline would remain in service until the new pipeline is tested, disinfected, and connected.

2.7.5 Existing NBA Pipeline Removal/Abandonment

Remove Pipeline and Concrete Cap from Conn Creek

A backhoe with a breaker attachment would be used to demolish the existing concrete cap at the surface of the creek bed. The backhoe would remove the demolished material from the creek bed and transfer them to an upland area adjacent to the creek where a second backhoe would load the material into a dump truck for disposal off site. The backhoe would then excavate the native creek bed material down to the pipeline. Excavated soils would be stockpiled outside the creek in an upland area.

Once the pipeline is exposed, the pipe would be cut and capped on the east and west sides of the creek. The pipe segment that crosses the creek would be removed. The stockpiled native soils would be replaced in the trench. Imported fill material would be used to backfill the trench, as necessary, to fill the trench to an elevation approximately 3 feet below grade. Engineered streambed material would be installed to match the adjacent creek grade, as described below.

Abandon Up-Valley and Down-Valley Pipeline

The existing 12-inch-diameter pipeline up- and down-valley from Conn Creek would be abandoned in place. Cut ends of pipeline would be plugged with concrete and the existing valve boxes would be removed. Valve removal would require shallow excavation (approximately 2-3 feet) and removal of the underground concrete vault. Existing pipes would be cut below grade and capped. The excavated area would be backfilled with native and imported fill material.

2.7.6 Creek Restoration

Creek restoration would be completed immediately following pipeline and concrete cap removal (described in Section 2.7.5). Engineered streambed rock and void filler material would be transported to the site and installed in the excavated trench on top of backfilled native and imported fill material.

No tree or substantial vegetation removal is anticipated to be required to accommodate removal of the concrete cap and pipeline; therefore, no vegetation is anticipated to be planted within the engineered streambed material. However, in the event any tree removal is required, removed trees would be replaced in accordance with local ordinances and in consultation with CDFW as part of the Streambed Alteration Agreement process.

2.7.7 Construction Equipment Staging, Material Storage, and Access

Construction equipment staging and material storage areas (staging areas) would be located along Silverado Trail within existing road right-of-way and temporary construction easements (Figure 2.6-1). Minimal improvements to staging and storage areas are anticipated, due to the relatively disturbed conditions within the proposed staging areas, which were used by Caltrans during the 2020 replacement of Conn Creek Bridge. Depending on site conditions, gravel may be applied to the ground surface. Surface vegetation within staging areas would be mowed. No fencing is anticipated to be required around staging areas; however, staging area boundaries near any sensitive resources would be flagged.

Following construction, staging sites would be returned to pre-construction conditions and any gravel applied within the site would be removed.

Most of the pipeline replacement alignment along Silverado Trail would be accessed directly from Silverado Trail and Conn Creek Road. The existing concrete cap and pipeline within Conn Creek would be accessed from an existing, unpaved perimeter access road around the Conn Creek Winery, east of Conn Creek (Figure 2.7-1). Equipment is expected to travel overland from the existing perimeter access road into Conn Creek. Construction access to the existing concrete cap and pipeline would require removal of the existing storm drain outfall on the southeast side of Conn Creek Bridge. Following construction, the storm drain outfall would be replaced in kind. Recent Caltrans revegetation plantings associated with the replacement of Conn Creek Bridge would be impacted by the temporary construction access. Affected plants and the existing irrigation would be replaced following construction. Existing vegetation may be

trimmed or mowed to allow safe access into the creek; however, no grading or other surface improvements are anticipated to be necessary in the creek.

A guard rail on the east side of Conn Creek Road would be temporarily removed during trenching and pipeline installation across Conn Creek Road and to provide access to the existing blow-off valve located between the guardrail and the western creek bank. The guard rail would be replaced immediately following construction.

2.7.8 Traffic Control

Traffic control, including flaggers, cones, signs, and barricades, would be implemented during construction of the pipeline. Traffic control would be consistent with the "California Manual on Uniform Traffic Control Devices" (latest edition), and applicable provisions of the Napa County and California Department of Transportation encroachment permits.

2.7.9 Equipment, Personnel, and Schedule

Typical construction equipment that are anticipated to be required during construction are listed below. All equipment would be compliant with California Air Resources Board regulations.

- Excavator
- Dump trucks
- Water trucks
- Utility and flatbed trucks
- Backhoe/loader
- Concrete saw
- Compactor
- Concrete trucks
- Paving equipment
- Pumps
- Air compressors
- Pneumatic tools (e.g., jackhammer)

Construction would require a crew of two to five people, depending on the construction phase. All workers who are not operating dump trucks or delivering equipment are expected to carpool in work pickup trucks and would park at designated material storage or staging areas onsite.

Table identifies the preliminary schedule for project construction. The project schedule is contingent upon many factors, including weather conditions, red flag warnings, permitting, and unforeseen delays. Activities within Conn Creek, including pipeline removal and creek restoration, would be conducted during the summer or fall months, when the creek is dry. Construction hours would comply with the Napa County noise ordinance, which limits construction to the hours between 7:00 a.m. and 7:00 p.m.

Table 2.7-2 Preliminary Schedule

	Phase	Duration of Phase	Anticipated Start Date	Anticipated End Date
1.	Site Preparation and Mobilization	1 week	May 2023	May 2023
1.	Pipeline Installation	3 weeks	June 2023	July 2023

	Phase	Duration of Phase	Anticipated Start Date	Anticipated End Date
2.	Service Transfer	2 days	July 2023	July 2023
3.	Existing NBA Pipeline Removal/Abandon	2 weeks	Mid-July 2023	August 2023
4.	Upland Site Restoration	2 weeks	August 2023	August 2023
5.	Creek Restoration	2 weeks	August 2023	September 2023

2.7.10 Operation and Maintenance

Routine operation and maintenance activities would be conducted along the pipeline route for the life of the project facilities. Ground-disturbing activities are expected to mainly consist of inspection and repair of the pipeline and would occur within the acquired easements or rights-of-way. Because the proposed project is a replacement of an existing water pipeline within approximately the same alignment, operation and maintenance activities would be similar to existing conditions.

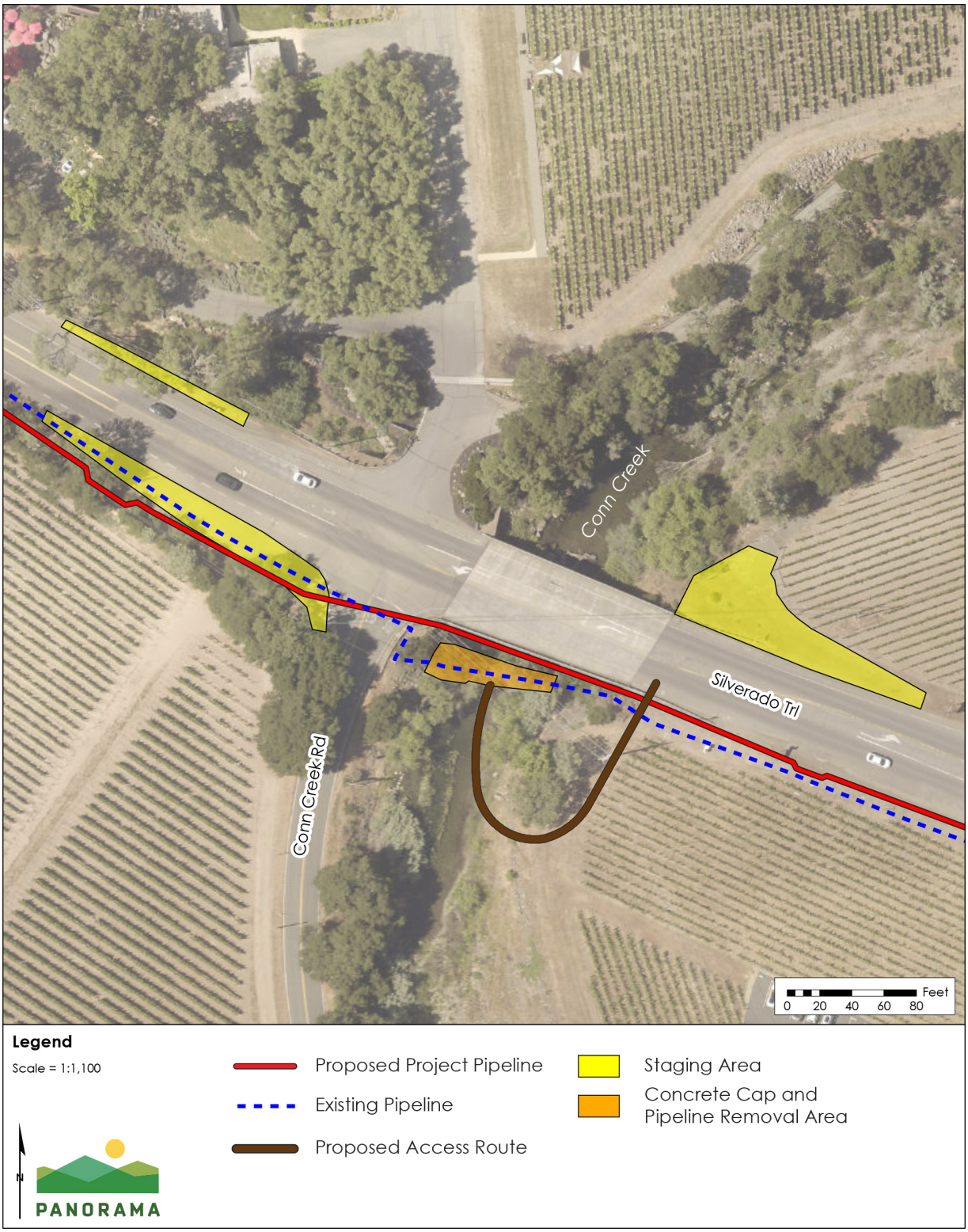
2.8 Other Public Agencies Whose Approval is Required

Table 2.8-1 lists the discretionary and ministerial approvals requested for the project.

Table 2.8-1 Potential Project Permits and Approvals

Agency	Permit/Approval
U.S. Army Corps of Engineers	Clean Water Act Section 404 – Nationwide Permit
San Francisco Bay Regional Water Quality Control Board	Clean Water Act Section 401 – Water Quality Certification
California Department of Fish and Wildlife	Section 1600 Streambed Alteration Agreement
Caltrans District 4	Encroachment Permit
Napa County	Encroachment Permit

Figure 2.7-1 Staging Areas and Access



Sources: (U.S. Geological Survey, 2016; Vollmar Natural Lands Consulting, 2020; The County of Napa, 2018; KASL Consulting Engineers, 2020)

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3 Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

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

The analyses presented in Chapter 4 consider construction impacts of the entire action involved, including off-site as well as on-site, cumulative as well as project-level, and direct as well as indirect impacts. The project involves replacement of an existing pipeline that would be operated and maintained consistent with existing procedures. As such, the analyses below do not include a discussion of operation or routine maintenance impacts.

Specific impact criteria have been identified for each of the resources listed above. Impact criteria are presented at the beginning of each resource discussion. The impact of the project on each resource criterion has been determined, consistent with the following levels of impact:

- *No impact* indicates that there is no impact on the resource.
- *Less-than-significant impact* means that while there is some impact, the impact is below the threshold of significance, or that existing regulations and legal standards would reduce these impacts to a less-than-significant level.
- *Less than significant with mitigation incorporated* indicates that a potentially significant or significant impact has been identified in the course of this analysis and mitigation measures have been provided in this IS to reduce the impact to a less-than-significant level.
- *Cumulative impacts* are discussed in Section 3.18, Mandatory Findings of Significance, of this IS. If a significant cumulative impact is identified, the project's contribution to the significant *cumulative impact* is considered.

The project incorporates mitigation measures to ensure no significant adverse impacts on the environment would occur as a result of the project. Mitigation measures are defined in the project analysis included in Chapter 4 of this Initial Study.

4 Environmental Impact Evaluation

4.1 Aesthetics

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
1. AESTHETICS. Except as provided in Public Resources Code Section 21099[2], would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) In non-urbanized-areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

4.1.1 Discussion

a) Would the project have a substantial adverse effect on a scenic vista?

Less than Significant Impact. The project is located on the Napa Valley Floor. Part of the Mayacamas Mountain Range forms the western ridge of the Napa Valley Floor, which contains rocky crags at some locations and relatively high elevation meadows at others. The eastern

[2] PRC Code 21099 (d) states: *Aesthetic … impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment.* The project does not meet the definition of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area.

ridge is mostly undeveloped and mountainous creating a craggy effect in the general landscape, and causing prominent geologic formations, such as the Calistoga Palisades, Atlas Peak, Haystack, Stags Leap, and Mount George (Napa County, 2005). While the project area provides views of scenic resources (i.e., ridgelines) and is set against the backdrop of mountains to the east and west, the Napa County General Plan does not identify any scenic vistas in the project vicinity; therefore, the project would have no impacts to scenic vistas. The Napa County General Plan defines key viewshed areas of high visibility, which are mostly concentrated in the mountain foothills to the east and west of the valley floor. In the area between Zinfandel Lane (approximately 1 mile northwest of the project site) and Oakville Cross Road (approximately 2.8 miles southeast of the project site), there are four areas of relatively high visibility in an around the Napa Valley Floor, and include the following:

1. The southern slope of Rattlesnake Ridge, generally above the eastern side of the valley floor, between Calistoga and St. Helena.
2. The hills to the east of Yountville and the City of Napa, north of State Route (SR) 121. These viewsheds are also above Silverado Trail and include Castle Peak and the areas around Soda Canyon Road.
3. The areas surrounding Redwood Road and Dry Creek just west of the valley floor.
4. The general area encompassing Cup and Saucer Hill, east of the City of Napa, between SR 121 and Coombsville Road (Napa County, 2007).

The project site is not located within any of the above-listed County-designated viewshed areas, nor are any of the areas close enough to afford a view of the project site. The project site is not located on a hillside or ridgeline and would not be prominently visible to a large area of the County. Construction activities would be visible from adjacent public and private vantage points, changes to the appearance of the project would be temporary in nature. Once constructed, the pipeline would be predominantly belowground. Concrete cap removal and pipeline replacement would be imperceptible from distant viewsheds and would not rise to the level of a change that would substantially degrade the existing visual character. Therefore, aesthetic impacts would be less than significant.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less than Significant Impact. The project would replace an existing pipeline along the Silverado Trail, which is also SR 128, a County-designated scenic roadway and scenic corridor listed in the Napa County General Plan (Napa County, 2007).Effective January 1, 2020, SR 128 was added to the California scenic highway system, as amended by Assembly Bill (AB) 998, Augiar-Curry (California Legislative Information, 2021). Based on this AB 998 and statute, SR 128 is eligible for official designation as a California scenic highway by Caltrans, upon Napa County's preparation of a corridor protection program and Caltrans' acceptance of that program. Conn Creek Road and Sage Canyon Road, which both intersect the Silverado Trail and the project alignment, are also County-designated scenic roadways/corridors.

Designated scenic resources, which are identified in the Napa County General Plan and the Napa County Viewshed Protection Program, include ridgelines, unique topographic and geologic features, and historic built features. As previously discussed under Impact a) above, the project sits well below any major or minor ridgeline and is not located on a scenic vista or designated viewshed area. No unique topographic and geologic features, as defined by the Napa County Viewshed Protection Program, are found on site. No historic resources, as identified in the Community Character Element of the Napa County General Plan, are located within or near the project site (Napa County, 2008). As described in the Napa County Baseline Report, a designated scenic corridor is valued as a visual resource based on merits including natural, recreational, or other scenic qualities that make it scenic (Napa County, 2005). The project area consists of existing trees, riparian vegetation near Conn Creek, and has views of surrounding vineyards, wineries, and other agricultural uses.

The project would not construct or demolish any buildings, remove existing trees, or obstruct surrounding ridgeline views along Silverado Trail. As such, the scenic appearance of the project area as viewed from designated scenic roadways would continue to be dominated by vineyards and agricultural uses. As discussed above, changes to the appearance of the project site would occur during construction and would be temporary. Concrete cap removal and pipeline replacement would not substantially degrade the existing appearance of the project site. Impacts would be less than significant.

c) Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant Impact. The project is located in a predominantly rural area with views to adjacent wineries with vineyards and surrounding agricultural uses. Most of the new pipeline would be buried underground parallel to the existing pipeline in the road shoulder and would not be visible following construction. Only at the Conn Creek crossing would the new pipeline transition to an elevated position where it would be suspended from the recently replaced Conn Creek Bridge. The suspended pipeline would be partially visible at this location from Conn Creek Road/SR 128.

During the anticipated 4-month construction period, construction activities, materials, vehicles, equipment, and personnel may be visible from some public vantage points along Silverado Trail/SR 128, Conn Creek Road/SR 128, and in upland areas adjacent to the creek. Permanent visible changes to the landscape from the project include the suspended segment of new pipeline along Conn Creek Bridge and removal of the concrete cap. While the proposed pipeline replacement would largely be indiscernible to travelers on Silverado Trail/SR 128 (via Conn Creek Bridge) due to its position along the side of the bridge deck and below the road grade, travelers on Conn Creek Road/SR 128 heading in the northbound direction of Silverado Trail/SR 128 may catch brief glimpses of the bridge-suspended pipeline. However, views of the pipeline would not be obvious due to existing trees and concrete bridge wingwalls that currently partially screen the creek from the roadway. Disturbed areas along the road shoulder

and within the creek would be restored by reestablishing existing topography, including repaving impacted roadways, and reseeding with a native seed mix (hydroseed) in applicable areas.

The visual character of the project area would not substantially change. As described above, the segment of pipeline suspended over Conn Creek would be collocated with the bridge and would not substantially degrade the visual character or quality of Conn Creek. The underground pipeline along Silverado Trail would not be visible following construction. The impact would be less than significant.

d) Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

No Impact. Construction would occur during the summer daylight hours; therefore, no nighttime lighting would be necessary during project construction. The pipeline material would be constructed of non-reflective ductile cast iron and would not creating any new sources of glare. The project does not include the installation of lighting or the construction of facilities that would create glare. No impact would occur.

4.1.2 Mitigation Measures

None.

4.2 Agriculture and Forestry Resources

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

4.2.1 Discussion

a) Would the project 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?

No Impact. The project is adjacent to vineyards which are designated as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland (California State Geoportal, 2021). Implementation of the project would include staging on land designated as Farmland of Statewide Importance and Unique Farmland. The temporary use of farmland for project staging would not affect active viticulture and would not include activities that would permanently convert any designated farmland. Because the staging areas do not contain agricultural uses or

active farming operations and the project would not modify the soils in the staging areas, the project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. No impact would occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The project area is defined in the Napa County General Plan as Agriculture, Watershed & Open Space. The zoning for the project site on Silverado Trail is undefined. The proposed pipeline replacement would occur predominantly within the road shoulder with the exception of the approximately 100 feet of pipeline that would be suspended from the recently replaced Conn Creek Bridge. The project site is surrounded by vineyards which are zoned as Agricultural Preserve and Agricultural Watershed. The project would not impact nearby vineyards as construction equipment would be staged in designated areas adjacent to Silverado Trail, avoiding vineyards. No Williamson Act lands are located near the project area (Napa County, 2018). No impact would occur.

c) Would the project 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))?

No Impact. Neither the project site nor the immediately adjacent lands are zoned for forest land as defined by Public Resources Code Section 12220(g), timberland as defined by Public Resources Code Section 4526, or Timberland Production as defined by Government Code Section 51104(g). The project would not conflict with zoning for forest land, timberland, or Timberland Production. No impact would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. Forest land is defined in Public Resources Code as, "land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." The project is not located on forest land and would not remove any trees. There would be no impact.

e) Would the project 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?

No Impact. As discussed in Impact a) and b), the project is surrounded by vineyards and designated farmland. The project would stage construction equipment on Farmland of Statewide Importance and Unique Farmland; however, the use of land for project staging would be temporary and would not disrupt agricultural activities on the vineyards. The project is not located on forest land and would not remove any trees. The project would not result in the conversion of farmland or forest land. There would be no impact.

4.2.2 Mitigation Measures

None.

4.3 Air Quality

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☒	☐

4.3.1 Discussion

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The Project site is located within the San Francisco Bay Area Air Basin (SFBAAB), which is regulated by the Bay Area Air Quality Management District (BAAQMD). The SFBAAB is currently designated as a nonattainment area for state and national ozone standards, state respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) standards, and the federal $PM_{2.5}$ (24-hour) standard (BAAQMD, 2017). The 2017 Bay Area Clean Air Plan (2017 CAP) is the only applicable air quality plan that applies to the project area. The BAAQMD CEQA Guidelines recommend that a project's consistency with the current CAP be evaluated using the following three criteria:

- Would the project support the goals of the Air Quality Plan?
- Would the project include applicable control measures from the CAP?
- Would the project not disrupt or hinder implementation of any control measures from the CAP?

If these questions (listed above) can be concluded in the affirmative with substantial evidence, then the BAAQMD would consider the project to be consistent with air quality plans prepared for the Bay Area. The 2017 CAP includes 85 control measures categorized into nine economic sectors including transportation, energy, agriculture, and natural and working lands (BAAQMD, 2017). Several transportation control measures pertain to construction activities including heavy equipment use, such as providing incentives to promote ridesharing (TR8) and purchasing new trucks that exceed nitrogen oxide (NOx) emission standards, hybrid trucks, or zero-emission trucks (TR19).

The pertinent transportation control measures are voluntary incentive measures that do not require vehicle upgrades or retrofits. The project would not require purchase of any vehicles or equipment. Project-related use of construction vehicles and equipment would not conflict with these programs and would not conflict with or obstruct implementation of the control measures identified to achieve the goals of the 2017 CAP. No conflict with the 2017 CAP transportation control measures would occur.

Estimated combustion emissions during construction of the project would not exceed the numerical significance thresholds prepared by BAAQMD, as further discussed under Impact b). The impact would be less than significant. No mitigation is required.

b) Would the project 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?

Less than Significant Impact with Mitigation Incorporated. The SFBAAB is designated as a nonattainment area for ozone and $PM_{2.5}$ under both National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The SFBAAB is also designated as nonattainment for PM_{10} under CAAQS, but not NAAQS. The project could have a cumulatively considerable impact on air quality if it either (1) resulted in emissions above the significance thresholds or (2) violated any action in an attainment plan.

BAAQMD prepared the 2001 Ozone Attainment Plan to reduce ozone-forming emissions in the SFBAAB to achieve attainment of NAAQS and CAAQS ozone standards (BAAQMD, 2001). BAAQMD thresholds for ozone precursor pollutants (reactive organic gases [ROGs] and NO_X) and particulate matter (PM_{10} and $PM_{2.5}$) are the thresholds at which a project would be considered to have a cumulatively considerable net increase of any criteria pollutant for which the region is nonattainment.

Operation of vehicles and equipment during project construction would emit diesel particulate matter and other criteria air pollutants. Construction would occur over approximately 4 months and is assumed to start in May 2023. Construction emissions for the project were calculated using California Emissions Estimator Model (CalEEMod) version 2016.3.2 and were based on the project's estimated construction schedule and anticipated equipment use. Emissions modeling and calculation outputs are provided in Appendix C. Table 4.3-1 shows the estimated unmitigated average daily air pollutants emissions from project construction. The emissions generated during construction would not exceed the BAAQMD significance thresholds for particulate matter (PM_{10} and $PM_{2.5}$), ROGs, NO_X or other ozone precursors. BAAQMD does not set numerical thresholds for fugitive dust generated during construction; however, fugitive dust emissions generated during construction have the potential to contribute to an existing air quality violation and result in a significant impact. MM AIR-1 requires implementation of fugitive dust control measures to minimize fugitive dust generation during construction. The impact from violation of an air quality standard or contribution to an existing air quality violation would be less than significant with mitigation.

Table 4.3-1 Unmitigated Construction Emissions

Year	Estimated Average Daily Pollutant Emissions (pounds/day)					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NOx)	Carbon Monoxide (CO)	Sulfur Dioxide (SO_2)	Fine Particulate Matter (PM10)	Coarse Particulate Matter (PM2.5)
Project – 2023 Construction	0.06	0.63	0.72	0.002	0.025	0.023
BAAQMD Emissions Threshold	54	54	--	--	82 (exhaust)	54 (exhaust)
Threshold Exceeded?	No	No	--	--	No	No

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact with Mitigation Incorporated. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to air quality pollutants. BAAQMD recommends that lead agencies assess the incremental toxic air contaminant (TAC) exposure risk to all sensitive receptors within a 1,000-foot radius of a project's fence line. The nearest sensitive receptors to the project are single-family residences located approximately 400 feet northeast and southwest of the project alignment. The project's potential to expose these sensitive receptors to fugitive dust and TACs are discussed below.

Fugitive Dust

Temporary fugitive dust emissions from construction would expose sensitive receptors to substantial pollutant concentrations. Nine residences are located within 1,000 feet from the project alignment (refer to Figure 4.3-1). With implementation of MM AIR-1, impacts from fugitive dust to nearby sensitive receptors would be reduced to a less-than-significant level.

Toxic Air Contaminants

During project construction, localized air emissions of criteria constituents would be generated from construction vehicles and equipment powered by internal combustion engines as well as from earth moving activities. Operation of diesel-powered equipment would generate diesel exhaust emissions, which is classified as a TAC. The project would be constructed within rights-of-way owned by Napa County and Caltrans. As shown on Figure 4.3-1, nine sensitive receptors, all of which are residences, are located within 1,000 feet from the project alignment. The nearest sensitive receptor to the project is approximately 393 feet northeast from the closest proposed construction area along Silverado Trail. While sensitive receptors near the project site may be exposed to TACs, construction activities would occur for up to 4 months, which is substantially lower than the 30- or 90-year exposure period typically associated with chronic cancer health risks (OEHHA, 2015). In addition, particulate matter emissions decrease

dramatically as a function of distance from the source. Although receptors are located close to the project site, construction equipment and vehicles for open trench construction work would remain in a particular area for a short duration (approximately a week) while installing each pipeline segment. The linear and transient nature of the pipeline work would limit nearby receptor's exposure to diesel exhaust and $PM_{2.5}$ and would occur at least 350 feet away from any one receptor. Project-related construction activities and associated emissions would be temporary and short-term. Exhaust emissions would disperse rapidly from the project site and would not substantially impact the nearest sensitive receptors.

Import and export of soils would require approximately 285 one-way truck trips per day occurring for 40 workdays (roughly one truck every 75 minutes on average between 8 a.m. and 5 p.m.) over the 4-month construction period. The truck route identified for the project would be limited to Silverado Trail/SR 128 for trucking import and export soils. Receptors along Silverado Trail/SR 128 include residences and wineries. Diesel exhaust emissions along the truck route would disperse rapidly and would not concentrate in any one location. As such, the project would not expose sensitive receptors to substantial pollutant concentrations and the impact would be less than significant. No mitigation is required.

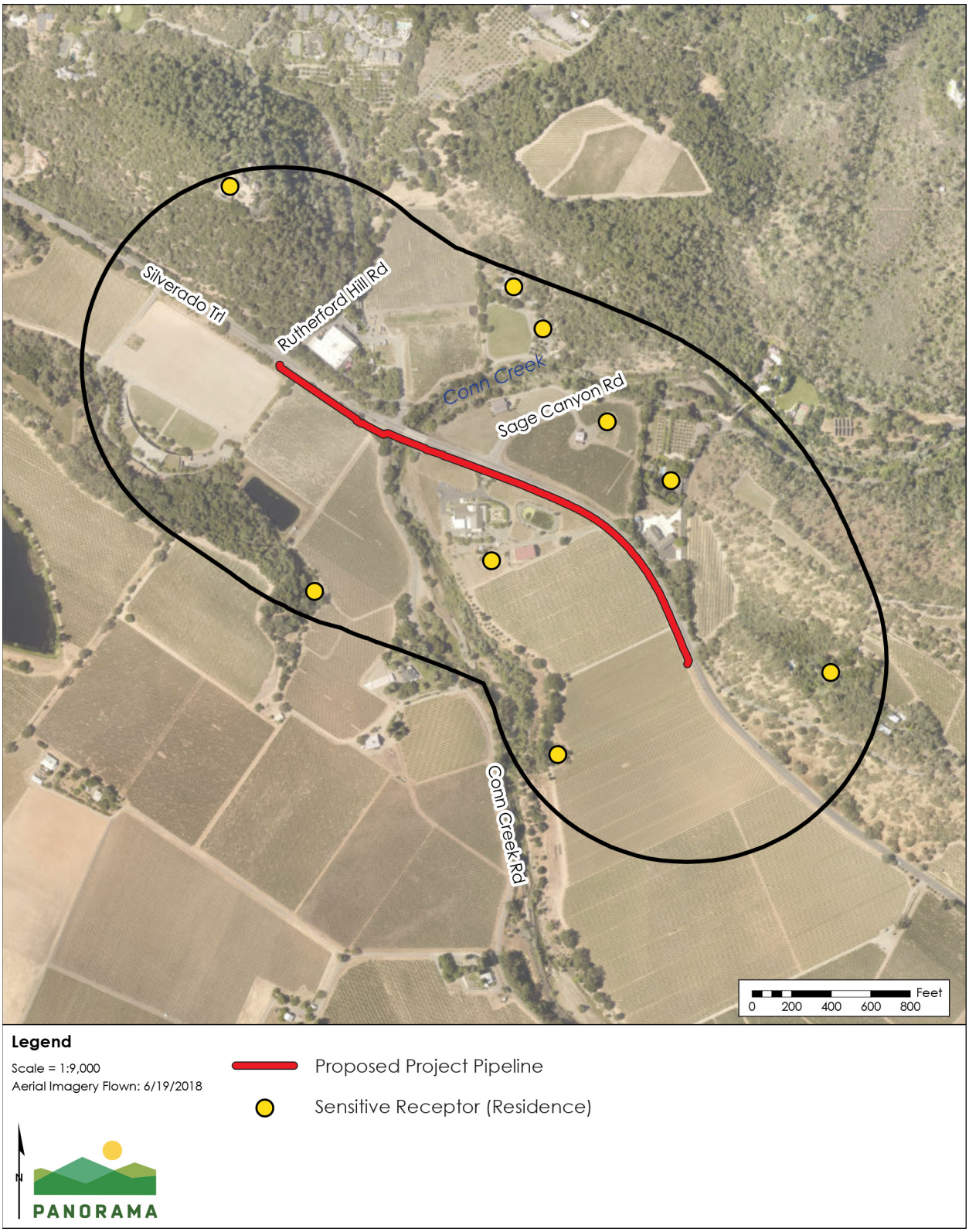
Carbon Monoxide and Ozone Precursors

The recent *Sierra Club v. County of Fresno* California Supreme Court case held, in part, that the Friant Ranch Specific Plan Environmental Impact Report (EIR) was deficient in the informational discussion of air quality impacts as they relate to adverse human health effects. The Supreme Court concluded that an EIR's discussion must "make [ ] a reasonable effort to substantively connect a project's air quality impacts to likely health consequences."

Carbon monoxide (CO) emissions generated from gas-powered truck traffic and other combustion equipment during construction activities could result in CO hotspots, or localized concentrations of CO. Diesel-powered vehicles and equipment, such as those used for project construction, do not emit CO in the same concentrations and are less likely to cause a CO hotspot. The 2017 CEQA Air Quality Guidelines indicate that a project would significantly impact CO levels if project traffic would increase traffic volumes at intersections to more than 44,000 vehicles per hour (BAAQMD, 2017). Project-generated traffic would increase by a maximum of 14 one-way daily trips during the highest volume construction period and would not cause traffic levels to exceed 44,000 vehicles per hour at any intersection.

Because of the dynamic nature of ozone formation and the complexities of predicting ground-level ozone concentrations in relation to ambient air quality standards, the BAAQMD emissions thresholds for ROG and NOx are used to make significance determinations about ozone pollutant concentrations. Average daily emissions of ozone precursors would not exceed BAAQMD significance thresholds, as analyzed under Impact b). As such, construction of the project would not generate ozone precursors that could result in exposure of sensitive receptors to elevated ozone concentrations and associated health risks. Operation of the project would not change from existing conditions. The impact on sensitive receptors from generation of CO and ozone precursors would be less than significant. No mitigation is required.

Figure 4.3-1 Sensitive Receptors within 1,000 Feet of the Project



Sources: (U.S. Geological Survey, 2016; Tele Atlas North America, Inc., 2018; The County of Napa, 2018; KASL Consulting Engineers, 2020)

d) Would the project result in other emissions (such as those leading to odors adversely affecting a substantial number of people?

Less than Significant Impact. Diesel equipment used during project construction may emit objectionable odors associated with combustion of diesel fuel. Diesel emissions, however, would dissipate rapidly and would be temporary and intermittent in nature. Odor impacts associated with diesel combustion during construction activities would be less than significant. No mitigation is required.

4.3.2 Mitigation Measures

MM AIR-1: Implement Dust Control Measures

The following dust control measures shall be implemented during construction of the project.

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day when track-out is evident. The use of dry power sweeping is prohibited.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- Construction equipment shall be properly maintained by a certified mechanic.
- Post a publicly visible sign with the telephone number and person to contact at the City of Calistoga regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity:** N/A
- **During Activity:** (1) Water twice per day, (2) cover haul trucks, (3) remove mud and dirt track-out with wet power vacuum street sweepers, (4) minimize idling times. (5) maintain construction equipment, and (6) post sign with contact information for dust complaints.
- **After Activity:** N/A

4.4 Biological Resources

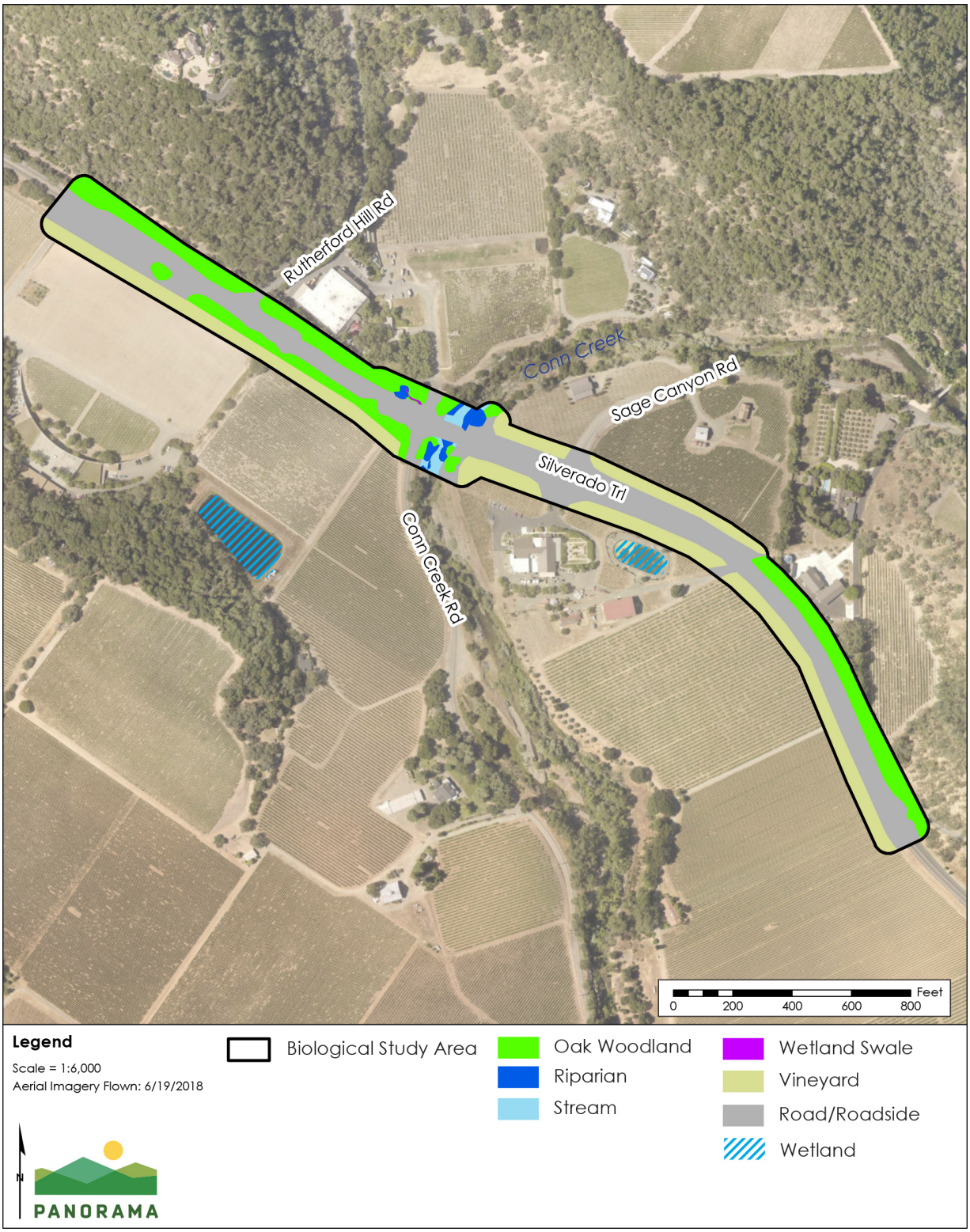
Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

4.4.1 Environmental Setting

Vegetation Communities and Habitat on the Project Site

Habitats and vegetation communities within the project site were mapped during a biological reconnaissance survey of the biological study area (BSA) in November 2020 (Vollmar Natural Lands Consulting, 2020). The BSA, which is shown in Figure 4.4-1, includes the entire area of project disturbance (i.e., pipeline trench alignment, concrete cap and pipeline removal area, and staging areas) and a 50-foot buffer surrounding areas proposed to be disturbed. The plant communities and habitats that occur within the BSA are shown on Figure 4.4-1and described in Table 4.4-1.

Figure 4.4-1 Vegetation Communities within the BSA



Sources: (U.S. Geological Survey, 2016; Vollmar Natural Lands Consulting, 2020; The County of Napa, 2018; KASL Consulting Engineers, 2020; Vollmar Natural Lands Consulting, 2020; Bay Area Aquatic Resource Inventory, 2017)

Table 4.4-1 Habitats in the Biological Study Area

Habitat/ Land Cover Type	Description	Acres within BSA
Roadside and Ruderal	The majority of the BSA consists of anthropogenic habitats, including Silverado Trail, adjacent road shoulders, and adjacent agricultural lands. While the vineyards are planted with carefully managed wine grapes, the edges of the Silverado Trail consist of a mix of gravel and ruderal, mowed vegetation. Where vegetation is present along the road shoulders, the dominant plant species are primarily introduced herbaceous weeds, including annual grasses such as ripgut brome (*Bromus diandrus*), slender wild oat (*Avena barbata*), and foxtail (Hordeum murinum), along with weedy forbs such as prickly wild lettuce (*Lactuca serriola*), Mediterranean mustard (*Hirschfeldia incana*), English plantain (*Plantago lanceolata*), Queen Anne's lace (*Daucus carota*), chicory (*Cichorium intybus*), and prostrate knotweed (*Polygonum aviculare*).	7.65
Vineyard	Within the BSA, lands immediately beyond the stream bank tops and the fringing oak woodlands are developed as vineyard on both sides. South of the BSA, vineyard continue as the predominant adjacent lands use along the stream's length, all the way to its confluence with the Napa River more than five miles southeast of the BSA.	4.89
Oak Woodland	The most widespread natural habitat within the BSA is oak woodland, which is most prevalent near the northwestern and southeastern edges of the BSA, where the BSA is bounded by unfarmed hill slopes. Oak woodland is also present along a narrow strip of the upper bank slopes of Conn Creek where tree canopies intermittently extend over the stream. In all portions of the BSA, the habitat is dominated by broadleaf native trees, particularly oaks, but also including many introduced species of all strata. The most common trees include the native coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), black oak (*Q. kelloggii*), foothill pine (*Pinus sabiniana*), and California bay (*Umbellularia californica*). These are interspersed with a few introduced species, primarily European olive (*Olea europaea*), silver wattle (*Acacia melanoxylon*), and Monterey pine (*Pinus radiata*) (a species native to California, but not to the BSA). The shrub and vine stratum likewise consists of a mix of native and introduced species, though the native species are all very common, generalist species. The most prevalent shrubs and vines observed include native poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), and toyon (*Heteromeles arbutifolia*). Associated introduced species include the invasive Himalayan blackberry (*Rubus armeniacus*) and bigleaf periwinkle (*Vinca major*).	4.12
Conn Creek Stream	Conn Creek is a major stream in the local vicinity that conveys water from the hills east of the BSA toward the Napa River. The local watershed (hydrologic unit 12) is referred to as the Rector Creek-Conn Creek Watershed, which in turn is part of the Napa River and greater San Pablo Bay Watersheds. Conn Creek would likely be a perennial stream under natural conditions; however, the BSA is just two miles downstream of Lake Hennessey, a reservoir that captures and stores most of the stream's flow. Within the BSA, the stream is only seasonally inundated, following the release of water from Lake Hennessey. At the time of the November 24 field survey, the stream was completely dry. A few individuals or small stands of obligate and facultative wetland plants occur along the stream, including red willow (*Salix laevigata*), sandbar willow (*S. exigua*),	0.30

Habitat/ Land Cover Type	Description	Acres within BSA
	broadleaf cattail (*Typha latifolia*), tall flatsedge (*Cyperus eragrostis*), and green dock (*Rumex conglomeratus*). In addition, a few native wetland plant species are found along the bank slope adjacent to Conn Creek Bridge, which are part of the post-construction restoration process for the recent bridge replacement project.	
Riparian	The willow trees, along with a few young California black walnut trees (*Juglans hindsii*), form small stands of riparian vegetation, and for the purposes of rare plant habitat analysis, this habitat most closely corresponds to "Riparian Woodland" or "Riparian Scrub," as defined by the California Native Plant Society (CNPS). Riparian habitat also occurs along the roadside north of Silverado Trail, where a small stand of arroyo willow (*Salix lasiolepis*) occurs at the northwestern edge of a swale, approximately 150 feet west of Conn Creek.	0.24
Wetland	Just northwest of Conn Creek Bridge is a small wetland that occurs within a swale that appears to have been constructed, or at least enhanced, as part of the bridge construction project. It drains into a newly constructed culvert that conveys water to Conn Creek. It also appears to have been planted with horticultural plant species such as iris (*Iris sp.*), but is dominated by weedy hydrophytic species such as pennyroyal (*Mentha pulegium*) and other mints, along with dallis grass (*Paspalum dilatatum*), dotted smartweed (*Persicaria punctata*), and Himalayan blackberry. The Bay Area Aquatic Resource Inventory includes records for two additional wetlands that occur outside of the BSA, south of Silverado Trail (Figure 4.4-1). These wetlands were not surveyed.	0.01

Special-Status Species Potential to Occur on the Project Site

Special-status species include those listed as endangered, threatened, rare, proposed for listing, or identified as species of special concern by U.S. Fish and Wildlife Service (USFWS), NOAA Fisheries, or CDFW and/or species with a CNPS Rank of 1 or 2 (Vollmar Natural Lands Consulting, 2020). The following sources were reviewed to determine the potential for special-status plant and wildlife species to occur in the vicinity of the project site:

- California Natural Diversity Database (CNDDB) occurrence records
- USFWS Information Planning and Consultation System
- CNPS online Inventory of Rare and Endangered Plants
- Biological Evaluation Report prepared by Vollmar Natural Lands Consulting (Vollmar Natural Lands Consulting, 2020)

Table 4.4-2 lists special-status species for which: a) CNDDB occurrences have been noted within 10 miles of the site and b) have at least some potential to occur in the BSA based on presence of suitable habitat. Species noted as present were observed during the survey in November 2020 (Vollmar Natural Lands Consulting, 2020).

Table 4.4-2 Special-status Species with Potential to Occur on the Biological Study Area

Name	Status	Habitat	Occurrence Potential
		Plants	
Napa false indigo (*Amorpha californica* var. *napensis*)	1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland; 390-6,560 feet above sea level (asl).	Potential (low): Limited and marginal cismontane woodland habitat present.
Napa bluecurls (*Trichostema ruygtii*)	1B.2	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, vernal pools; 95-2,230 feet asl.	Potential (low): Limited and marginal cismontane woodland habitat present.
		Fish	
Pacific lamprey (*Entosphenus tridentatus*)	SSC	Spend about 1-3 years in the ocean and then migrate to freshwater to spawn. Spawn in gravel bottom streams.	Potential (low): Conn Creek provides marginal potential habitat, but stream was dry at time of site visit. Known from the Napa River, approximately 5 miles downstream of BSA.
Hardhead (*Mylopharodon conocephalus*)	SSC	Low to mid-elevation relatively undisturbed habitats of larger streams with clear, cool water.	Potential (low): Conn Creek provides marginal potential habitat, but stream was dry at time of site visit. Species is known to be present but extremely rare within the Napa River, which is approximately 5 miles downstream of the BSA.
Steelhead – central California coast distinct population segment (DPS) *(Oncorhynchus mykiss irideus)*	FT	Anadromous; migrates through San Francisco Bay spawns in coastal rivers and streams.	Potential (moderate in winter): Conn Creek is a tributary of the Napa River, in which steelhead have been documented. Nearest documented occurrence is 5.1 miles away. Conn Creek occurs within an area designated as essential fish habitat for salmonids and is designated as critical habitat for steelhead.

Name	Status	Habitat	Occurrence Potential
Amphibians			
Foothill yellow-legged frog (*Rana boylii)*	SSC	Foothill woodlands and chaparral near streams and ponds, riparian woodlands, wet meadows, also inhabits mixed conifer forest streams, slow streams and rivers with sunny, sandy, and rocky or gravelly banks at 6,000 feet and below in elevation.	Potential (low to moderate): Stream within the BSA provides potential habitat. Species has been documented within the BSA.
Reptiles			
Northwestern pond turtle (*Actinemys marmorata*)	SSC	Permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, unlined irrigation canals, and reservoirs.	Potential (moderate): Species could potentially occur within Conn Creek. Nearest documented occurrence is 2.2 miles away.
Birds			
Tricolored blackbird (*Agelauis tricolor*)	ST, SSC, USFWS: BCC	Forages in a variety of habitats, including pastures, agricultural fields, rice fields, and feedlots; nests in freshwater marshes with tules or cattails, or in other dense thickets of willow, thistle, blackberry, or wild rose in close proximity to open water.	Potential (low): BSA does not provide potential nesting habitat for this species, but open fields surrounding the BSA could provide potential foraging habitat. Documented around Lake Hennessey, approximately 1.25 miles from BSA.
Golden eagle (*Aquila chrysaetos*)	FP, USFWS: BCC	Open and semi-open country with native vegetation, primarily in mountains, canyonlands, cliffs, and bluffs. Nest on cliffs and steep areas in grassland, chaparral, shrubland, and forest.	Potential (low): BSA does not provide potential nesting habitat for this species, but open fields surrounding the BSA could provide potential foraging habitat. Documented around Lake Hennessey, approximately 1.25 miles from BSA.
Swainson's hawk (*Buteo swainsoni*)	ST, USFWS: BCC	Inhabits open habitats such as grasslands, meadows, prairies, deserts, and croplands. Forages in open grasslands and prairies. Nests adjacent to foraging grounds.	Potential (low): to moderate): Swainson's Hawk could potentially nest in the trees near Conn Creek, or forage in the open fields surrounding the BSA. Nearest documented occurrence is 2.3 miles away; nearest nesting sit (#2668) is 2.5 miles south of the project site, along the Napa River.

Name	Status	Habitat	Occurrence Potential
White-tailed kite (*Elanus leucurus*)	FP	Common in savannas, open woodlands, marshes, desert grasslands, partially cleared lands, and cultivated fields.	Potential (low to moderate): Species could be found foraging in the open fields surrounding the BSA and may nest in oaks or willows near Conn Creek. Nearest documented occurrence is 4.9 miles away.
American peregrine falcon (*Falco peregrinus anatum*)	FP, USFWS: BCC	Occur throughout California, mostly along shorelines and near water bodies. Breed mostly near water with vertical nesting sites such as cliffs, steep banks, and ledges.	Potential (low): BSA does not provide potential nesting habitat for this species, but riparian habitat in BSA could be an important foraging habitat. Known from Lake Hennessey, approximately 1.25 miles from the BSA.
Bald eagle (*Haliaeetus leucocephalus*)	SE, FP, USFWS: BCC	Nests in forested areas near large bodies of water. Perches in tall, mature coniferous or deciduous trees.	Potential (low): Species could potentially nest in the large trees along Conn Creek and has been documented near Lake Hennessey approximately 1.25 miles away.
Yellow-breasted chat (*Icteria virens*)	SSC	Found in valley foothill riparian habitat in coastal California and the Sierra Nevada foothills. Usually nests in dense shrubs along a stream or river.	Potential (moderate): Species could potentially nest in the riparian habitat within the BSA. Species is known from the Napa River Ecological Reserve, approximately 5.5 miles from the BSA.
Purple martin (*Progne subis*)	SSC	Breed in mountain forests or Pacific lowlands, nesting in woodpecker holes in dead snags. Forage in a variety of open habitats.	Potential (moderate): Purple martin could potentially nest in trees and snags within the BSA. Nearest documented occurrence is 1.25 miles away.
Yellow warbler (*Setophaga petechia*)	SSC, USFWS: BCC	Breed in riparian woodlands from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada, as well as montane chaparral and open ponderosa pine and mixed conifer habitats with substantial amounts of brush.	Potential (moderate to high): Species could potentially nest in the riparian habitat within the BSA. Documented within BSA in 2020 according to citizen bird tracking organization.
Mammals			
Pallid bat (*Antrozous pallidus*)	SSC	Forages in a variety of habitats; roosts in rocky outcrops, buildings, and hollow trees.	Potential (moderate to high): Species could potentially nest in the riparian habitat within the BSA. Nearest documented occurrence is 1.2 miles away.

Name	Status	Habitat	Occurrence Potential
Townsend's big-eared bat (*Corynorhinus townsendii*)	SSC	Roosts in caves, cliffs, rock ledges, and man-made structures. Found in a wide variety of habitats, except subalpine and alpine habitats.	Potential (moderate): Species could potentially nest in the riparian habitat within the BSA. Roosting potential exists within the large culvert adjacent to the bridge. Nearest documented occurrence is 4.8 miles away.

FT = Federally Threatened
ST = State Threatened
SE = State Endangered
BCC = Bird of Conservation Concern
SSC = California Species of Special Concern
FP = Fully Protected

1B.2 = Plants rare, threatened, or endangered in California and elsewhere; plant fairly threatened in California

Source: (Vollmar Natural Lands Consulting, 2020)

4.4.2 Discussion

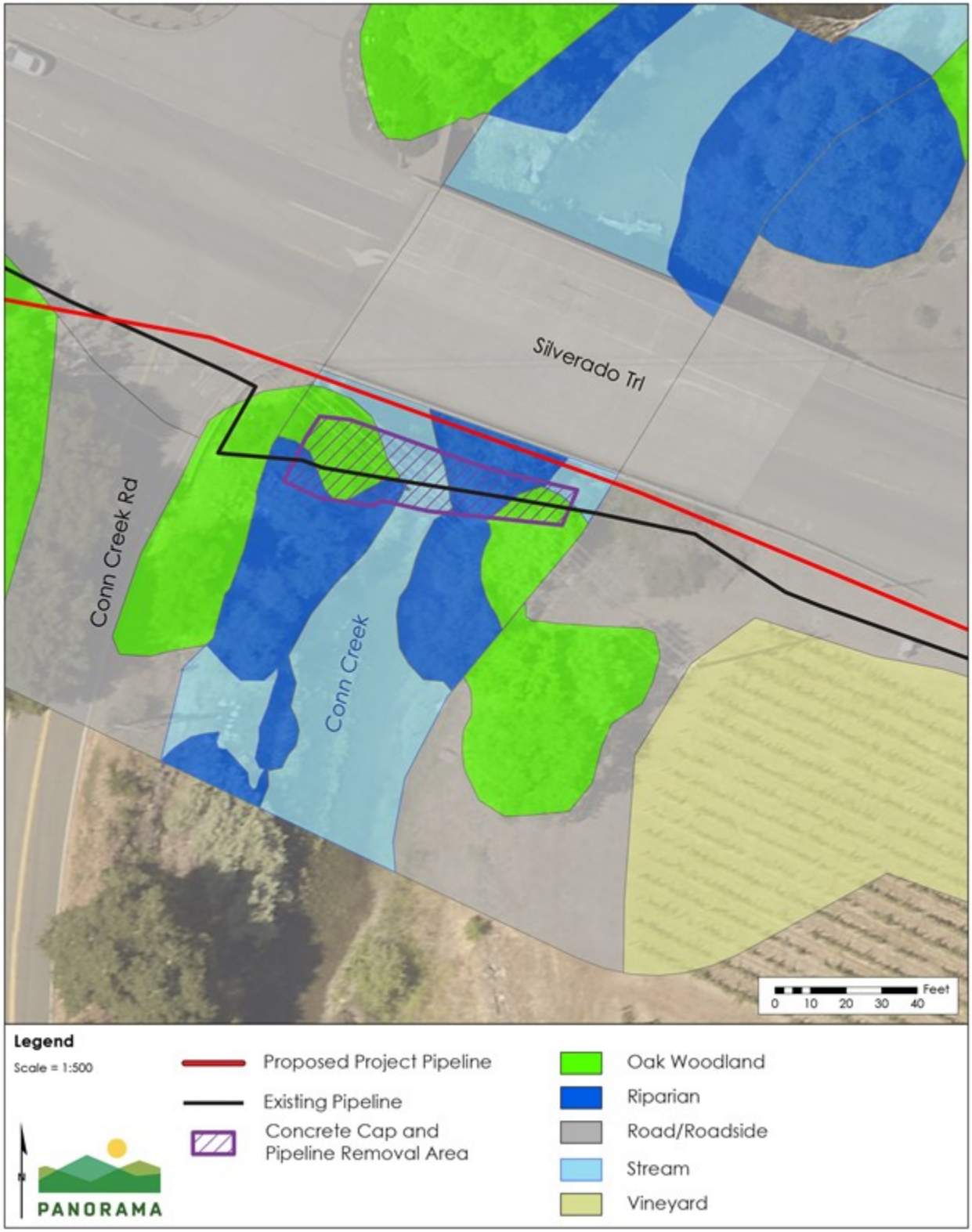
a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Special-Status Plants

Less than Significant Impact with Mitigation Incorporated. Based on habitats present within the BSA, two special-status plant species have low potential to occur within the project impact area—Napa false-indigo and Napa bluecurls—both of which have a CNPS 1B.2 ranking (Table 4.4-2). Both species are known to occur within oak woodland habitat, which is present along the road shoulder of Silverado Trail, where pipeline trenching is proposed. Removal of the concrete cap and pipeline from Conn Creek would also result in ground disturbance within oak woodland habitat (Figure 4.4-2). The field survey was not conducted during the blooming season for Napa false-indigo or Napa bluecurls. While there are no documented occurrences of Napa false-indigo and Napa bluecurls in the BSA, it is possible that these species could occur within the oak woodlands impacted by project construction. Activities such as trenching and pedestrian or vehicle traffic have the potential to damage or destroy special-status plant populations, if present. Although these special-status plants have a low potential to occur, disturbance of special-status plant individuals, if present at the project site, would be a significant impact.

MM BIO-1 requires that a pre-construction survey for special-status plants be conducted during the Napa false-indigo and Napa bluecurls blooming seasons (April – July and June-October, respectively) within all project areas, including pipeline alignment, concrete cap removal area, staging areas, and unpaved access routes. All populations of special-status plants identified during the pre-construction survey would be documented and flagged for avoidance during construction. Any special-status plant that cannot be avoided would be transplanted for planting in suitable habitat outside of the project impact area. MM BIO-2 requires worker environmental awareness training that would educate on-site crewmembers regarding the potential to encounter these species, identifying features of potentially occurring special-status plants, and appropriate protection measures in the event of discovery during construction. Specifically, construction personnel would be instructed to halt construction activities and contact the designated biologist if a special-status plant species is observed in an area where it could be harmed by construction activities. Any special-status plants identified during construction would be avoided or treated in accordance with MM BIO-1. With the incorporation of MMs BIO-1 and BIO-2, the impact on special-status plants would be less than significant.

Figure 4.4-2 Vegetation Communities within Conn Creek



Source: (Vollmar Natural Lands Consulting, 2020)

Special-Status Fish

Less than Significant Impact. Three special-status fish species including, steelhead (central California coast distinct population segment [DPS]), Pacific lamprey, and hardhead have the potential to occur at the project site when water is present in Conn Creek. The central California coast DPS of steelhead is a federally threatened species found in streams, rivers, lakes, estuaries, and the ocean. Steelhead spawn in loose gravel at pool tails, typically during late spring. Juvenile steelhead require cool, clear, fast-flowing water (Vollmar Natural Lands Consulting, 2020). Conn Creek is federally designated as steelhead critical habitat and essential fish habitat (USFWS, 2015; NOAA, 2014) and steelhead have been observed in Conn Creek outside of the BSA, including upstream of Lake Hennessey and approximately 5 miles downstream of the BSA near the confluence with Rector Creek, as well as within the Napa River. However, the reach of Conn Creek below Lake Hennessey, including the BSA, lacks suitable summer rearing habitat for juvenile salmonids due primarily to a lack of perennial stream flow and poor water quality conditions during critical warm months (Napa County Resource Conservation District, 2005). Steelhead have moderate potential to occur in the project site when water is present in Conn Creek.

Pacific lamprey is a species of special concern found in the Pacific Ocean and freshwater river tributaries. Pacific lamprey spend the majority of their lives in freshwater streams before entering the ocean as an adult. Adult lampreys return to freshwater to spawn, usually between March and June (Vollmar Natural Lands Consulting, 2020). When water is present during the spring months, Conn Creek provides potential spawning habitat for Pacific lamprey. There are no recent records of Pacific lamprey within Conn Creek; however, the species is known to occur in the Napa River, approximately 5 miles downstream of the BSA. The potential for Pacific lamprey to occur within the project site at any time of year is low.

Hardhead is a species of special concern often found in relatively undisturbed habitats of reservoirs or larger streams with clear, cool water. The species is known to be present within the Napa River, although occurrences are extremely rare. Conn Creek provides marginal potential habitat for hardhead. The potential for hardhead to occur within the project site at any time of year is low.

Project construction would occur between May and September during the dry season (typically from May to October). Work within Conn Creek would be limited to July to September, when the creek is dry, to prevent potential direct impacts to aquatic species. Nevertheless, project construction has the potential to result in direct and indirect impacts to fish habitat. Direct habitat impacts would result from the excavation and removal of the concrete cap and pipeline from the creek bed. Following removal of the cap and pipeline, the creek would be restored using gravel, cobble, and engineered streambed material. As discussed in Section 2, Project Description, CDFW has indicated that the existing pipe and concrete cap currently act as a barrier to anadromous fish passage and CDFW and NOAA Fisheries support removal of the pipeline from the creek bottom. Geomorphic conditions would be monitored post-construction for a period of three to five years, as required by the Streambed Alteration Agreement issued by CDFW. As a result, project would improve fish passage in Conn Creek.

Indirect impacts to fish habitat could occur through disturbing soils in and adjacent to the creek, which could lead to increased sedimentation and turbidity in the creek during the wet season. At high levels, turbidity and suspended sediment in the water column can lower levels of dissolved oxygen, causing mortality of special-status fish, if present. Persistent elevated levels of turbidity would constitute a significant impact on special-status fish and their habitat. The project has been designed to restore stream habitat following the removal of the concrete cap. Stream restoration includes the installation of engineered streambed material, including gravel, cobble, and an engineered void filler. All restoration materials would be clean and free of debris or silty soils that may cause turbidity and sedimentation. Installation of the engineered streambed material would stabilize disturbed soils within the creek. Disturbed soils on the creek banks and adjacent uplands would be stabilized through seeding with a native seed mix, as well as implementation of the project-specific erosion control BMPs that would be identified in the project's Stormwater Pollution Prevention Plan (SWPPP). BMPs may include straw wattles, silt fences, and jute netting or erosion-control matting. Implementation of these required BMPs would ensure indirect impacts on special-status fish due to increased turbidity and suspended sediment would be less than significant.

Special-Status Amphibians and Reptiles
Less than Significant Impact with Mitigation Incorporated. Foothill yellow-legged frog and northwestern pond turtle have moderate potential to occur at the project site. Foothill yellow-legged frog is a species of special concern that has been the project site in 1958. Conn Creek provides suitable habitat for foothill yellow-legged frog, particularly during times when water is present in the creek; however, recent research indicates that the species may shelter in moist micro-habitats within dry streams as well (Vollmar Natural Lands Consulting, 2020).

Northwestern pond turtle is a species of special concern that has been documented approximately 2.2 miles from the BSA. Conn Creek and surrounding riparian vegetation provides suitable habitat for the northwestern pond turtle with abundant potential basking sites, including rocks, logs, and riparian vegetation. Females leave drying creeks from May to July to lay eggs in sunny upland habitats, which could include the uplands areas above the creek banks.

Ground disturbing activities and operation of heavy equipment during trench excavation and removal of the concrete cap and pipeline from the creek bed could result in the direct mortality or injury to foothill yellow-legged frog and northwestern pond turtle if they occur in the area. Additionally, ground disturbance within the creek could result in indirect impacts to foothill yellow-legged frog and northwestern pond turtle through disturbance of creek habitat. Direct and indirect impacts to these species would be potentially significant.

MM BIO-2 requires that all construction crewmembers receive an environmental awareness training to inform construction personnel regarding the potential to encounter special-status species, including foothill yellow-legged frog and western pond turtle, during project construction and actions to take if special-status species are identified. MM BIO-3 requires that a qualified biologist conduct pre-construction surveys for special-status amphibian and reptile

species, as well as installation of exclusion fencing around the work area within Conn Creek to restrict special-status wildlife from entering the project site. The impact on special-status amphibian and reptile species would be less than significant with mitigation.

Special-Status Birds

Less than Significant Impact with Mitigation Incorporated. Nine special-status bird species have the potential to occur in or adjacent to the project impact area (Table 4.4-2). All nine species may use portions of the project area, as well as adjacent vineyards and oak woodland, as foraging grounds. Noise and equipment associated with the project may temporarily deter special-status birds from foraging in or adjacent to the project area. The temporary loss of foraging grounds would be limited to the 4-month construction period. Construction is anticipated to progress at a rate of 200 to 500 feet per day and includes installing the new pipeline along the underground alignment adjacent to Silverado Trail. Because Silverado Trail is a thoroughfare through the area, birds foraging near Silverado Trail are likely accustomed to vehicle noise. If special-status birds were deterred from foraging in staging areas or areas adjacent to the project site, birds would likely forage in vineyards or other open habitats further from the project site. Given that daily project activities would be limited to, at most, a 500-linear-foot segment along the shoulder of Silverado Trail, and ample foraging habitat available immediately adjacent to the project site and surrounding region in the Napa Valley, the temporary impact from the loss of foraging grounds would be less than significant.

Swainson's hawk have been documented approximately 2.3 miles from the project site. Grassland or riparian woodland areas surrounding Conn Creek may nesting habitat for Swainson's hawk. Specifically, Swainson's hawk could nest within trees adjacent to Silverado Trail or on the upper banks of Conn Creek. No trees would be removed during project construction and adjacent areas of active viticulture would not be permanently impacted by the project. Staging areas would be established adjacent to the road shoulder and would not require significant vegetation removal. The project does not involve removal of trees but include tree trimming. Tree trimming may be required for access to the creek and noise from construction equipment near the nesting habitat may disturb nesting behavior or cause nest abandonment. Because Swainson's hawk is a state-listed species (threatened), abandonment or disturbance of an active nest may constitute take and violate California Fish and Game Code Section 2081. If the project were to result in nest abandonment or disturbance, the impact would be significant. MM BIO-4 requires the City to conduct a protocol-level Swainson's hawk survey if construction occurs during the nesting season (March to October). If active nests are observed within 0.5 mile of project activities, the City would consult with CDFW regarding potential take of the species and would obtain an Incidental Take Permit, if necessary. The impact would be less than significant with mitigation.

In addition to Swainson's hawk, six additional special-status birds may nest in the project area, including white-tailed kite, bald eagle, yellow-breasted chat, purple martin, and yellow warbler (Table 4.4-2). Numerous common migratory birds may nest in or adjacent to the project area. Construction within and adjacent to Conn Creek may cause disturbance to birds nesting in oak woodland and riparian habitat. One common migratory species that may use the recently

replaced bridge for nesting is the cliff swallow (*Petrochelidon pyrrhonota*). Cliff swallow nests may be disturbed during installation of the pipeline on the side of Conn Creek Bridge. Nesting birds are protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503, 3513, and 3800. Tree trimming, construction of the underground pipeline along Silverado Trail or work within Conn Creek may disturb special-status and migratory birds nesting in vegetation or on structures (e.g., the bridge) adjacent to the pipeline alignment. Injury, death, and nest disturbance or abandonment due to project activities would be a significant impact. MM BIO-5 would reduce potential impacts on nesting birds to a less-than-significant level by discouraging nesting on the existing bridge, requiring seasonal avoidance or pre-construction surveys, and implementing avoidance measures if active nests are located. The impact would be less than significant with the implementation of mitigation.

Special-Status Bats

Less than Significant Impact with Mitigation Incorporated. The project would not remove any trees in the BSA. Pallid bat and/or Townsend's big-eared bat species have the potential to roost in trees within and near the project site that have suitable cavities, crevices, exfoliating bark and/or bark fissures. Bats could also potentially roost within the culvert on the north side of the bridge. Conn Creek Bridge may be used for night roosting, but is not likely to provide day roosting or maternal roosting habitat due to the lack of crevices on the structure. Project activities would be conducted during the day and do not include tree removal or any activity that would disturb the culvert on the north side of the bridge. Tree trimming may be required for access to the creek and noise or vibration from project construction could disturb roosting bats if the roost sites occur near the project activities. Direct mortality of an individual or disturbance to maternal colonies of special-status bats, if present, would be a significant impact. MM BIO-6 would reduce potential impacts on special-status bats to a less-than-significant level by requiring pre-construction surveys and implementing avoidance measures if potential roosting habitat or active roosts are located. The impact would be less than significant with the implementation of mitigation.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact. Project construction involves impacts to oak woodland and riparian habitat, both classified as sensitive natural communities under CEQA. Although tree trimming may be required for access to the creek, no substantial vegetation removal would be necessary. Construction within Conn Creek would involve minor impacts to the understory of oak woodland and riparian habitat through ground disturbance resulting from removal of the concrete cap and pipeline. Staging along the south side of Silverado Trail and construction of approximately 200 linear feet of the underground pipeline would occur in oak woodland. Staging and construction of the underground pipeline would not require tree removal.

Approximately 0.076 acre of oak woodland habitat would be temporarily impacted by project construction during staging and trenching for the new underground pipeline. All impacts to oak woodland would occur in the understory. As described in Section 2, Project Description,

temporarily disturbed upland habitat would be restored to pre-construction conditions through the application of a native seed mix. The impact on oak woodland would be less than significant.

Approximately 144 square feet (0.01 acre) of mapped riparian habitat would be impacted during removal of the concrete cap and pipeline from Conn Creek. The riparian habitat was mapped to the dripline of overhanging riparian vegetation rooted outside of the area of impact. The mapped boundary of riparian habitat includes the concrete cap, which does not support vegetation because concrete does not provide suitable root substrate. As such, areas mapped as riparian habitat would not require removal of riparian vegetation. Following construction, the area impacted by the removal of the concrete cap would be restored by backfilling trenched/voided areas using engineered streambed material. Streambed material would be backfilled to match the adjacent creek bed contours, both upstream and downstream. Given the seasonal drying of surface flows within the creek, seasonal variation of the riparian habitat boundary is to be expected. Riparian habitat is anticipated to establish within the creek within one or two growing seasons. Removal of the concrete cap and restoration of the creek is not anticipated to result in conversion of any riparian habitat. The impact would be less than significant.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. A 0.01-acre wetland northwest of Conn Creek Bridge is the only wetland that occurs within the BSA. The literature and database review conducted for the project resulted in identification of two additional wetlands outside the BSA (Vollmar Natural Lands Consulting, 2020). Wetlands outside the BSA would not be impacted by the project. A small staging area would be established on the side of Silverado Trail approximately 35 feet southwest of the wetland that occurs within the BSA. Staging activities would not result in direct impacts to the wetland. BMPs would be established within all project areas to ensure that stormwater runoff does not affect nearby sensitive habitats, including wetlands. The project would have no impact on wetlands.

d) Would the project 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?

Less than Significant Impact. As described above in Table 4.4-2, suitable habitat exists for three species of fish that have the potential to occur at the project site. The project site occurs within an area designated as essential fish habitat and Conn Creek has been mapped as critical habitat for steelhead, reptiles, such as foothill yellow-legged frog and northwestern pond turtle (NOAA, 2014; USFWS, 2015).

Project construction would occur during the dry season (May to October), with work within Conn Creek limited to July to September, when the creek is dry, to prevent impacts to the steelhead, Pacific lamprey, and hardhead. Because the existing pipe and concrete cap currently

act as a barrier to anadromous fish passage, removal of the pipeline and concrete cap from the creek bed is expected to improve fish passage in Conn Creek, thereby improving movement of native resident or migratory fish.

Because the project involves the replacement of existing predominantly below-ground infrastructure and above-ground project components would be located along an existing bridge, the project would not interfere or impede movement of any other wildlife species. The impact would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The project would not result in the removal of any trees; however, tree trimming may be required to provide access into Conn Creek. Trimming would consist of cutting branches of oaks and/or willows and would not involve any disturbance to tree trunks or roots. No local policies or ordinances related to tree trimming are applicable to the project. No impacts would occur.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The project site is not located within the boundaries of a Habitat Conservation Plan or Natural Community Conservation Plan. No impacts would occur.

4.4.3 Mitigation Measures

MM BIO-1: Special-Status Plants

Within one year prior to construction, a qualified botanist shall survey all potentially impacted project areas for special-status plants during the blooming season (roughly June through October), with particular emphasis on oak woodlands where Napa false indigo and Napa bluecurls may occur. All special-status plants observed within project impact areas shall be flagged in the field, photographed, and the Global Positioning System coordinates shall be recorded. Special-status plants shall be avoided during construction.

In the event that impacts to special-status plants cannot be avoided, the following measures are required for the Napa false indigo and Napa bluecurls.

Napa False Indigo

As Napa false indigo is a shrub species, it can be identified at least to genus as long as it has leaves; therefore, if any amorpha species are present within the BSA, they shall be flagged and construction personnel shall be informed of their locations to ensure avoidance.

Individual species or a population shall be dug up and relocated to suitable habitat outside the work area, prior to construction. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species that shall be planted in suitable habitat outside the work area or in the work area following completion of work. The selected relocation site(s) shall be within the same watershed as the impact area, and shall be approved by CDFW botanical staff.

Napa Bluecurls

If Napa bluecurls are identified during pre-construction surveys and the project involves substantial soil disturbance outside of the blooming season (June-October), the topsoil (i.e., the top two inches of soil) shall be removed from project impact areas and stockpiled prior to further excavation and replaced in the same area from which it was removed following disturbance.

MM BIO-1: Special-Status Plants

If disturbance occurs during the blooming season, seeds of the annuals shall be collected from existing onsite populations or from the same watershed (to maintain local genetic stock) and distributed in suitable habitat outside the work area (within the same watershed) or in the work area following completion of work. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species (from seeds collected locally in the same watershed) that shall be planted in suitable habitat outside the work area or in the work area following completion of work. Seeds derived from plants in the same watershed as the impact area may be available from local nurseries, and local nurseries may also be able to propagate seeds from adults grown from collected seeds. In this case, seeds do not need to be collected from a specific impact area site.

Monitoring Plan

A monitoring plan that requires a qualified biologist to conduct annual monitoring of seeded or replanted locations within the BSA shall be developed. Monitoring shall occur for a minimum of 3 years and up to 5 years, based on CDFW recommendation and monitoring results. The new population shall match typical populations for the species as available from rare plant inventories (e.g., from CNDDB, USFWS data, or from local mitigation banks). Due to the variations in population from year to year as a result of weather fluctuations, average population data for annual taxa can be calculated from several years (at least three) of data collected from known populations in the region.

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity**: 1 year before construction, survey during the blooming period. (1) If a Napa false indigo is found, relocate the specimen to outside the project zone to a location in the same watershed approved by CDFW staff. (2) If Napa bluecurls are found in areas sustaining soil disturbance outside the blooming season, the topsoil must be removed before disturbance and replaced afterwards.
- **During Activity**: Any occurrences shall have their seeds collected and planted in areas outside the disturbance location in the same watershed.
- **After Activity**: Monitoring shall continue between 3-5 years in all locations of replanting or reseeding.

MM BIO-2. Worker Environmental Awareness Training

Prior to construction, all contractor construction personnel shall attend an environmental training program provided by the City of Calistoga's biological contractor/qualified biologist. For site supervisors, foremen, and project managers, training shall require up to 1 day to complete. Non-supervisory contractor personnel are required to attend training for up to 30 minutes. The training shall discuss all sensitive habitats and sensitive species that may occur within the project work limits, including all the species listed above in Table 4.4 2. The training shall include the responsibilities of contractor's construction personnel, applicable mitigation measures, and notification requirements. The training shall also address other measures that protect biological resources, such as limiting all vehicle speeds to fifteen (15) miles per hour or less at the construction site and any adjacent unpaved roads during construction and post construction. The following information shall also be provided during the training:

- Specific information regarding the special-status species potentially present and their habitat needs
- Information regarding special-status species occurrences in the project area
- An explanation of the status of each listed species and their protection under state and federal laws
- A list of measures implemented to reduce effects to the species during construction and implementation

Fact sheets conveying this information and an educational brochure containing color photographs of all special-status species potentially present shall be prepared for distribution to all construction personnel. Construction personnel shall be instructed to halt construction activities and contact the designated biologist if a wildlife species is observed in an area where it could be harmed by construction activities. A list of employees who attend the training sessions shall be maintained by the City of Calistoga and made available to USFWS, NOAA Fisheries, and/or CDFW upon request.

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity:** All construction personnel shall attend an environmental training program.
- **During Activity:** N/A
- **After Activity:** N/A

MM BIO-3: Amphibians and Reptiles

No more than 24 hours prior to the date of initial ground disturbance, a preconstruction survey for foothill yellow-legged frog (FYLF) and northwestern pond turtle (NPT) shall be conducted by a qualified biologist at the project site. The survey shall consist of walking the BSA limits of Conn Creek and at least 400 feet beyond in order to ascertain the possible presence of FYLF and NPT. The biologist shall investigate all potential areas that could be used by the species for feeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as those of California ground squirrels or pocket gophers. If any special-status amphibians or reptiles are found, the biologist shall follow the procedures specified below.

- Temporary exclusion fencing shall be installed around the limits of work areas and access routes to ensure special-status amphibians and reptiles cannot enter the work area. Installation of exclusion fencing shall occur under the supervision of a designated biologist and immediately following a clearance survey of the area. The exclusion fencing shall have a minimum aboveground height of 30 inches, and the bottom of the fence shall be keyed in at least 4 inches deep and backfilled with soil to prevent wildlife from passing under the fencing.
- Initial ground-disturbing activities shall be avoided between November 1 and March 31 to avoid the time period when amphibians and reptiles are most likely to be moving through the project area.
- To the maximum extent practicable, no construction activities shall occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a designated biologist shall inspect the project area and all equipment/materials for the presence of FYLF or NPT.
- Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the project site because amphibians and reptiles can become entangled and trapped in them. Any such material found on-site shall be immediately removed by the construction personnel. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer, or other synthetic materials shall not be used.
- Uneaten human food and other refuse attracts crows, ravens, coyotes, raccoons, and other predators of FYLF, NPT, and other wildlife. A litter control program shall be instituted at the project site. All workers shall ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed garbage containers. The garbage containers shall be removed from the project site at the end of each working day.

If a FYLF or NPT is encountered during project activities, all work within the vicinity of the species shall be halted until the biologist determines the species is not at risk or the species moves out of the project vicinity. The biologist shall determine if relocating the individual is appropriate (e.g., if the species is at risk of injury). If the biologist determines relocation is necessary, the biologist shall be given sufficient time to move the animal from the work site before any work resumes. If the biologist determines relocation is not necessary, the biologist shall monitor the species until it leaves the project vicinity.

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity:** The preconstruction survey must occur no more than 24 hours before the date of the beginning ground disturbance. Exclusion fencing must be installed around work areas and access routes.
- **During Activity:** Activity should cease during rain events or within 24 hours following a rain event. Prior to resuming activity, a designated biologist shall inspect the project area and all equipment and materials for FYLF or NPT. If any species are found during activities, all work in the vicinity of the species shall halt until a designated biologist gives permission to proceed.
- **After Activity:** N/A

MM BIO-4: Swainson's Hawk Protocol Survey

A Swainson's hawk nesting survey shall be implemented to avoid impacts to nesting Swainson's hawk from project activities conducted during the Swainson's hawk nesting period (March to October). The survey shall follow the protocol defined in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee, 2000).

- Surveys shall be conducted for at least two survey periods (defined in the protocol) immediately prior to project initiation.
- Surveys shall be conducted within a 0.5-mile radius around all project activities.
- If active nesting is identified within the 0.5-mile radius, the City shall consult with CDFW regarding potential take of the species and shall obtain an Incidental Take Permit, if necessary.

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity:** Surveys shall be conducted at least two survey periods prior to project initiation. If active nests are discovered in a 0.5-mile radius, the City shall consult with CDFW and may acquire an Incidental Take Permit.
- **During Activity:** Depends on survey results and CDFW consultation.
- **After Activity:** N/A

MM BIO-5: Nesting Bird Avoidance Measures

Discourage Nesting on Conn Creek Bridge

To discourage bird nesting on the existing bridge during construction, existing inactive bird nests on Conn Creek Bridge shall be removed prior to the nesting season (October to February) and a nest deterrent shall be installed on the existing bridge to prevent establishment of new nests. Techniques to prevent nest establishment include:

- Exclusion Device: Install bird netting from the bridge prior to the start of nesting season (i.e., before February 1). Netting shall be in place from early February until the end or project construction. Netting shall be monitored for integrity and effectiveness until the project is completed.
- Nest Removal: Starting before the nesting season (i.e., prior to February 1), the City or its contractor shall visit the site weekly and remove partially completed nests on the bridge using either hand tools or high-pressure water. Disturbance or removal of active nests (i.e., nests containing eggs or young) shall not be conducted without the appropriate authorization(s) from the USFWS and/or CDFW.

Avoidance of Active Nests

Nesting birds and their nests shall be protected during construction by use of the following measures:

- Removal of riparian vegetation and trimming shall occur outside the bird nesting season (February 1 to August 30), to the extent feasible.
- A qualified wildlife biologist shall conduct pre-construction nesting surveys:
  - within 3 days prior to the start of underground pipeline installation activities;
  - within 3 days prior to the start of construction activities within Conn Creek; and
  - after any construction breaks of 14 days or more.

Surveys shall be performed for the project site and suitable habitat within 250 feet of the project site in order to locate any active passerine (perching bird) nests and within 500 feet of the project site to locate any active raptor (birds of prey) nests.

If active nests are located during the pre-construction bird nesting surveys, the wildlife biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination:

- If construction is not likely to affect the active nest, it may proceed without restriction; however, a biologist shall regularly monitor the nest to confirm there is no adverse effect and may revise their determination at any time during the nesting season. In this case, the following measure would apply:
  - If construction may affect the active nest, the biologist shall establish a no-disturbance buffer. Typically, these buffer distances are between 100 feet and 250 feet for passerines and between 300 feet and 500 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity (e.g., if the project site is adjacent to a road or community development) or if an obstruction, such as a tree or building, obscures line-of-sight between the nest and construction. For bird species that are regulated as federal and/or State sensitive species (i.e., fully protected, endangered, threatened, species of special concern), a City representative, supported by the wildlife biologist, shall confer with the USFWS and/or CDFW regarding modifying nest buffers and allowable construction within the buffer.
- To be evaluated on a case-by-case basis, birds that begin nesting within the project site and survey buffers amid construction activities shall be assumed to be habituated to construction-related or similar noise and disturbance levels and minimum work exclusion zones of 25 feet shall be established around active nests in these cases.

Applicable Location(s): All work areas, and in riparian vegetation around the active site.

MM BIO-5: Nesting Bird Avoidance Measures

Performance Standards and Timing:

- **Before Activity:** Between Oct-Feb, inactive nests shall be removed, and nest deterrents installed. Surveys shall occur within 7 days before the start of construction.
- **During Activity:** Nesting deterrents shall remain in place for the duration of the project. Activity after breaks lasting more than 14 days may only resume after a survey is conducted.
- **After Activity:** N/A

MM BIO-6: Roosting Special-Status Bat Protection

A qualified biologist shall conduct a pre-construction survey for special-status bats in advance of tree trimming to characterize potential bat habitat and identify active roost sites. Should potential roosting habitat or active bat roosts be found in trees to be disturbed, the following measures shall be implemented:

- Trimming of trees and disturbance to bridge structures shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15, outside of bat maternity roosting season (approximately April 15 to August 15), and outside of months of winter torpor (approximately October 15 to February 28), to the extent feasible.
- If trimming of trees and disturbance to bridge structures during the periods when bats are active is not feasible and bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where these activities are planned, a no-disturbance buffer, as determined by a qualified biologist, shall be established around these roost sites until they are determined to be no longer in use as maternity or hibernation roosts.
- Buffer distances may be adjusted around roosts depending on the level of surrounding ambient activity (i.e., if the project site is adjacent to a road) and if an obstruction, such as a building structure, is within line-of-sight between the roost and construction. If pallid bat or any other State-sensitive species is detected, a City representative, supported by the wildlife biologist, shall confer with CDFW regarding modifying roost buffers and allowable construction within the buffer, and modifying construction around maternity and hibernation roosts.
- The qualified biologist shall be present during tree trimming if bat roosts are present. Trees with roosts shall be disturbed only when no rain is occurring or is forecast to occur within the next 3 days and when daytime temperatures are at least 50°F. Branches and limbs not containing cavities or fissures in which bats could roost shall be cut only using chainsaws. Branches or limbs containing roost sites shall be trimmed the following day, under the supervision of the qualified biologist, also using chainsaws.
- Bat roosts that become established during project construction shall be presumed to be unaffected, and no buffer would be necessary.

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity:** Surveys for special-status bats must occur before any tree trimming.
- **During Activity:** No disturbance buffers shall be determined if work must occur during unrecommended time periods. A qualified biologist shall be present during tree trimming if bat roosts are present.
- **After Activity:** N/A

4.5 Cultural Resources

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

4.5.1 Environmental Setting

Ethnography

The project area is within Wappo ethnographic territory. The western Wappo who lived along the Russian River in Alexander Valley called themselves "Mishewal," which is the name still used by the present day Mishewal-Wappo Tribe of the Alexander Valley. The territory occupied by the Wappo was rich in desirable resources, particularly in raw materials for stone tool manufacture. Obsidian sourced to the Napa Valley has been found at archaeological sites throughout central California. The Wappo were an important part of a regional trade network (Environmental Science Associates, 2019). Tribal history within Napa County and a summary of tribal communication regarding the project is discussed further in Section 4.18, Tribal Cultural Resources.

Additional details on historical and archaeological context of the project site, Native American correspondence, and identified cultural resources are presented in the Cultural Resources Assessment Report prepared by the City's consultant, PaleoWest, in January 2021 (Appendix E).

Methodology

The historical resources discussion and analysis is based on a cultural resource assessment conducted by the City's cultural resources consultant (PaleoWest, 2021). The area of potential effect (APE) includes all areas that may be affected, directly or indirectly, by project activities including ground disturbance for the new pipeline, the installation of the new pipeline crossing on the bridge, and the removal of the existing concrete cap and pipeline across Conn Creek. Archival research was conducted to identify previously recorded historical or archaeological

resources within 0.5 mile of the APE (herein referred to as the study area) for the project. Archival research included:

- a records search of the California Historical Resources Information System at the Northwest Information Center (NWIC), Sonoma State University (File No. 20-0629);
- a review of archaeological, ethnographic, historical, and environmental literature, and topographic maps and aerials;
- a review of Caltrans cultural resources investigations for the Conn Creek Bridge replacement (Caltrans, 2014);
- coordination with the Native American Heritage Commission (NAHC); and
- field inspection of the project location.

The NWIC records search was delivered in September 2020 and included a review of all cultural resource surveys, excavation reports, and recorded archaeological sites within the study area. The records search results included a total of 35 previously conducted cultural resources investigations within the study area, which includes the APE. None of these previous investigations conclusively identified any prehistoric or historic-era archaeological sites or built environment resources within the APE.

Known Cultural Resources within the Project Study Area

The records search results indicated that one previously recorded cultural resource (P-28-001005) is within the project APE and seven previously recorded sites are present within the study area. The results indicate that the boundary of P-28-001005 overlaps a small part of the APE to the northeast of Conn Creek Bridge. Subsequent investigations concluded that P-28-001005 consists of a redeposit of natural obsidian from Glass Mountain to the northwest and does not represent prehistoric era human activities. This obsidian was likely imported as roadbed material for a section of SR 128/Sage Canyon Road that has since been removed. Caltrans archaeologists determined P-28-001005 is not a cultural resource and not eligible for listing on either the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) during the Conn Creek Bridge Replacement in 2014 (PQS Co-Principal Investigator-Historical Archaeology, 2014). The seven previously recorded resources within the study area are prehistoric archaeological sites, primarily concentrations of obsidian debitage, but also midden deposits and a set of boulders with incised petroglyphs and milling slicks (Table 4.5-1). None of these resources overlap with the project APE. Additionally, Caltrans conducted a series of investigations, including geoarchaeological testing, within the APE for the Conn Creek Bridge Replacement, which overlaps with the APE for the City's pipeline project. No cultural materials or buried A-horizon soils were observed in the core samples and the results indicate the project site within the creek is underlain by stream channel deposits. According to geoarchaeological data for the area, the project site indicates a low sensitivity for buried archaeological sites (Praetzellis, 2015).

Table 4.5-1 Cultural Resources Previously Identified within the Study Area

Primary Number/ Trinomial	Resource Name/ Description	Age	Located in APE or 0.5-mile Buffer	Date (Recorder, Organization)
P-28-001005	Conn Creek Bridge Obsidian Redeposit, redeposited natural, unmodified obsidian fragments	Recent	In APE	1999 (Todd Jaffke: Caltrans) 2005 (R. Douglass, Tom Origer & Associates, FWARG)
P-28-000141 CA-NAP-149	Obsidian debitage concentration	Prehistoric	In Buffer	1951 (K. E., Sacramento State College)
P-28-000142 CA-NAP-150	Obsidian lithic production area	Prehistoric	In Buffer	1951 (C.N.G. Sacramento State College)
P-28-000256 CA-NAP-349 (a & b)	Weaver Petroglyphs/CA-NAP-349a is one locus of 3 boulders with petroglyphs; CA-NAP-349b is second locus with midden and lithics	Prehistoric	In Buffer	1973 (Yolande Beard) 1976 (Yolande Beard) 1981 (K. Flynn, S. Ramiller, Archaeological Resource Service) 1990 (P. Farrell, C. Johnson; Archaeological Services, Inc)
P-28-000275 CA-NAP-371	Vineyard Site, habitation site, midden with a dense obsidian concentration, ground stone, and fire-affected rock	Prehistoric	In Buffer	1976 (Yolande Beard) 2004 (Nelson Thompson Tom Origer & Associates) 2005 (R. Douglass Tom Origer & Assoc., FWARG)
P-28-000440 CA-NAP-577	Obsidian lithic concentration	Prehistoric	In Buffer	1979 (K. Flynn, R. Melander ARS)
P-28-000433 CA-NAP-550	Habitation site, midden, and obsidian concentration	Prehistoric	In Buffer	1979 (K. Flynn, W. Roop Archaeological Resource Service) 2006 (J. Burns, B. Rich, K. Rich Roscoe and Associates)
P-28-001647 CA-NAP-1115	Chafen Site, low density obsidian lithic concentration	Prehistoric	In Buffer	2012 (L. Del Bondio, Tom Origer & Associates)

On November 20, 2020, the City's consultant conducted an intensive-level pedestrian survey of the 0.5-mile-long project APE. All areas of the APE were surveyed in 15-meter/50-foot transects on either side of Silverado Trail, excluding the paved roadways of Silverado Trail, Sage Canyon Road, and Conn Creek Road. Field staff did not note any of the non-cultural obsidian associated with P-28-001005 in the APE along Sage Canyon Road, though staff noted fragments outside of the APE. The pipeline which is being replaced and removed from the creek as part of this project draws its water from the NBA, which is of historic age; however, the pipeline itself dates to the 1980s and was not recorded as an historical resource.

4.5.2 Discussion

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less than Significant Impact with Mitigation Incorporated. The archival research resulted in one previously recorded resource within the APE; however, cultural resource staff determined P-28-001005 is not located within the APE during a field inspection in November 2020. P-28-001005 consists of a redeposit of natural obsidian from Glass Mountain to the northwest and was likely imported as roadbed material for a section of SR 128/Sage Canyon Road that has since been removed; therefore, P-28-001005 does not represent prehistoric era human activities. The field investigation resulted in no new historical or archaeological resources within the project APE. Seven resources were identified within the study area, which primarily include concentrations of obsidian debitage, but also midden deposits and a set of boulders with incised petroglyphs and milling slicks.

Geological maps show alluvial deposits, fluvial terrace deposits, and stream channel deposits in the project vicinity. The sediments were primarily deposited by the flowing water of a stream and during flooding events that resulted in sedimentation and, in some cases, erosion. The presence of stream channel deposits and sediments indicates that the area is characterized by a moderate to high energy depositional environment, and high energy environments are unlikely to preserve buried archaeological sites (PaleoWest, 2021). In 2015, two cores and two shovel tests were placed within the APE prior to the Conn Creek Bridge Replacement (Praetzellis, 2015). The coring reached depths of 20 and 24 feet. The results indicate the project site within the creek is underlain by stream channel deposits and no cultural materials or buried A-horizon soils were observed in the core samples. Based on the findings of the pedestrian survey, and according to geoarchaeological data for the area, the project site indicates a low sensitivity for buried archaeological sites.

Construction of the project would require ground-disturbing work during construction of the pipeline along Silverado Trail and removal of the existing pipeline and concrete cap from Conn Creek. No known historical or archaeological resources occur in the APE; however, the possibility of encountering previously undiscovered historic or archaeological resources during ground-disturbing work cannot be completely eliminated. Disturbance, damage, or destruction

of any previously undiscovered resources would be considered a significant impact. MM CUL-1 requires a professional archaeologist to conduct cultural resources training prior to project implementation and cessation of work within a 100-foot radius in the event of a cultural resource discovery. Work would not continue until a qualified archaeologist or cultural resources specialist has evaluated the resource and either determined the resource is not CRHR-eligible or completed treatment if the resource is CRHR-eligible. With implementation of MM CUL-1, the project would not cause a substantial adverse change in the significance of a historical or archaeological resource. Impacts would be less than significant with mitigation.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact with Mitigation Incorporated. No human remains have been previously encountered and documented in the vicinity of the project. Although considered unlikely, ground-disturbing work for the pipeline removal could result in unanticipated discovery of human remains. Disturbing human remains during project implementation would be a potentially significant impact.

If human remains are encountered, MM CUL-2 requires work to halt within 100 feet of the discovery of human remains, and requires the Napa County Coroner's office be contacted, followed by the appointment of a most likely descendent, if identified as Native American remains, to determine the appropriate course of action. The impact on human remains would be reduced to less than significant with implementation of mitigation.

4.5.3 Mitigation Measures

MM CUL-1: Previously Unidentified Cultural Resources

Cultural Resources Training

A professional archeologist shall provide cultural resources training to all employees and contractors prior to any ground-disturbing activities, including grading, saw-cutting, or excavation. The training shall address appropriate work practices necessary to effectively implement the mitigation measures for historical resources, archaeological resources, tribal cultural resources, and human remains. The training shall train construction personnel on the potential for exposing subsurface resources, recognizing basic signs of a potential resource, understanding required procedures if a potential resource is identified (including reporting the resource to a qualified archaeologist or cultural resources specialist), and understanding all procedures required under Health and Safety Code § 7050.5 and PRC §§ 5097.94, 5097.98, and 5097.99 for the discovery of human remains. Workers shall be specifically instructed to:

- Leave all potential cultural resources (i.e., historical resource, archaeological resource, tribal cultural resource, or human remains) where they are found.
- Avoid all vehicle access within the boundary of an environmentally sensitive area.

The training shall take place during the worker environmental awareness training required in MM BIO-2.

Procedures for Resource Discovery

In the event that a previously unidentified cultural resource is discovered during project implementation, all work within 100 feet of the discovery shall be halted. The resource shall be located, identified, and recorded in the updated California Department of Parks and Recreation 523 form detailing current conditions. Data regarding archaeological resources shall be shared with Native American tribes identified by the Native American Heritage Commission (NAHC) to be traditionally and culturally affiliated with the geographic area.

MM CUL-1: Previously Unidentified Cultural Resources

A qualified cultural resource specialist/archaeologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts shall occur, the resource shall be documented on California State Department of Parks and Recreation cultural resource record forms and no further effort shall be required. If work must commence in the sensitive area, a 100-foot radius surrounding each known cultural resource site shall be flagged by a qualified cultural resource specialist/archaeologist and designated as an environmentally sensitive area. Alternatively, the cultural resource specialist/archaeologist shall evaluate the resource and determine whether it is:

- Eligible for the CRHR (and a historical resource for purposes of CEQA);
- A unique archaeological resource as defined by CEQA; or
- A potential tribal cultural resource (all archaeological resources could be a tribal cultural resource).

If the cultural resources specialist/archaeologist determines that the resource could be a tribal cultural resource, he or she shall, within 48 hours of the discovery, notify each Native American tribe identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the site of the discovery. A tribal monitor shall inspect the resource to determine whether it constitutes a tribal cultural resource. If the resource is determined not to be a unique archaeological resource, an historical resource, or a potential tribal cultural resource, work may commence in the area.

If the resource meets the criteria for a historical resource, unique archaeological resource, and/or tribal cultural resource, work shall remain halted and the cultural resources specialist/archaeologist shall consult with the City staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). The responding tribes shall be given an opportunity to participate in determining the appropriate mitigation methods for tribal cultural resources in consultation with the City.

Avoidance of the area, or avoidance of impacts on the resource, is the preferred method of mitigation for impacts on cultural resources and shall be required unless there are other equally effective methods and avoidance is not feasible. Work may commence upon completion of evaluation, collection, recordation, and analysis, as approved by the qualified cultural resource specialist/archaeologist and tribal monitor, for tribal cultural resources.

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity**: Train employees and contractors to recognize basic signs of a potential resource and implement the mitigation measures.
- **During Activity**: (1) Cease activity if a cultural resource is uncovered, (2) avoid resource if possible, and (3) evaluate and determine whether the resource is eligible, unique, or could be a tribal cultural resource. (4) If the resource could be a tribal cultural resource, notify the Native American tribe identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the site. (5) If the resource is not eligible, unique, and/or a tribal cultural resource, work may resume. (6) If the resource is eligible, unique, and/or a tribal cultural resource, work remains halted and a method selected to ensure that adverse change to the resource does not occur. (7) Preserve in place, if possible, or if not possible to preserve in place, and as deemed appropriate by the qualified cultural resource specialist/archaeologist and tribal monitor for tribal cultural resources, recover and record cultural materials. Once recovered and recorded, the activity can commence in this area.
- **After Activity**: N/A

MM CUL-2: Discovery of Human Remains
If human remains and associated or unassociated funerary objects are exposed during implementation of the project, work within 100 feet of the discovery shall be halted and the find protected from further disturbance. The Napa County Coroner shall be notified immediately and, in the event of the determination that the human remains are Native American remains, notification of the Native American Heritage Commission shall be undertaken to obtain a most likely descendant (MLD) (PRC § 5097.98) for treatment recommendations. The City and the MLD shall make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Section 15064.5[d]). The agreement shall take into consideration the appropriate removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. Any findings shall be submitted in a report to the MLD and filed with the Central California Information Center (CCIC).
Applicable Location(s): All work areas.
Performance Standards and Timing: • **Before Activity:** N/A • **During Activity:** (1) Cease activity if human remains are uncovered, (2) appoint an MLD, (3) protect human remains until a decision is reached. (4) If avoidance is not possible, the Napa County Coroner, a professional archaeologist, and an MLD shall be consulted and human remains and associated or unassociated funerary objects shall be removed from the location and relocated to selected location in accordance with the decision reached. Once remains are moved, then the activity can resume in this area. • **After Activity:** N/A

4.6 Energy

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
6. ENERGY. Would the project:				
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

4.6.1 Discussion

a) Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. Project construction involves the use of vehicles, heavy construction equipment, and energized tools. Operation of the pipeline would not require energy consumption and maintenance would involve the same activities as the existing pipeline. Fossil fuels and electricity would be used during the approximately 4-month construction period to complete the pipeline installation, service transfer, existing pipeline and concrete cap removal from the creek, and site restoration. Fuel use would be consistent with typical construction and manufacturing practices and would not require excessive or wasteful use of energy that could lead to potentially significant environmental impacts. The impact would be less than significant due to the temporary consumption of energy during construction.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. No state or local plans regarding renewable energy or energy efficiency apply to the project. There would be no impact.

4.6.2 Mitigation Measures

None.

4.7 Geology and Soils

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
7. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

4.7.1 Environmental Setting

Napa County is located in the California Coast Range Geomorphic Province, which is bounded on the west by the Pacific Ocean and on the east by the Great Valley Geomorphic Province. The

California Coast Range Geomorphic Province extends several hundred miles northward from southern California to near the Oregon border. The province is the general northwest-southeast orientation of physiographic features such as valleys and ridgelines (Watershed Information and Conservation Council, 2021).

The Napa Valley was created by seismic movement creating a fault basin that filled with loose sand, gravel, and volcanic debris. The project area is also located within the reach of the Sonoma volcanic blanket cover, which extends between the Sonoma, Mayacamas, and Howell mountains. Sediments of Franciscan and volcanic rocks eroded into the valley, which created a sandy soil that is advantageous for grape agriculture. The project is underlain by surficial deposits and alluvium deposits of the Holocene epoch (Watershed Information and Conservation Council, 2021). The soils in the project area are fairly recent and have low sensitivity for paleontological resources (Caltrans, 2014).

4.7.2 Discussion

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii. Strong seismic ground shaking?

Less than Significant Impact. The project is located within the San Francisco Bay Area, a seismically active area traversed by a wide array of faults with their attendant effects. No earthquake faults are located within the project site based on the most recent Alquist-Priolo Earthquake Fault Zoning Map (California Department of Conservation, 2020). The project site is approximately 10 miles north of the West Napa Fault, 16 miles east of the Rodgers Creek Fault, and 37 miles east of the San Andreas Fault (USGS, 2020). Several unnamed quaternary faults associated with the Atlas Peak-Foss Valley lineament zone and West Napa Fault zone have been mapped within 2 miles of the project site (California Department of Conservation, 2019). Because the project is not located within an Alquist-Priolo Earthquake Fault Zone and no major faults have been mapped within or adjacent to the project site, the likelihood of ground rupture from faulting across the project site is low.

Although there are no mapped active or potentially active faults underlying the project site, the project area could experience very strong intensity ground shaking during a large earthquake. Ground shaking associated with earthquakes could affect the proposed pipeline by causing pipeline breakage or destabilizing pipeline trenches. The pipeline would be buried in fill and would have some flexibility to withstand some seismic shaking. In the event that the shaking was severe enough to damage or break the pipeline, the damage would result in a temporary shutdown of the affected pipe sections. The pipeline that is mounted on Conn Creek Bridge will have two flexible expansion joints (one on each end of the bridge) to accommodate lateral and transverse movements that will occur with temperature changes and seismic events. These calculated movements, including expansion and contraction, for the bridge and the transition of

the pipe from the bridge into the ground, will be offset by the flexible joint. Because the pipeline is part of an essential utility (i.e., public water supply), repairs would be made promptly. The project would not involve construction of new homes or buildings within a seismically active area; therefore, the project would not result in an increased risk of loss, injury, or death from fault rupture or seismic ground shaking.

iii. Seismic-related ground failure, including liquefaction?

Less than Significant Impact. Seismic shaking can trigger ground failures caused by liquefaction, potentially resulting in foundation damage, disruption of utility service, and roadway damage. The soils most susceptible to liquefaction are clean, loose, uniformly graded, saturated, sands, and occur close to the ground surface, usually at depths of less than 50 feet. Geotechnical borings conducted in October 2020 indicate that the subsurface conditions along the pipeline alignment include dense and poorly graded sands, cobbles and gravel, variably weathered/fractured sedimentary rock (conglomerate, sandstone, and tuffaceous sandstone) and igneous rock. Soils within the project area are predominantly Cortina very gravelly loam, Riverwash, and Yolo loam. Due to the presence of competent rock and soil encountered above the groundwater table, the potential for liquefaction at the site is low (CAInc, 2021). Therefore, impacts relative to seismic-related ground failure and liquefaction would be less than significant.

iv. Landslides?

No Impact. The project is located on relatively flat land in the Napa Valley and is not located in a landslide hazard area. The potential for landslides on site, including seismically induced landslides, is considered very low. The project would have no impact related to landslides.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Construction-related ground disturbance consisting of trenching and excavation could increase the potential for soil erosion in the area of ground disturbance. As discussed in Section 4.10, Hydrology and Water Quality, in order to comply with the project's General Order National Pollutant Discharge Elimination System (NPDES) Construction General Permit and the City of Calistoga Stormwater Runoff Pollution Control Ordinance, the City would be required to develop and implement a project SWPPP for areas that discharge to Conn Creek directly or via a separate stormwater system to address construction-related runoff. The SWPPP would include a suite of best management practices tailored to the project to prevent erosion. These best management practices may include measures such as use of straw wattles, sandbags, track-out control, silt fencing, and covering stockpiles to control erosion and sedimentation during construction and prevent discharge of soils into stormwater runoff. The project also includes restoration of disturbed soils through the application of a native seed mix, which would provide additional erosion control following project completion.

As required by Napa County's Conservation Regulations (18.108)[3], the project would also be constructed during the dry season, at which time rain events that could cause significant surface runoff and erosion would not be expected to occur. Although some topsoil would be removed during construction of the project, the amount removed would be limited and removed topsoil would be replaced with clean fill material following completion of construction. With implementation of the SWPPP and/or erosion-control BMPs specifically developed for the project site, construction activity and associated soil disturbance would not contribute substantially to soil erosion or the loss of topsoil. The project would be in conformance with applicable policies in the Conservation an Open Space Element of the Napa County General Plan and impacts would be less than significant.

c) Would the project 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?

No Impact. The project site is not mapped in a high landslide hazard zone (USGS, 2020). Regional mapping shows much of the Napa Valley floor, where the project is located, as consisting of surficial deposits with low risk of landslides (MTC/ABAG, 2021).

Lateral spreading is a phenomenon that involves lateral displacement of large, intact blocks of soil down gentle slopes or toward a steep free face such as a stream bank. Lateral spreading occurs as a result of liquefaction of a shallow underlying deposit during an earthquake. It typically occurs on slopes of 0.3 to 5 percent underlain by loose sands and a shallow water table. Conditions conducive to lateral spreading include gentle surface slope, a shallow water table, and liquefiable cohesionless soil. Soils in the project area are characteristic of the Napa Valley floor and consist of soils that are loamy in nature, which are typically well-drained and not subject to expansion. The slope and soil conditions within the project area do not meet the characteristics of conditions that would yield lateral spreading.

Subsidence is the deep-seated settlement of soils due to mining, dissolution of subsurface carbonate rocks, or fluid withdrawal (oil, natural gas, or groundwater). Soils in the project area are mostly coarse-grained with no underlying aquifer; thus, the area has a low potential for subsidence (Caltrans, 2015). As discussed above, the potential for liquefaction in the project area is considered low due to the presence of competent soil and rock encountered above the groundwater table (CAInc, 2021). Therefore, the project would not result in impacts related to landslide, lateral spreading, subsidence, and liquefaction. No impact would occur.

[3] As required by Napa County's Conservation Regulations (18.108), construction would occur during April 1 to October 15 of any year or the dry season, at which time rain events that could cause significant surface runoff and erosion would not be expected to occur.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Impact. Expansive soils contain large amounts of clays that expand when wetted and cause damage to foundations if moisture collects beneath structures. Soils in the project area are characteristic of the Napa Valley floor and consist of soils that are loamy in nature, which are typically well-drained and not subject to expansion. According to the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey, loam soil is defined as soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles (NRCS, 2021). The primary soils located at the project site would not be classified as expansive soils. The project would not include the construction of habitable structures, and therefore would not result in risks to life or property. There would be no impact.

e) Would the project 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?

No Impact. The project does not include uses or activities that would generate wastewater, nor involve the construction, modification, or demolition of septic tanks or alternative wastewater systems that would rely on the underlying soil. During construction, self-contained, serviceable convenience stations installed would be either a port-a-potties, self-composting toilets, or other self-contained facilities that would not rely on the soil for wastewater disposal. There would be no impact.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant. The project would be located on previously disturbed soils of the Holocene epoch with low or no potential for unique paleontological resources (Watershed Information and Conservation Council, 2021). Surficial exposures of alluvium are considered to have low potential for paleontological resources because it consists of recently deposited sediments. Therefore, there is a low potential to uncover previously undiscovered paleontological resources during ground-disturbing work because paleontological resources are not anticipated in sediments and rocks in the project area. The project is not located near or within a unique geologic feature; therefore, the project would not affect a unique geologic feature. The impact on paleontological resources would be less than significant.

4.7.3 Mitigation Measures

None.

4.8 Greenhouse Gas Emissions

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

4.8.1 Discussion

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. The greenhouse gas (GHG) emissions analysis considers short-term construction impacts associated with a project. BAAQMD has adopted thresholds of significance that were designed to establish the level at which GHG emissions would cause significant environmental impacts under CEQA. The thresholds are included in the 2017 CEQA Air Quality Guidelines (updated May 2017) (BAAQMD, 2017).

The project would generate GHG emissions from temporary construction-related activities, including operation of heavy equipment, use of trucks, worker trips, site preparation, and trenching. Construction would occur for approximately 4 months. GHG emissions generated by project construction were calculated using CalEEMod version 2016.3.2 and were based on the estimated construction schedule and anticipated equipment use for the project construction. Construction activities would generate a total of 27.9 metric tons (MT) of carbon dioxide equivalent (CO_{2e}) during 2023. BAAQMD does not have an adopted threshold of significant for construction-related GHG emissions; however, the threshold for operational impacts is 1,100 MT CO_{2e} per year. The 30-year amortized[4] construction GHG emissions would be 0.93 MT CO_{2e}, which would be less than the BAAQMD operational threshold of 1,100 MT CO_{2e} per year. Due to the temporary nature of the emissions over a short period of time, impacts from construction GHG emissions would be less than significant.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. The California Air Resources Board (CARB) prepared the Climate Change Scoping Plan (Scoping Plan) as directed by the Global Warming Solutions Act.

[4] The 30-year amortization of construction emissions is consistent with industry standard practice.

The Scoping Plan identifies actions for each sector (e.g., transportation, water, waste management) that California should take to meet its climate change goals. CARB prepared the Mobile Source Strategy, which identifies programs that the State and federal government have or will adopt to further the goals of the Scoping Plan.

The vehicles used during construction are required to comply with the applicable GHG reduction programs for mobile sources in accordance with the Scoping Plan to achieve the State's GHG reduction targets. The project would conform with relevant programs and recommended actions detailed in the Scoping Plan and Mobile Source Strategy. The project would not conflict with regulations adopted to achieve the goals of the Scoping Plan.

The City of Calistoga adopted its a Climate Action Plan (CAP) on April 1, 2014 (City of Calistoga, 2014). The Calistoga CAP includes a GHG reduction plan that provides measures for Transportation, Energy Efficiency, Carbon Sequestration, and Community Engagement and Advocacy. Some of the measures support citizen efforts to reduce their GHG emissions by providing information on energy and water savings. Other strategies utilize regulations to influence the action of the City's residents and businesses. Napa County has prepared a Draft CAP and presented to the Board of Supervisors in 2012; however, the Draft CAP was not adopted. A revised Draft CAP was prepared in 2017 and the required CEQA environmental review was completed. A Draft EIR was prepared for the revised Draft CAP in 2019. The revised Draft CAP is still undergoing environmental review at the time of preparation of this document. Construction of the project would not conflict with any existing GHG laws, plans, policies, or regulations adopted by the California legislature or CARB. The project would comply with applicable measures and strategies identified in the Calistoga CAP. The project would be designed and constructed in accordance with current Napa County codes and requirements, ensuring compliance with any GHG reduction measures. The impact would be less than significant. No mitigation is required.

4.8.2 Mitigation Measures

None.

4.9 Hazards and Hazardous Materials

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

4.9.1 Discussion

a), b) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact. Project construction would involve the use and transport of typical construction-related hazardous materials such as fuels, lubricants, adhesives, and solvents. Heavy equipment not permitted on public roads would be refueled on-site, but no overnight fuel storage or maintenance of heavy equipment would occur at project staging areas

along the road shoulder. Hazardous fluids may be released into the environment if handled by personnel who have not received proper training on the use, handling, and storage of hazardous materials.

Construction activities are required to comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, to reduce the potential for a release of construction-related fuels or other hazardous materials to affect stormwater and downstream receiving water bodies, and to respond to accidental spills, if any. Workers handling hazardous materials are required to adhere to federal and California OSHA health and safety requirements. Hazardous materials must be transported to and from the project area in accordance with the Resource Conservation and Recovery Act (RCRA) and U.S. Department of Transportation regulations, managed in accordance with the Napa County Division of Environmental Health's Certified Unified Program Agency program, and disposed of in accordance with RCRA at a facility that is permitted to accept that waste. Although a spill or leak of hazardous materials is unlikely, because of the project's location in and near Conn Creek, a spill or leak has the potential to contaminate the waterway. As discussed in Section 4.10, Hydrology and Water Quality, construction contractors would be required to prepare a project-specific SWPPP for construction activities according to the NPDES General Construction Permit requirements and the City of Calistoga Stormwater Runoff Pollution Control Ordinance. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction and describe spill response and control measures, equipment inspections, equipment storage, and protocols for responding immediately to spills. With implementation of the SWPPP and compliance with existing regulations, the risk to the public and environment from the routine transport, use, or disposal of hazardous materials would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. There are no existing or proposed schools located within 0.25 mile of the project site. The nearest school is Saint Helena Primary School approximately 3.2 miles west of the project. No impact would occur.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. There are no known hazardous, toxic, or radioactive waste sites or activities within or near the project area (EnviroStor, 2021). As a result, the project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public or the environment. No impact would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The project site is not located within an airport land use plan or within two miles of a public airport or public use airport and would not result in a safety hazard for people residing or working in the project area. The nearest airport, which is the Sonoma Valley Airport, is approximately 30 miles south of the project site (Sonoma Valley Airport, 2020). No impact would occur.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The Napa County Emergency Operations Plans (EOP) outlines procedures, including establishing leadership roles and responsibilities of various agency staff, that guide local preparedness, response, recovery and resource management efforts associated with the occurrence of a natural disaster, significant emergency, or other threat to public safety (Napa County, 2021). No emergency response or evacuation plans have been adopted for the roads within the project site. During construction, Silverado Trail/SR 128 would be used for delivery of equipment and materials and off-haul of excavated materials and sediment. Equipment and materials would be staged in staging areas along Silverado Trail/SR 128. Temporary lane closures would be required for approximately two days during project construction while installing the new pipeline along the bridge. Appropriate traffic controls would be implemented during lane closures. Implementation of the Napa County EOP would not otherwise be impaired by the project. No impact would occur.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than Significant Impact with Mitigation. The project site is surrounded by vineyards and open space and is located in an area designated as a Moderate fire hazard severity zone (Napa County, 2020); however, Napa County has experienced an increase in fires in recent history. Due to the rural and open space setting, there is risk of the ignition and spread of a wildland fire if appropriate measures are not taken during construction activities. Construction equipment could create sparks and ignite a fire. Other potential fire hazards could include worker behavior such as smoking and disposal of cigarettes as well as parking or driving vehicles and equipment on dry vegetation. Ignition of a wildfire as a result of the project would be a significant impact. MM HAZ-1, which requires implementation of several fire prevention procedures, would be implemented to reduce the potential risk of ignition of a fire during project construction and would reduce impacts to less than significant.

4.9.2 Mitigation Measures

MM HAZ-1: Fire Safety Procedures

The City and/or its contractor shall implement the following fire prevention procedures to reduce the potential risk of fire ignitions during construction:

- The City and/or its contractors shall check in daily by phone for the National Weather Service daily fire hazard rating for the area. On days when the fire hazard rating is "Very High" or "Critical," use of two-stroke power tools, such as chainsaws and weed whips, shall be prohibited at the project site.
- No work shall occur on red flag days declared by Napa County.
- Earthmoving and portable equipment with internal combustion engines shall be equipped with a spark arrestor to reduce the potential for igniting a wildland fire.
- Appropriate fire suppression equipment shall be maintained and available at the construction site.
- Flammable materials shall be removed to a distance of 10 feet from any equipment that is either operating, a significant heat source, or which could produce a spark, fire, or flame.
- Construction personnel shall be trained in fire safe work practices (e.g., smoking in enclosed spaces or parking in designated parking locations), use of fire suppression equipment, and procedures to follow in the event of a fire, including use of emergency radios provided by the City.

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity:** N/A
- **During Activity:** (1) Check National Weather Service daily fire hazard rating, (2) no work on red flag days, (3) use of spark arrestors, (4) fire suppression equipment is available, (5) move flammable materials from heat source, and (6) train construction personnel in fire safe work practices.
- **After Activity:** N/A

4.10 Hydrology and Water Quality

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
10. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

4.10.1 Environmental Setting

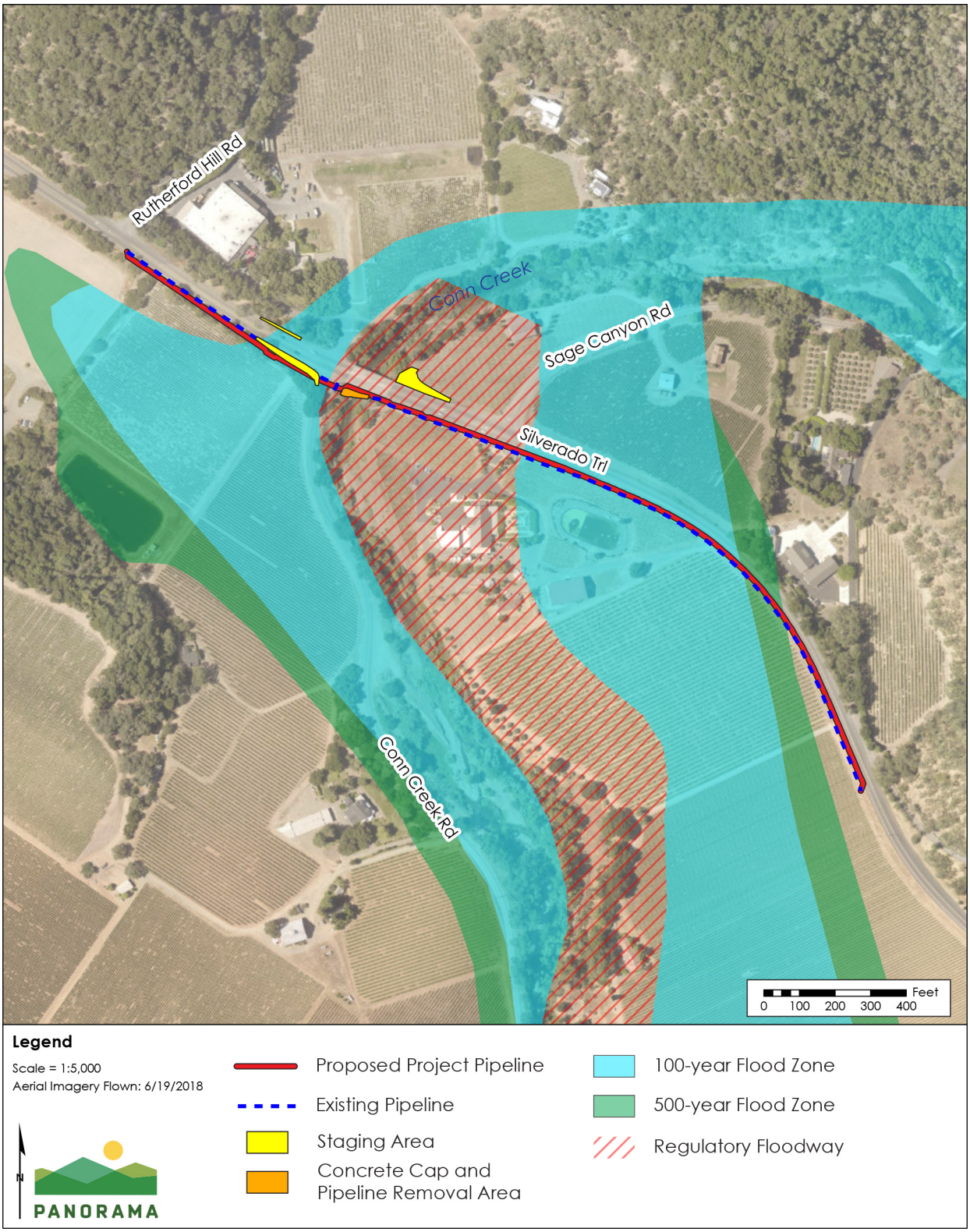
The project site is located in the Napa River watershed, which covers an area of approximately 426 square miles, and is surrounded on three sides by mountains, which are located to the north, west, and east. The watershed is typical of the California coastal range with northwest-southeast trending topography. The Napa River, which runs through the center of the watershed on the valley floor, drains 48 major tributaries and numerous smaller ephemeral streams on its 55-mile path from the headwaters of Mt. St. Helena in the Mayacamas Mountain range to the San Pablo Bay. Along this route the river winds through varied landscapes of

forested mountain slopes, vineyards, urban areas, open pasture, industrial zones, grasslands, marshes, and brackish estuary (Napa County Resource Conservation District, 2005).

Conn Creek, one of the tributaries of the Napa River, flows from north to south through the project site. The creek was dammed approximately 1.5 miles upstream of the project in 1945, creating Lake Hennessey. Conn Creek runs approximately 6.5 miles from the Lake Hennessey dam to its confluence with the Napa River. The dam is owned by the City of Napa, and Lake Hennessey is the city's primary municipal water source. The dam does not have gateways or infrastructure elements to allow for controlled water releases. When Lake Hennessey reaches capacity, water flows out of the dam spillway and into Conn Creek. Seasonal drying of the entire channel below the dam by mid-June is typical in most years (Napa County Resource Conservation District, 2005).

Portions of the existing pipeline cross within a Special Flood Hazard Area (SFHA) Zone AE (Napa County, 2020). Zone AE includes areas that present a 1 percent annual chance of flooding, also known as a 100-year flood zone. The 100-year flood zone, as shown in Figure 4.10-1, is where "the floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1 percent annual chance of flood can be carried without substantial increases in the flood heights." The project site is subjected to the Federal Emergency Management Act's (FEMA) no-rise zone, which means the project cannot cause water surface elevation to increase higher than the existing condition (Caltrans, 2015).

Figure 4.10-1 FEMA Flood Zones within the Project Vicinity



Sources: (U.S. Geological Survey, 2016; Tele Atlas North America, Inc., 2018; The County of Napa, 2018; KASL Consulting Engineers, 2020) (Federal Emergency Management Agency, 2020)

4.10.2 Discussion

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less than Significant Impact. Construction activities would occur during the dry season (April 1 to October 15). Work within Conn Creek would be limited to July to September, when flows in Conn Creek are not present. Construction of the project would require trenching, soil stockpiling and other earth-disturbing activities in the vicinity of Conn Creek. Excavated soils would be stockpiled adjacent to the trench, space permitting, and returned to the trench following pipeline removal. Heavy equipment would be staged along Silverado Trail and would operate along Silverado Trail and in Conn Creek. Gasoline and diesel fuel used in the equipment and vehicles could leak or spill. Pouring of concrete (to plug the cut ends of the existing pipeline) and demolition of the existing concrete cap and pipeline directly within the creek bed have the potential to generate waste and debris that could impact water quality.

Implementation of the project would disturb approximately 0.4 acre during trenching and work within the creek; however, the total project disturbance area would cover an area of 1 acre or more, including staging areas and soil stockpiles. While the majority of the replacement pipeline would be installed along the road shoulder of Silverado Trail, work within the creek to remove the concrete cap and pipeline would result in substantial disturbance to soils within the creek. Following removal of the concrete cap and pipeline, the creek would be restored using engineered streambed material. All disturbed soils would be stabilized as part of restoration. The City would be required to obtain a Water Quality Certification under Section 401 of the Clean Water Act for direct impacts to surface waters and drainages. The Water Quality Certification would include permit conditions to ensure that water quality in Conn Creek is maintained. The City would also be required to obtain coverage under the NPDES Construction General permit because the project involves more than 1 acre of ground disturbance. To ensure that all employed measures meet the City's standards and are in compliance with the NPDES permit, a SWPPP would be implemented as part of the project and would include an erosion and sediment control plan and specific BMPs designed to prevent run-on and runoff of pollutants, and minimize site erosion to the maximum extent practicable. Abiding by the conditions of the Water Quality Certification and SWPPP would ensure that impacts to water quality are less than significant. No mitigation is required.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than Significant Impact. The pipeline segment that crosses Conn Creek is within the Napa-Sonoma Valley-Napa Valley groundwater basin. The basin is designated by the California Department of Water Resources as a high priority groundwater basin due to the amount of irrigated lands, the density of wells, projected population growth, and the degree to which people rely on groundwater in the basin (County of Napa, 2021). Water needed for dust suppression during construction would be obtained from an existing water source. Groundwater may comprise a portion of the water used for dust suppression; however, the

quantity of water required would be limited to only what is needed to suppress fugitive dust during the 4 months of construction. The project would adhere to the sustainability goal for the Napa Valley basin toward the protection of groundwater quantity and quality.

The project would decrease impervious surfaces by 0.03-acre by removing the concrete cap from the creek. According to an analysis of basin conditions, the Napa-Sonoma Valley-Napa Valley basin has operated within its sustainable yield over a period of at least 10 years (Groundwater Exchange, 2021). Groundwater supplies and groundwater recharge would not be substantially impacted by the project. The impact would be less than significant.

c) Would the project 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:

- **i. result in substantial erosion or siltation on- or off-site;**
- **ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;**
- **iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or**
- **iv. impede or redirect flood flows?**

Erosion or Siltation

Less than Significant Impact. Construction activities would occur during the dry season (typically May to October). Work within Conn Creek would be limited to July to September, when flows in Conn Creek are not present. The existing pipeline and concrete cap would be removed from the creek bottom. If the area is not stabilized prior to rain events, it could result in a temporary increase in siltation. Material storage and stockpiling of soils would occur in the uplands adjacent to the creek. Although construction is planned for the dry season, the possibility of rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. The City is required to comply with the County's stream setbacks and state regulations pertaining to the control of onsite stormwater, including requirements of the San Francisco Regional Water Quality Control Board (SFRWQCB). These regulations require the preparation of a SWPPP and implementation of BMPs to control on-site erosion and protect water quality. Furthermore, by relocating the existing pipeline out of Conn Creek, the project is reducing the risk of erosion and scour that has historically occurred within the creek bed. The project would not alter drainage patterns in a manner that could result in substantial erosion and siltation. This impact would be less than significant. No mitigation would be required.

Runoff and Flood Flows

Less than Significant Impact. Construction access to the concrete cap and pipeline removal area in the creek would include removal of the existing storm drain outfall on the southeast side of Conn Creek Bridge. The storm drain outfall would be replaced in kind following construction. Construction would occur during the dry season when creek flows are not present and when rain is not expected to occur. The project would not have substantial impact to the existing stormwater drainage system. Therefore, construction of the project would not result in

substantial changes in runoff. Approximately 100 linear feet of pipeline would be installed along the southern side of the recently replaced Conn Creek Bridge. The new pipeline would be located at an elevation above the flood level within the creek. Construction activities would be completed prior to wet season flows and would not impede or redirect flood flows. Therefore, construction of the project would not substantially alter the existing drainage pattern of the area in a manner that would result in substantial water quality or hydrological impacts.

The project is located within SFHA Zone AE. Because of its location in Conn Creek, the pipe crossing has historically been exposed due to excessive erosion and scour that has occurred in the creek bed. Construction activities include removing the existing pipeline and concrete cap out of the flood zone (above the creek) and, would therefore reduce the amount of impervious surfaces in Conn Creek. The water surface elevation is not anticipated to change following completion of the project. The impact would be less than significant. No mitigation would be required.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The project is not located in a coastal area or in an area subject to seiches or tsunamis; therefore, these phenomena are not applicable to the project. The project site is located within a floodplain; however, construction of the project would occur during the dry season, during which the area would not be subject to flooding. The project also includes replacement of an existing, sealed pipeline that carries water and would not release pollutants in the event of inundation by flood. The project would have no impact.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the SFRWQCB's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. Conn Creek is listed in the Basin Plan as a perennial stream and tributary to Napa River.

The RWQCB has adopted (or plans to establish) total maximum daily loads (TMDLs) for pollutants on the 303(d) List of Water Quality Limited Segments (commonly referred to as the 303(d) list) as a means to achieve water quality standards for the impaired waters. Once a water body is placed on the 303(d) list, it remains on the list until a TMDL is adopted and the water quality standards are attained, or sufficient data are demonstrated that the water quality standards have been met and delisting should occur. The Napa River is listed as impaired by nutrients, pathogens, and sediment. San Pablo Bay, to which the Napa River is tributary, is listed for chlordane, Dichlorodiphenyltrichloroethane, dieldrin, dioxins and furans, mercury, nickel, Polychlorinated biphenyls, selenium, and exotic species.

The project is designed to address conditions that present water quality vulnerabilities for Conn Creek and its tributaries. As previously discussed, the project would protect critical water

infrastructure from scouring and flooding conditions. Construction activities have the potential to increase sediment in downgradient waterbodies but would not cause conditions that could increase nutrients or pathogens. With implementation of the SWPPP and erosion-control BMPs specifically developed for the project site, construction activities and associated ground disturbance would not contribute substantially to soil erosion. The project would be in conformance with applicable policies in the Basin Plan. Impacts would be less than significant.

4.10.3 Mitigation Measures

None.

4.11 Land Use and Planning

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
11. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

4.11.1 Discussion

a) Would the project physically divide an established community?

No Impact. The project involves construction of up to 3,000 linear feet of underground water pipeline along Silverado Trail within public right-of-way and removal of the concrete cap and pipeline from Conn Creek. The replacement pipeline would be compatible with the current use of Silverado Trail and would not conflict with existing or adjacent land uses. The project would not divide an established community or result in long-term disruption of the physical division or isolation of existing residential areas. There would be no impact.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The project area is defined in the Napa County General Plan as Agriculture, Watershed & Open Space. Because the project involves the replacement of an existing pipeline, no aspect of the project would conflict with the General Plan's land use designation. No impact would occur.

4.11.2 Mitigation Measures

None.

4.12 Mineral Resources

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
12. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

4.12.1 Discussion

a) Would the project 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?

No Impact. There are four quarries located within Napa County, including one large active quarry known as the Syar Quarry (Napa County, 2020). Syar Quarry is located several miles south of the City of Napa, over 15 miles away from the project site. No impact would occur.

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

No Impact. The Napa County General Plan, adopted in 2007, does not identify the project area as a locally important mineral resource site (Napa County, 2020). No impact would occur.

4.12.2 Mitigation Measures

None.

4.13 Noise

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

4.13.1 Environmental Setting

The project site is located on unincorporated Napa County lands. Noise levels on unincorporated County lands are regulated by the Napa County General Plan and the Napa County Noise Ordinance.

The Napa County General Plan contains applicable noise goals and policies in the Community Character Element (Napa County, 2020). Normally acceptable noise levels in commercial areas range from 65 to 75 decibels (dB), as shown in Table 4.13-1.

Table 4.13-1 Noise Compatibility Guidelines (CNEL/L_{dn})

Land Use	Completely Compatible	Tentatively Compatible	Normally Incompatible	Completely Incompatible
Residential	Less than 55 dBA	55-60 dBA	60-75 dBA	Greater than 75 dBA
Commercial	Less than 65 dBA	65-75 dBA	75-80 dBA	Greater than 80 dBA
Industrial	Less than 70 dBA	70-80 dBA	80-85 dBA	Greater than 85 dBA

Notes:

dBA=A-weighted decibels

[a] Completely Compatible means that the specified land use is satisfactory and both the indoor and outdoor environments are pleasant.

Land Use	Completely Compatible	Tentatively Compatible	Normally Incompatible	Completely Incompatible

[b] Tentatively Compatible means that noise exposure may be of concern, but common building construction practices will make the indoor living environment reasonably pleasant.

[c] Normally Incompatible means that noise exposure warrants special attention, and new construction or development should generally be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features are included in the design. Careful site planning or exterior barriers may be needed to make the outdoor environment tolerable.

[d] Completely Incompatible means that the noise exposure is so severe that new construction or development should generally not be undertaken.

Source: (Napa County, 2020)

Napa County's Noise Ordinance, Chapter 8.16 from the County's Municipal Code, prohibits "any loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area" (Napa County, 2020). To help establish what constitutes a violation of the County's Noise Ordinance, the County has established maximum exterior noise limits, as summarized in Table 4.13-2.

To control noise from construction activities, Section 8.16.080 of the Napa County's Noise Ordinance identifies noise limits for construction activities (Table 4.13-3). Section 8.16.080 further prohibits the use of any tools or equipment used in construction, drilling, repair, alternation, or demolition work between the hours of 7:00 p.m. and 7:00 a.m. to prevent construction activity-related noise from creating a noise disturbance across a residential or commercial property line (Napa County, 2020).

Table 4.13-2 Exterior Noise Level Standards

Receiving Land Use Category	Time Period	Noise Level (dBA) by Noise Zone Classification[a]		
		Rural	Suburban	Urban
Residential	10 p.m. to 7 a.m.	45	45	50
Single and Double	7 a.m.to 10 p.m.	50	55	60
Residential Multiple and Country[b]	10 p.m. to 7 a.m.	45	50	55
	7 a.m.to 10 p.m.	50	55	60
Commercial	10 p.m. to 7 a.m.	--	60	--
	7 a.m.to 10 p.m.	--	65	--
Industrial and Wineries[c]	Anytime	75	--	--

Notes:

dBA = A-weighted decibels

[a] Noise levels not to be exceeded more than 30 minutes in any hour.

Receiving Land Use Category	Time Period	Noise Level (dBA) by Noise Zone Classification[a]		
		Rural	Suburban	Urban

[b] For the purposes of implementing this policy, standards for residential uses shall be measured at the housing unit in areas subject to noise levels in excess of the desired levels shown above.

[c] Industrial noise limits are intended primarily for use at the boundary of industrial zones rather than for noise reduction at the industrial use.

Source: (Napa County, 2020)

Table 4.13-3 Noise Limits for Construction Activities

	Residential	Commercial	Industrial
Daily: 7 a.m. to 7 p.m.	75 dBA	80 dBA	85 dBA
Daily: 7 p.m. to 7 a.m.	60 dBA	65 dBA	70 dBA

Source: (Napa County, 2020)

4.13.2 Discussion

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact. Construction activities associated with the project have the potential to generate considerable amounts of noise from heavy equipment operation. Construction activities would include trenching, saw cutting, trucking, covering, and compacting. Noise levels of construction equipment expected to be used during construction of the project are presented in Table 4.13-4.

The project is located in a suburban agricultural area. Land use designations along the project alignment include Agriculture, Watershed & Open Space and Agricultural Resources (Napa County, 2016). Construction noise is regulated by the Napa County Municipal Code. Construction of the project would occur during the day, between the hours of 7:00 a.m. to 7:00 p.m. According to Section 8.16.080 of the Napa County Municipal Code, noise in excess of the daytime (7:00 a.m. to 7:00 p.m.) noise limits presented in Table 4.13-3 would result in a significant impact.

Project construction would require heavy equipment, including excavator and/or backhoes, dump trucks, and concrete trucks. Table 4.13-4 lists the equipment that would be used during construction and associated noise levels at a reference distance of 50 feet from the noise source. The nearest sensitive receptor to the project is located approximately 390 feet northeast of the project site along Silverado Trail.

Noise from point sources, such as construction equipment, drops off at a rate of approximately 6 dB per doubling of distance. For example, a sound level of 80 dBA at 50 feet from the noise source would be reduced to 74 dBA at 100 feet, 68 dBA at 200 feet, and so on. Noise levels at a given location would be dominated by the loudest and closest equipment. The loudest

equipment proposed to be used during project construction would have a maximum noise level of 90 dBA at a distance of 50 feet (e.g., concrete saw). The noise source would be reduced to 84dBA at 100 feet, 78 dBA at 200 feet, and 72 dBA at 400 feet (without accounting for additional reduction from shielding and or ground absorption). As such, the maximum noise level at the nearest receptor (390 feet from the project boundary) would be approximately 72 dBA and would not exceed the residential noise limit of 75 dBA. The impact would be less than significant. No mitigation is required.

Table 4.13-4 Construction Equipment Noise Levels

Equipment	Lmax (dBA) at 50 Feet	Leq (dBA) at 50 Feet
Backhoe loader	78	74
Concrete truck [a]	79	75
Concrete saw	90	83
Dump truck	76	73
Water truck [b]	76	73
Excavator	81	77
Flatbed truck	74	70
Compactor	83	76
Paving equipment [c]	77	74
Pumps	81	78
Air compressors	78	74
Jackhammer	89	82

[a] Concrete mixer truck is used to represent noise from a concrete truck.

[b] Dump truck is used to represent noise from a water truck.

[c] Paver is used to represent noise from a paving equipment.

Source: (FHWA, 2018)

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. Vibration can be interpreted as energy transmitted as waves through the ground. These energy waves generally dissipate with distance from the vibration source. Since energy is lost during the transfer of energy from one particle to another, vibration attenuates rapidly with distance. Groundborne vibration and noise associated with some construction activities, including the use of pile drivers, blasting, and jack hammers can cause excessive vibration. The project would result in some temporary groundborne vibration as a result of trenching along Silverado Trail and removal of the existing pipeline and concrete cap in Conn Creek. The nearest structure to the project site is the Conn Creek Bridge. Construction activities would occur within 25 feet of Conn Creek Bridge; however, the bridge was recently replaced in 2020 and has been designed to withstand vibration from heavy vehicles traveling on

the bridge would be able to structurally withstand any groundborne vibration at an approximately 25-foot distance without any structural damage. Impacts would be less than significant, and no mitigation would be required.

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?

No Impact. The project site is not located within an airport land use plan or within 2 miles of a public airport or public use airport and would not result in a safety hazard for people working in the project area. No impact would occur.

4.13.3 Mitigation Measures

None.

4.14 Population and Housing

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
14. POPULATION AND HOUSING. Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

4.14.1 Discussion

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The project does not include the construction of housing units nor changes to public road or utility systems that would induce any population growth. No impact would occur.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. There is no housing on, nor population inhabiting the project area, and as such the project would not displace people or housing. No impact would occur.

4.14.2 Mitigation Measures

None.

4.15 Public Services

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
15. PUBLIC SERVICES.				
a) 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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

4.15.1 Discussion

a) 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:

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

No Impact. The project does not include the construction of any structures or facilities, nor include housing that might generate additional demands on public schools or would require a net increase in public services. No impact would occur.

4.15.2 Mitigation Measures

None.

4.16 Recreation

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
16. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

4.16.1 Discussion

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The project would not introduce a new population that would increase the use of any recreational facilities within the project study area such that substantial deterioration would occur or be accelerated for these facilities. The project includes construction of a new pipeline within public right-of-way along Silverado Trail. The project would have no impact on nearby recreational facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The project would not include recreational facilities and would not require the construction or expansion of recreational facilities. No impact would occur.

4.16.2 Mitigation Measures

None.

4.17 Transportation

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

4.17.1 Discussion

a) Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant Impact with Mitigation Incorporated. Construction of the project would generate off-site traffic including the delivery of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, and the delivery of construction materials throughout the 4-month construction period. The highest number of truck trips would occur during the pipeline installation phase, which would last approximately 15 working days. During this phase, trucks would be used to haul material to/from the project site. Approximately 208 one-way truck trips would be generated during the 15-workday period, which equates to, on average, 14 one-way truck trips per day. There would be a maximum of five construction workers on-site during a single day, which equates to 10 one-way worker trips per day. Therefore, the project would generate a maximum of 24 one-way traffic trips per day during the peak construction period.

Construction-related traffic would be temporary, and therefore, would not result in any long-term degradation in operating conditions on any locally used roadways. The impact of construction-related traffic would temporarily decrease capacities of streets in the project area because of the slower movements and larger turning radii of construction vehicles compared to passenger vehicles. The public could experience delays if traveling behind a large or heavy truck. The addition of construction-related truck traffic would not be substantial in relation to traffic flow conditions on Silverado Trail/ SR 128. A maximum of 24 daily one-way trips resulting from the project would fall within the normal daily fluctuations of traffic volumes on area roadways, and while the traffic generated by construction activities would be noticeable and may increase traffic volumes on the local roadways serving the construction site, the effect

on traffic flow during the 4-month construction period would be minimal because of the existing acceptable levels of service at area intersections. Project-related traffic would not conflict with a plan, ordinance or policy regarding vehicle circulation within the project area.

Within the project area, Silverado Trail is a Class II Bike Lane, as designated in the Unincorporated Napa County Bicycle Plan (Napa Valley Transportation Authority, 2019). The Unincorporated Napa County Bicycle Plan is intended to guide development of infrastructure, programs, and policies that improve the bicycling environment for all residents and visitors in the unincorporated Napa County (Napa Valley Transportation Authority, 2019). Silverado Trial is part of the 54.3 miles of existing bike lanes identified in the Unincorporated Napa County Bicycle Plan.

The majority of pipeline installation would occur along the road shoulder. Construction equipment and/or segments of pipe may be staged in or encroach upon the eastbound bicycle lane during active construction. Temporary full or partial closure of the eastbound bicycle lane along Silverado Trail/SR 128 would be required during pipeline construction, particularly during installation of the pipeline over Conn Creek because construction equipment may be staged on the bridge. Lane closures on Conn Creek Road would also be necessary at the intersection with Silverado Trail during pipeline construction across Conn Creek Road. Closures would be limited to active construction hours or weekdays and would be limited to a short (up to approximately 500 feet) segment of road where construction would occur during the workday. The temporary closure of up to 500 feet of bicycle lane and vehicle lanes on Conn Creek Road during construction would not affect regional access to bicycle trails; however, construction would create unsafe conditions for bicyclists by requiring cyclists to merge with vehicles traveling in the eastbound vehicle lane at a speed of 55 miles per hour (mph). The impact would be significant.

MM TRAN-1 requires preparation of a Traffic Control Plan (TCP), which would include specific measures to alert motorists and bicyclists of construction along Silverado Trail. Advance warning signs, such as signage and cones, as well as identification of bicycle detours would reduce the potential impact to a less-than-significant level.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less than Significant Impact. In accordance with the *Technical Advisory on Evaluating Transportation Impacts in CEQA*, Section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of GHG emissions; (2) development of multimodal transportation networks; and (3) a diversity of land uses. The Office of Planning and Research identifies a screening threshold for small, land use projects as a project that generates or attracts fewer than 110 trips per day. Projects that generate fewer than this threshold may be assumed to cause a less-than-significant transportation impact (OPR, 2017).

The project requires a maximum of five workers to be conducting project activities on a single day. Assuming a worst-case scenario that no workers carpool together, up to 24 vehicles trips

(one-way) per day could occur, including private vehicles, material hauling and water trucks during the peak of construction. The daily number of vehicle trips associated with the project would not exceed 110 trips per day, the Office of Planning and Research's screening threshold for conducting a vehicle miles traveled analysis. The project would not conflict with State CEQA Guidelines section 15064.3, subdivision (b). The impact would be less than significant. No mitigation is required.

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

Less than Significant Impact with Mitigation Incorporated. The project is related to upgrading an underground water pipeline within rights-of-way owned by Napa County and Caltrans. Neither project construction nor project operations would permanently alter the physical configuration of the existing roadway network serving the area. The project would not permanently introduce unsafe design features or uses that are incompatible with the road system; however, construction would require equipment staging on Conn Creek Bridge. Staging activities would require closure of a short segment of the eastbound lane, which would be an incompatible use of Silverado Trail. Additionally, partial closure of the southern shoulder, bicycle lane, and possibly part of the eastbound lane of Silverado Trail during trenching, pipeline installation, and backfilling activities would constitute an incompatible use of the roadway, creating a potentially hazardous situation for drivers and construction personnel. Construction vehicles entering the roadway near the eastern edge of Conn Creek Bridge may also create a potentially hazardous situation, given that traffic along Silverado Trail would be traveling at speeds of around 55 mph. The impact would be significant. MM TRAN-1 requires preparation of a TCP, which would address safety issues related to lane closures and construction vehicles entering the roadway by requiring appropriate signage and traffic control during construction. The impact would be less than significant with mitigation.

d) Would the project result in inadequate emergency access?

Less than Significant Impact with Mitigation Incorporated. As discussed above, neither project construction nor project operations activities would permanently alter the physical configuration of the existing roadway network serving the project area. However, temporary closure of the eastbound traffic lane may be required during construction on Conn Creek Bridge. Equipment would be staged on the bridge during pipeline installation at the creek crossing. Temporary access restrictions or traffic delays could affect emergency access. The impact could be significant. MM TRAN-1 requires the contractor to coordinate with the Napa County Police Department to ensure law enforcement and emergency response personnel are aware of construction and potential delays. The impact would be less than significant with mitigation.

4.17.2 Mitigation Measures

MM TRAN-1: Traffic Control Plan

To ensure that construction of the project does not adversely interfere with local traffic safety and circulation, a Traffic Control Plan (TCP) shall be prepared for the project. The TCP shall be subject to review and approval by the City of Calistoga, Napa County, and Caltrans (District 4), and shall include, but not be limited to the following elements:

- The contractor shall provide flaggers as needed to temporarily hold traffic to safely stage equipment in advance of and/or during construction.
- The contractor shall coordinate with the Napa County Police Department to ensure that construction activities, including temporary closure of the eastbound lane on Conn Creek Bridge, as well as the movement, staging, and storage of materials in and near the proposed staging areas do not interfere with law enforcement activities, emergency response, or evacuation procedures.
- The contractor shall install advance warning signs to alert bicyclists and Silverado Trail users of the work zone and temporary detours. Advance warning signs may include reflective signs, cones, or barricades. Signage should state the anticipated duration for construction, and reflect that the work is scheduled to occur between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday.
- Signage shall be installed at both ends of the Silverado Trail segment affected by project construction, directing pedestrians and bicyclists to detours facilities.
- Work shall be confined to the immediate project site and performed in a manner that would be least disruptive to the public.
- The contractor shall ensure the public has access to businesses and private driveways along Silverado Trail at all times.

Applicable Location(s): All work areas.

Performance Standards and Timing:

- **Before Activity:** Prepare TCP with all required elements.
- **During Activity:** Implement TCP.
- **After Activity:** N/A

4.18 Tribal Cultural Resources

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

4.18.1 Environmental Setting

Tribal cultural resources are defined in CEQA as a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe, which may include non-unique archaeological resources previously subject to limited review under CEQA. As described in Section 4.5, Cultural Resources, the Napa Valley is located within the ethnographic territory of the Mishewal-Wappo Tribe of Alexander Valley.

To facilitate cultural resource documentation, a record search was conducted at the NWIC in September 2020, and the project APE and 0.5-mile buffer area were surveyed for cultural resources in November 2020. As described in Section 4.5 Cultural Resources, one previously recorded cultural resource (P-28-001005) is within the project APE and seven previously recorded sites are present within 0.5-mile buffer study area; however, subsequent investigations concluded that P-28-001005 consists of a redeposit of natural obsidian and does not represent prehistoric era human activities. None of the resources located within the project APE are considered eligible for the CRHR. Through tribal consultation, the Middletown Rancheria of Pomo Indians indicated that there are known tribal cultural resources near the project, outside of the APE. Additionally, a sacred site near the project, outside of the APE, is of cultural significance to the Mishewal-Wappo Tribe of Alexander Valley; therefore, the City is considering the project area as high sensitivity area for tribal cultural resources.

Pre-Consultation

The cultural resource consultant acting on behalf of the City contacted the NAHC to request a search of the Sacred Lands File for the project vicinity and contact information for Native American tribes that may be traditionally or culturally affiliated with the geographic area of the project. The Sacred Lands File search indicated the nearby presence of a sacred site and the NAHC recommended contacting Scott Gabaldon, the Chairperson of the Mishewal-Wappo Tribe of Alexander Valley. The NAHC also provided a list of seven Native American contacts representing five Native American groups with potential interest in the project for use in cultural resources identification purposes. The City's consultants contacted the five groups identified by the NAHC for early pre-consultation outreach regarding the project. The tribal contact information and summary of pre-consultation outreach is provided in Table 4.18-1.

Table 4.18-1 NAHC Native American Contacts and Pre-Consultation

Tribe	Contact	Dates of Contact	Response
Responsive Tribes			
Mishewal-Wappo Tribe of Alexander Valley	Scott Gabaldon, Chairperson 2275 Silk Road Windsor, CA, 95492	10/7/2020 – Email 11/20/2020 – Email 1/6/2021 – Phone Call	Informal Discussion on 1/6/2021
Middletown Rancheria of Pomo Indians	Sally Peterson, THPO P.O. Box 1658 Middletown, CA, 95461	10/7/2020 – Email 11/20/2020 – Email 11/23/2020 – Tribal Response 12/30/2020 – Phone Call (Michael Rivera)	Consultation Requested 11/23/2020
	Jose Simon, Chairperson P.O. Box 339 Talmage, CA, 95481	10/7/2020 – Email 11/20/2020 – Email Conversations ongoing with THPO's office (see above)	None
Unresponsive Tribes			
Cortina Rancheria – Kletsel Dehe Band of Wintun Indians	Charlie Wright, Chairperson P.O. Box 1630 Williams, CA, 95987	10/7/2020 – Email 11/20/2020 – Email 1/5/2021 – Phone Call/Message	None
Guidiville Indian Rancheria	Merlene Sanchez, Chairperson P.O. Box 339 Talmage, CA 95481	10/7/2020 – Email 11/20/2020 – Email 1/5/2021 – Phone Call/Message	None
Pinoleville Pomo Nation	Erica Carson, THPO 500 B Pinoleville Drive Ukiah, CA, 95482	10/7/2020 – Email 11/20/2020 – Email 1/5/2021 – Phone Call/Message	None

Tribe	Contact	Dates of Contact	Response
	Leona Williams, Chairperson 500 B Pinoleville Drive Ukiah, CA, 95482	10/7/2020 – Email 11/20/2020 – Email 1/5/2021 – Phone Call/Message	None

On October 7, 2020, the City's consultants contacted each of the above representatives via email to inform them of the project and request information or concerns regarding cultural resources in or around the project APE. Follow-up emails were sent to the seven contacts on November 11, 2020, and additional phone calls were made on January 5, 2021. The contacts at the Cortina Rancheria – Kletsel Dehe Band of Wintun Indians, Guidiville Indian Rancheria, and Pinoleville Pomo Nation could not be reached during pre-consultation.

On November 23, 2020, Michael Rivera, Jr., Admin & Projects Coordinator for the Middletown Rancheria Tribal Historic Preservation Department (THPD), replied to the initial email stating that Middletown Rancheria of Pomo Indians would like to be involved in consultation for the project. Mr. Rivera stated that THPO Sally Peterson "respectfully requested additional information regarding the project – details including, but not limited to, any surveys and reports, such as cultural resources reports and geotechnical reports, grading plans, site plans, scope of work, dates and timelines of project activities" (PaleoWest, 2021). During a conversation with Mr. Rivera on December 30, 2020, the City's cultural resource consultants provided detail regarding the project, regulatory context, results of the records search and field investigation, and proposed recommendations. Mr. Rivera stated that he would review internal records for any areas of importance to the Middletown Rancheria of Pomo Indians near the APE.

On January 6, 2021, the City's consultants had a phone conversation with Scott Gabaldon, Chairperson of the Mishewal-Wappo Tribe of Alexander Valley. Mr. Gabaldon expressed concern regarding the potential for encountering human remains and precontact archaeological sites, based on the presence of a sacred site near the APE as noted in the NAHC Sacred Lands File. Mr. Gabaldon explained that in the past, human remains discoveries in disturbed soils have been moved without tribal monitors present; therefore, he requested that tribal monitors from the Mishewal-Wappo Tribe of Alexander Valley and archaeological monitors be present during all ground disturbing activities related to the project, including any excavation in soils that may be considered to be previously disturbed. Mr. Gabaldon concluded that the City of Calistoga is aware that Napa Valley is Mishewal-Wappo territory, there where consultation shall occur between the City and FEMA with the Mishewal-Wappo Tribe of Alexander Valley, regardless of federal recognition.

AB 52 Consultation

On January 21, 2021, the City provided formal notification of the decision to undertake the project via email and certified mail to five tribal groups. Three of these five groups (the Cortina Rancheria – Kletsel Dehe Band of Wintun Indians, Middletown Rancheria of Pomo Indians, and Mishewal-Wappo Tribe of Alexander Valley) were previously contacted in during

pre-consultation outreach. The Federated Indians of Graton Rancheria were the only Native American group that responded to the formal notice of AB 52 consultation and stated that they were not culturally affiliated with the project site. The tribal representatives contacted with formal AB 52 project notice are provided in Table 4.18-2.

Table 4.18-2 Formal AB 52 Notification

Tribe	Contact	Dates of Contact	Response
Responsive Tribes			
Federated Indians of Graton Rancheria	Greg Sarris, Chairperson 6400 Redwood Drive, Ste 300 Rohnert Park, CA 94928	1/21/2021 – Formal AB 52 Project Notification	Consultation Not Requested on 2/16/2021
Unresponsive Tribes			
Cortina Rancheria – Kletsel Dehe Band of Wintun Indians	Charlie Wright, Chairperson P.O. Box 1630 Williams, CA, 95987	1/21/2021 – Formal AB 52 Project Notification	None
Middletown Rancheria of Pomo Indians	Jose Simon III, Chairperson PO Box 1035 Middletown, CA 95461	1/21/2021 – Formal AB 52 Project Notification	None; however, tribe expressed interest in consultation during pre-consultation outreach
Mishewal-Wappo Tribe of Alexander Valley	Vincent Salsedo, Tribal Council Member/Cultural Resources Manager PO Box 1086 Santa Rosa, CA 95402	1/21/2021 – Formal AB 52 Project Notification	None; however, tribe expressed interest in consultation during pre-consultation outreach
Yocha Dehe Wintun Nation	Leland Kinter, Chairperson PO Box 18 Brooks, CA 95606	1/21/2021 – Formal AB 52 Project Notification	None

To solicit comments and feedback per AB 52, the City provided the Project Description, Cultural and Tribal Cultural Resources analysis and mitigation, Geotechnical Design Report, and Cultural Resources Assessment Report to the Middletown Rancheria of Pomo Indians and Mishewal-Wappo Tribe of Alexander Valley on March 3, 2021.

On March 3, 2021, the City's consultants had a phone conversation with Michael Rivera, Jr., Admin & Projects Coordinator for the Middletown Rancheria THPD. During the conversation, Mr. Rivera indicated that the project site overlaps ethnographic territories that belong to both the Middletown Rancheria of Pomo Indians and Mishewal-Wappo Tribe of Alexander Valley and reiterated that the City and FEMA should consult with both tribes regardless of federal

recognition. He also indicated that there a number of significant tribal resources adjacent to the project APE. In a follow-up letter dated March 3, 2021, Mr. Rivera states that "the Tribe is aware of and concerned about significant cultural and sacred resources that, while known to the Tribe, may not be properly identified through record and survey searches." The letter also includes suggested mitigation measures for implementation to reduce impacts to tribal cultural resources. Additional topics of conversation between the City representative and Mr. Rivera included the project construction schedule and future Section 106 consultation.

On March 19, 2021, the City's consultants had a phone conversation with Scott Gabaldon, Chairperson of the Mishewal-Wappo Tribe of Alexander Valley. During the conversation, Mr. Gabaldon requested that tribal monitors from the Mishewal-Wappo Tribe of Alexander Valley be present throughout construction. Additional discussion topics included tribe ancestral territory overlapping with the project area, and concern regarding the potential for encountering human remains in the project vicinity. In a follow-up email dated March 19, 2021, Mr. Gabaldon states that "after reviewing the 41-page draft for this project we humbly request that we have a tribal monitor on this project from start to finish. This request is based on the findings in the report."

4.18.2 Discussion

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- **i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or**
- **ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

Less than Significant Impact with Mitigation Incorporated. Implementation of the project has the potential to significantly impact previously undiscovered Native American historical and archaeological resources through any activity that could disturb the ground surface or subsurface (refer to Impact Cultural Resources a] and b]). Any prehistoric resource discovered, as addressed in Impact Cultural Resources a) and b), could be considered a tribal cultural resource as well.

The City contacted the NAHC to request a search of the Sacred Lands File for the project vicinity and contact information for Native American tribes that may be traditionally or culturally affiliated with the geographic area of the project. The Sacred Lands File search results from September 2020 indicated that a sacred site is located near the project APE. The City consulted with the Middletown Rancheria of Pomo Indians and the Mishewal-Wappo Tribe of Alexander Valley regarding potentially significant tribal cultural resources in the project vicinity. Through consultation with the Mishewal-Wappo Tribe of Alexander Valley, the City

determined that the sacred site near the project APE is a significant tribal cultural resource. Project activities would not result in physical impacts to known tribal cultural resources because no resources are known to occur within the project APE where all project activities would occur. Ground-disturbing activities could result in alteration of previously undiscovered tribal resources associated with the known sacred site, which would be considered a significant impact. During consultation, representatives of the Mishewal-Wappo Tribe of Alexander Valley and Middletown Rancheria of Pomo Indians indicated that the presence of a tribal monitor during all project-related excavation would reduce the potential for alteration of the tribal significance of any known or unknown resource. MM TCR-1 requires a Tribal Cultural Monitor be present throughout construction to monitor all ground-disturbing activities associated with the project. MM TCR-2 requires all on-site personnel to receive Tribal cultural resource sensitivity training during which, personnel will be instructed to keep all construction equipment and materials within the limits of the APE. MM TCR-3 specifies that if any known or suspected tribal cultural resources are found during project construction, the consulting Tribes would be given the opportunity to inspect and provide input to the City regarding the significance determination and treatment of the resource. Implementation of the project would result in less-than-significant impacts on previously discovered tribal cultural resources with implementation of MM TCR-1 through MM TCR-3.

The project activities have potential to damage, destroy, or disturb previously undiscovered resources that may be present within the APE. Disturbance, damage, or destruction of any resources could be considered a significant impact. Several mitigation measures would be implemented to reduce impacts on CRHR-eligible resources to less than significant. If a previously unidentified resource is encountered during work, MM CUL-1 would be implemented, requiring cessation of work within 100 feet of the resource, followed by an appropriate evaluation or avoidance of the cultural resource prior to commencement of work in the area. MM TCR-1 requires that the City retain a project Tribal Cultural Monitor familiar with tribal resources of the Middletown Rancheria of Pomo Indians of California and Mishewal Wappo Indians of Alexander Valley to provide full-time monitoring during ground disturbing activities. MM TCR-3 allows for the project Tribal Cultural Monitor to halt ground disturbance activities in the immediate area of discovery when known or suspected tribal cultural resources are identified until further evaluation can be made in determining their significance and appropriate treatment or disposition. MM TCR-2 requires all on-site personnel to be trained on how to recognize basic signs of a potential tribal cultural resource. The tribal cultural resource sensitivity training will be provided during the cultural resource training specified in MM CUL-1.

If human remains are encountered during implementation of project activities, MM CUL-2 would be implemented, which requires work to halt within 100 feet of the discovery of human remains and notifying the Napa County Coroner's office regarding the discovery, followed by the appointment of an MLD to determine the appropriate course of action. Refer to Section 4.5 Cultural Resources for further details regarding mitigation requirements. Impacts on tribal cultural resources would be less than significant with implementation of mitigation.

4.18.3 Mitigation Measures

MM TCR-1: Tribal Monitoring

During the construction phase and prior to initial ground disturbance, the City or its contractor shall retain a project Tribal Cultural Monitor familiar with tribal resources of the Middletown Rancheria of Pomo Indians of California and Mishewal Wappo Indians of Alexander Valley (hereafter "consulting Tribes"). Ground disturbing activities occurring in conjunction with the project (including, debris removal, rescrapes, erosion control [mulching, waddles, hydroseeding, etc.], pot-holing or auguring, boring, grading, trenching, foundation work and other excavations or other ground disturbance involving the moving of dirt or rocks with heavy equipment or hand tools within the project area) shall be monitored on a full-time basis by the Tribal Cultural Monitor. A Qualified Tribal Cultural Monitor(s) shall be defined as an individual(s) who has experience with identification, collection and treatment of tribal cultural resources of value to the Tribes traditionally and culturally affiliated with the project area. The duration of tribal cultural monitoring is expected to include all project construction phases and to conclude upon completion of construction. If the consulting Tribes determine that full-time monitoring is no longer warranted, tribal monitoring may be reduced to periodic spot-checking or cease entirely. Tribal monitoring would be reinstated in the event of any new or unforeseen ground disturbances or discoveries.

Applicable Location(s): All project work areas.

Performance Standards and Timing:

- **Before Activity:** N/A
- **During Activity:** Ground disturbing activities shall be monitored on a full-time basis by qualified tribal monitor(s).
- **After Activity:** N/A

MM TCR-2: Tribal Cultural Resource Sensitivity Training

All on-site personnel of the project shall receive adequate tribal cultural resource sensitivity training prepared and administered by the project Tribal Cultural Monitor or his or her authorized designee prior to initiation of ground disturbance activities on the project. The training must address the potential for encountering previously unidentified tribal cultural resources and procedures if a potential tribal cultural resource is identified. The City shall provide the consulting Tribes an opportunity to review and comment on the tribal cultural resource sensitivity training before the training is administered to the crew. The tribal cultural resource sensitivity training will be administered during the cultural resource training described in MM CUL-1.

Applicable Location(s): All project work areas.

Performance Standards and Timing:

- **Before Activity:** (1) All on-site personnel of the project shall receive adequate tribal cultural resource sensitivity training prior to initiation of ground disturbance activities, and (2) The City shall coordinate with the consulting Tribes on the tribal cultural resource sensitivity training and incorporate it into the cultural resource training described in MM CUL-1.
- **During Activity:** N/A
- **After Activity:** N/A

MM TCR-3: Tribal Cultural Resources Discovery and Treatment Procedures

The project tribal monitor may halt ground disturbance activities in the immediate area of discovery when known or suspected tribal cultural resources are identified until further evaluation can be made in determining their significance and appropriate treatment or disposition. There must be at minimum one tribal monitor for every separate area of ground disturbance activity that is at least 30 meters or 100 feet apart unless otherwise agreed upon in writing between the consulting Tribes and the City. Depending on the scope and schedule of ground disturbance activities of the project (e.g., discoveries of cultural resources or simultaneous activities in multiple locations that requires multiple tribal monitors, etc.) additional tribal monitors may be required on-site. If additional tribal monitors are needed, the consulting Tribes shall be provided with a minimum of three (3) business days advance notice unless otherwise agreed upon between the Tribes and the City. The on-site tribal monitoring shall end when the ground disturbance activities are completed, or if/when the consulting Tribes determine the site has a low potential for tribal cultural resources.

All potential cultural resources unearthed by project activities shall be evaluated by the project Tribal Cultural Monitor. The consulting Tribes shall be provided the opportunity to inspect and determine the nature of the resource and the best course of action for avoidance, protection and/or treatment of tribal cultural resources to the extent permitted by law. If the resource is determined to be a tribal cultural resource of value to the consulting Tribes, the City shall coordinate with the Tribe to establish appropriate treatment and disposition of the resources with appropriate dignity which may include reburial or preservation of resources. The City must facilitate and ensure that the determination of treatment and disposition by the Tribes is followed to the extent permitted by law. No laboratory studies, scientific analysis, curation, or video recording are permitted for tribal cultural resources without the prior written consent of the consulting Tribes. If any unanticipated discoveries are encountered that may have significance as an archeological resource as well as a tribal cultural resource, the treatment of the discovery (including recording methods, laboratory studies, scientific analysis, and/or curation) will be determined by the City in consultation with consulting Tribes, qualified archaeologist, and any other agencies with authority over the project.

Applicable Location(s): All project work areas.

Performance Standards and Timing:

- **Before Activity:** N/A
- **During Activity:** (1) The City shall provide the Tribes an opportunity to inspect any unearthed cultural resources and recommend appropriate treatment and disposition of the resources; (2) Determination of treatment and disposition by the Tribes shall be followed to the extent permitted by law, and (3) No laboratory studies, scientific analysis, curation, or video recording are permitted for tribal cultural resources without the prior written consent of the Tribes.
- **After Activity:** N/A

MM CUL-1: Previously Unidentified Cultural Resources

See Section 4.5: Cultural Resources

MM CUL-2: Discovery of Human Remains

See Section 4.5: Cultural Resources

4.19 Utilities and Service Systems

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
19. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☒	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

4.19.1 Discussion

a) Would the project 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?

Less than Significant Impact with Mitigation Incorporated. The project involves relocating an existing 12-inch-diameter water pipeline out of the creek and replacement of up to 3,000 linear feet of pipeline for the purpose of improving reliability and increasing resiliency of the City's water transmission system. The relocated portion of the pipeline would be suspended to along Conn Creek Bridge. The replacement pipeline would be constructed in the shoulder of Silverado Trail, parallel to the existing pipeline. The environmental effects of the pipeline relocation and replacement are analyzed in this IS.

Construction access to the existing concrete cap and pipeline removal area would require removal of the existing storm drain outfall on the southeast side of Conn Creek Bridge. The storm drain outfall would be replaced in kind following construction. Existing underground

and overhead utilities occur in the shoulder of Silverado Trail, within the pipeline alignment, including underground and overhead power lines and an AT&T pedestal. Construction would not require temporary or permanent relocation of existing electrical, or telecommunication infrastructure. Trenching for the replacement pipeline has the potential to affect existing utilities if trench excavation occurs in the same location as existing utilities. Trenching equipment may inadvertently damage utilities or disrupt utility service if existing utilities are encountered during trenching with heavy equipment. California Government Code Section 4216 requires the contractor to contact the Underground Service Alert regional notification center at least two days prior to excavation of any subsurface installation. The Underground Service Alert would notify regional utility providers that may have buried utilities within 1,000 feet of the proposed pipeline alignment. Utility providers are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area. The Government Code also requires the contractor to probe and expose underground facilities by hand prior to using heavy equipment to trench the pipeline alignment.

Temporary planned outages to existing utility services may be necessary during construction. Interruptions to utility systems would be a significant impact if planned outages did not provide utility customers advance warning to allow them to plan ahead and avoid inconveniences from utility interruption. MM UTIL-1 requires public notification of any planned service disruptions before they occur., thereby allowing businesses and residences adequate time to prepare for the outage, reducing impacts associated with utility disruption. The impact would be less than significant with implementation of mitigation.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact. The purpose of the project is to improve the resiliency of the City's critical water infrastructure to natural hazards such as earthquakes, wildfires, floods, and other hazards. Pipeline construction would be phased to install the replacement pipeline before removing the existing pipeline from service. During the service transfer, a temporary bypass would be implemented to ensure water service is not interrupted. By relocating the pipeline out of Conn Creek, the project would reduce the potential for critical water transmission infrastructure failure in the event of hazards and their associated impacts, thereby ensuring adequate water resources for the City.

The project does not include constructing new homes or habitable structures that would require water services and would not result in growth-inducing effects that would result in the need for additional water supplies to serve the community. Impacts would be less than significant. No mitigation is required.

c) Would the project 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?

No Impact. The project does not include the construction of any structures or facilities that would require wastewater collection and treatment services. Portable restrooms would be used

during the 4-month construction period. As such, implementation of the project would have no negative impact on any wastewater treatment provider's existing commitments. No mitigation is required.

d), e) 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? Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. Implementation of the project would generate solid waste during construction. The anticipated volume of solid waste generated by construction activities would be approximately 879 cubic yards, which would be off-hauled and appropriately disposed of at the Clover Flat Landfill. The Clover Flat Landfill is operational until January 2047 and has a remaining capacity of 2,620,000 cubic yards (CalRecycle, 2021). Although the project could increase the total waste generation in the area, the temporary incremental contribution of the project could be reasonably accommodated by the landfill. Reusable construction debris would be recycled, and organics and soils reused on-site or composed, as feasible, in compliance with federal, State, and local statutes and regulations related to solid waste. Given the existing landfill capacity, the project 's contribution would be less than significant and would not result in the local landfill exceeding its permitted capacity. No mitigation is required.

4.19.2 Mitigation Measures

MM UTIL-1: Public Notification of Utility Service Interruption
Prior to construction in which a utility distribution service interruption is known to be unavoidable, the City shall notify members of the public affected by the planned outage at least 10 calendar days prior to the impending interruption for residential and commercial outages.
Applicable Location(s): All project work areas.
Performance Standards and Timing: • **Before Activity:** Notify affected members of the public at least 10 calendar days prior to the interruption. • **During Activity:** N/A • **After Activity:** N/A

4.20 Wildfire

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
20. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☒	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

4.20.1 Environmental Setting

Wildland fire behavior in Napa Valley is influenced by terrain, vegetation, seasonal weather, and prevailing winds. The steep, wooded terrain of the Mayacama foothills in northwest Napa Valley is considered highly susceptible to the spread of wildland fires. Additionally, characteristic southerly winds which originate in San Francisco Bay, and seasonal high velocity north winds which occur in the dry season have a significant influence on fire behavior (Environmental Science Associates, 2019). The City of Calistoga has been identified as a community at risk for wildfires due to its location in the wildland-urban interface (WUI). The WUI is a transition zone between human development and wildland areas that could be affected by wildland fire.

The California PRC 4201-4204 and Govt. Code 51175-89 direct the California Department of Forestry and Fire Protection (CAL FIRE) to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), define the application of various mitigation strategies to reduce risk associated with wildland fires. CAL FIRE maintains FHSZ maps for State Responsibility Areas (SRAs) and Local Responsibility Areas (LRAs) based on new data, science, and technology. In such areas, CAL FIRE delineates three hazard ranges: Moderate, High, and Very High. The project is

located in a Moderate FHSZ within a SRA (CAL FIRE, 2020). The nearest Very High FHSZ is approximately 1.5 miles east of the project site.

4.20.2 Discussion

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. As previously discussed in Section 4.9 Hazards and Hazardous Materials, no emergency response or evacuation plans have been adopted for the roads within the project site; therefore, implementation of the project would not impair an adopted emergency response plan or emergency evacuation plan. Temporary lane closures would be required for one day during project construction while suspending the new pipeline on Conn Creek Bridge. Additional potential impacts associated with emergency response and access are discussed in Section 4.17 Transportation, Impact d). No impact would occur.

b) Would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than Significant Impact with Mitigation Incorporated. The project site is located in an area designated as a Moderate FHSZ; however, Napa County has experienced an increase in fires in recent history. Due to the rural and open space setting, there is risk of the ignition and spread of a wildland fire if appropriate measures are not taken during construction activities. The use of construction vehicles and equipment that could ignite a fire through generation of sparks or heat would increase risks of wildfire ignition and spread. Worker behavior, such as smoking and disposal of cigarettes, and parking or driving vehicles and equipment on dry vegetation could be additional potential fire hazards. A significant impact would occur if project construction workers or construction activities were to start a wildfire during project implementation. MM HAZ-1 would be implemented to reduce the potential risk of ignition or spread of a fire during project construction. Implementation of fire prevention procedures, including availability of appropriate fire suppression equipment and worker training, would reduce impacts to less than significant.

c) Would the project 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?

No Impact. The project would involve the replacement of an existing water pipeline. Project-related activities include excavation and removal of the existing pipeline and concrete cap, installation of the new pipeline along Conn Creek Bridge, and restoration of all disturbed areas. Implementation of the project would not require the installation or maintenance of associated infrastructure that would exacerbate fire risk or result in temporary or ongoing impacts to the environment. No impact would occur.

d) Would the project 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?

Less than Significant Impact. As described in Section 4.7 Geology and Soils and Section 4.10 Hydrology and Water Quality, the project is located on relatively flat land in the Napa Valley and is not located in a landslide hazard area. Construction-related ground disturbance consisting of trenching and excavation could increase the potential for soil erosion or slope instability in the area of ground disturbance. In order to comply with the project's NPDES Construction General Permit and the City of Calistoga Stormwater Runoff Pollution Control Ordinance, the City would be required to develop and implement a SWPPP to address construction-related runoff. The SWPPP would include a suite of BMPs tailored to the project to prevent erosion and increased runoff. Restoration of disturbed soils through the application of a native seed mix would provide additional erosion control following project completion. As required by Napa County's Conservation Regulations (18.108)[5], the project would also be constructed during the dry season, at which time rain events that could cause significant surface runoff and erosion would not be expected to occur.

The project would not include development that would expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire instability, or drainage changes. Impacts would be less than significant. (County of Napa, 2021)

4.20.3 Mitigation Measures

MM HAZ-1: Fire Safety Procedures
See Section 4.9: Hazards and Hazardous Materials

[5] As required by Napa County's Conservation Regulations (18.108), construction would occur during April 1 to October 15 of any year or the dry season, at which time rain events that could cause significant surface runoff and erosion would not be expected to occur.

4.21 Mandatory Findings of Significance

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
21. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
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)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

4.21.1 Discussion

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact with Mitigation Incorporated. Implementation of the project would not substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. Implementation of the mitigation measures presented in Section 4.4 Biological Resources would mitigate potential significant impacts that could substantially degrade the quality of the environment or impact biological resources. Mitigation measures presented in Section 4.5 Cultural Resources would ensure that the project would not significantly affect previously undiscovered resources or eliminate important examples of the major periods of

California history or prehistory. The biological and cultural resource mitigation measures are listed below.

- MM BIO-1: Special-Status Plants
- MM BIO-2: Worker Environmental Awareness Training
- MM BIO-3: Amphibians and Reptiles
- MM BIO-4: Swainson's Hawk Protocol Survey
- MM BIO-5: Nesting Bird Avoidance Measures
- MM BIO-6: Roosting Special-Status Bat Protection
- MM CUL-1: Previously Unidentified Cultural Resources
- MM CUL-2: Discovery of Human Remains

Given the fact that potential impacts to biological and cultural resources would primarily occur during active construction (not long term) and that measures have been identified to reduce these temporary impacts, impacts would not be considered significant. Impacts would be less than significant with mitigation incorporated.

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)?

Less than Significant Impact with Mitigation Incorporated. Four cumulative projects have been identified in the project vicinity (Table 4.21-1). As discussed in this document, implementation of the project would have no impact on Agriculture and Forestry Resources, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, and Recreation; therefore, cumulative impacts associated with these resource topics are not discussed in this section. Cumulative impacts for each remaining resource topic are discussed below.

Table 4.21-1 Cumulative Projects

Project Name	Location	Distance from Project Site	Project Summary	Status
Napa County Planning				
Conn Creek Winery Modifications Project	Conn Creek Winery	Less than 0.1-mile south	Add second story and internal remodel; use of garden for visitation; new mechanical area, water storage tanks, and gravel access road; new parking; modify driveway entrance; and widen access road.	Tentatively scheduled for Planning Commission hearing on 4/21/2021
Benjamin Ranch Winery Project	8895 State Highway 128	0.5-mile southwest	Construct a new 82,350 square foot winery	Project pending, tentative Planning Commission hearing in Summer 2021

Project Name	Location	Distance from Project Site	Project Summary	Status
Napa County Public Works Department				
Napa River Restoration Project	Along the East and West banks of the Napa River between Yountville Cross Road and Oakville Cross Road	Approximately 4 miles southeast	Restoration work including demolition, grading, excavation and off haul of soil, construction of biotechnical stabilization structures, construction of habitat features, and deployment of erosion control measures	Active construction; all phases to be completed by early 2023
Chiles Pope Bridge Replacement Project	Chiles Pope Road over Chiles Pope Creek	Approximately 3 miles northeast	Removal of existing bridge and replacement with two-span bridge 105 feet long by 26 feet wide	Design phase; construction anticipated Fall 2022 through Spring 2023

Aesthetics

For the analysis of aesthetics, the cumulative study area includes the project site and views of adjacent wineries with vineyards and surrounding agricultural uses generally within 1 mile of the project site.

The Conn Creek Winery Modifications Project and Benjamin Ranch Winery Project are located within the cumulative study area for aesthetic impacts. Construction of the Conn Creek Winery Modifications Project and Benjamin Ranch Winery Project would not occur at the same time as the project; therefore, no cumulative construction-related impacts would occur. Implementation of the Conn Creek Winery Modifications Project and Benjamin Ranch Winery Project would result in permanent aesthetic impacts following development of new buildings, access roads, and parking areas; however, views of wineries and associated infrastructure are common throughout Napa County and near the project site and these impacts would not be considered significant. As a result, there would be no known cumulative projects that would include substantial changes to the aesthetic resources of areas immediately adjacent to the project. Further, as described above, the project would not result in substantial adverse effects on the existing aesthetic resources. Thus, the project would not result in a significant cumulative impact on aesthetic resources.

Air Quality

Air quality is a regional resource and is neither defined nor limited by jurisdictional boundaries, political boundaries, or project boundaries. The cumulative study area for air quality primarily encompasses activities within the same air basin as the project, specifically the SFBAAB, which is the geographic boundary where pollutants combine to impact local and regional air quality. Each project in the SFBAAB is required to comply with BAAQMD rules and regulations.

In developing mass emissions thresholds of significance for criteria air pollutants and ozone precursors, air districts consider the emission levels for which a project's individual emissions

would be cumulatively considerable. Therefore, if a project would exceed the identified construction or operational significance thresholds, its emissions would be cumulatively considerable, and if a project would not exceed the construction or operational significance thresholds, its emissions would not be cumulatively considerable.

Operation of vehicles and equipment during project construction would emit diesel particulate matter and other criteria air pollutants. The emissions generated during construction would not exceed the BAAQMD significance thresholds for particulate matter (PM_{10} and $PM_{2.5}$), ROGs, NO_X or other ozone precursors; therefore, emissions from the project would not be cumulatively considerable.

With regard to impacts on sensitive receptors, the total criteria pollutant and diesel particulate matter emissions from project on-site construction equipment would not combine with emissions from other cumulative projects that are anticipated to be generating construction emissions at the same. The Chiles Pope Bridge Replacement Project and the Napa River Restoration Project would not generate emissions at sensitive receptors that may be affected by the proposed project because both cumulative projects would occur at distances greater than 3 miles from the proposed project area. No cumulative air quality impacts at sensitive receptors would occur.

Biological Resources

The geographic scope for the biological resources cumulative analysis includes all similar habitats within 1 mile of the project site. This geographic scope is appropriate because it accounts for the cumulative degradation or loss of a particular vegetation community or special-status species population from all projects that have impacted or would impact vegetation communities of concern or special-status species.

The Conn Creek Winery Modifications Project and Benjamin Ranch Winery Project are located within the cumulative study area for biological resources impacts. Analysis of potential impacts to biological resources as a result of the Conn Creek Winery Modifications Project is currently not available; however, impacts to similar habitats are not anticipated to be significant because all proposed activities would occur within the boundaries of the existing winery, which is currently used for viticulture. The Benjamin Ranch Winery Project would also be constructed on land currently developed for viticulture. Neither cumulative project proposes impacts to Conn Creek or riparian habitat adjacent to the creek. No cumulative impact on biological resources would occur.

Cultural Resources

The geographic extent for the cultural resources cumulative analysis includes areas in and immediately adjacent to the project site because an impact would only occur if a cumulative project were to impact the same type of resources affected by the project. No known historical or archaeological resources or human remains occur in or adjacent to the project area.; No cumulative projects would impact the project site and the Conn Creek Winery Modifications

Project involves modification to existing structures and disturbed land within the boundary or the existing winery. No cumulative impact on cultural resources would occur.

Energy

The geographic scope of potential cumulative effects with respect to energy conservation includes the electric grid and natural gas system from which the project would receive energy, areas from which transportation fuels would be provided, and the cumulative projects identified in Table 4.21-1. Given the small percentage of the project's fuel and energy use compared to existing fuel and energy use in the region, the project's impact is less than significant. Incremental impacts related to the use of fuel or energy in a wasteful or inefficient manner and related to adversely affecting existing energy resources are not expected to combine with the incremental impacts of other projects to cause an adverse cumulative impact associated with energy. No cumulative impact on energy would occur.

Geology and Soils

For geology and soils, the study area considered for the cumulative impact analysis consists of the area that could be affected by proposed project activities, and the areas affected by other projects whose activities could directly or indirectly affect the geology and soils of the proposed project site. All of the project impacts on geology and soils would be less than significant or would have no impact. The Conn Creek Winery Modifications Project is adjacent to the project site. Modifications to the Conn Creek Winery, including access and parking improvements, water storage tank installation, and mechanical area construction may result in increased erosion; however, the Conn Creek Winery Modifications Project would be required to prepare and implement a project-specific SWPPP to reduce potential erosion impacts. Furthermore, construction of the Conn Creek Winery Modifications Project is not anticipated to occur at the same time as construction of the proposed project. No cumulative impact on geology and soils would occur.

Greenhouse Gas Emissions

Although the project would generate a small amount of GHGs during construction, the emission of GHGs by any single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHGs from more than one project and many sources in the atmosphere that may cause adverse environmental effects. A project's GHG emissions typically would be very small in comparison to State or global GHG emissions and would consequently, in isolation, have no significant direct impact on GHGs and resulting environment effects. The project's GHG analysis conducted above is essentially a cumulative analysis because it takes into consideration statewide and local GHG reduction targets and demonstrates that the proposed project would be consistent with those targets.

Because the project is consistent with the BAAQMD's thresholds, the Scoping Plan, and the Calistoga CAP and because the project's impacts alone would not cause or significantly contribute to GHG emissions and adverse environmental effects, project related GHG emissions would not make a significant contribution to cumulative GHG emissions impacts. The project's potential to result in cumulatively considerable GHG impacts would be less than significant.

Hazards and Hazardous Materials

Typically, only projects adjacent to the project site are considered when evaluating cumulative impacts on hazards and hazardous materials because of the limited potential impact area associated with release of hazardous materials into the environment. The Conn Creek Winery Modifications Project is the only cumulative project that would occur within 0.25 mile of the proposed project and is not anticipated to be constructed at the same time as the proposed project; therefore, no cumulative impact related to hazards or hazardous materials would occur.

Hydrology and Water Quality

The cumulative study area for hydrology and water quality includes Conn Creek and Napa River, of which Conn Creek is a tributary. Impacts from cumulative projects that occur along Conn Creek, including above Lake Hennessey, have the potential to combine with proposed project impacts to result in a cumulative impact. Additionally, Napa River receives flow from Conn Creek, and therefore may experience water quality impacts or increased sedimentation as a result of the project. Napa River is impaired by nutrients, pathogens, and sediment, indicating that a cumulative water quality impact exists. Project construction has the potential to contribute additional sediment to Napa River.

In order to comply with the project's NPDES Construction General Permit and the City of Calistoga Stormwater Runoff Pollution Control Ordinance, the City would be required to develop and implement a SWPPP to address construction-related runoff. The SWPPP would include a suite of BMPs tailored to the project to prevent erosion and increased runoff. Restoration of disturbed soils through the application of a native seed mix would provide additional erosion control following project completion. As required by Napa County's Conservation Regulations (18.108)[6], the project would also be constructed during the dry season, at which time rain events that could cause significant surface runoff and erosion would not be expected to occur. The project's contribution to the existing impairments in Napa River would not be cumulatively considerable and the impact would be less than significant.

The Chiles Pope Bridge Replacement Project would be constructed over Chiles Creek, and Chiles Creek is tributary to Conn Creek via Lake Hennessey. Construction of the Chiles Pope Bridge Replacement Project is anticipated to occur Fall 2022 through Spring 2023; therefore, the two projects would not overlap construction periods. Additionally, minor changes in hydrology or water quality that may result from the Chiles Pope Bridge Replacement Project would occur during the wet season. The proposed project would occur during the dry season, when there is no flow in Conn Creek; therefore, water quality impacts from the Chiles Pope Bridge

[6] As required by Napa County's Conservation Regulations (18.108), construction would occur during April 1 to October 15 of any year or the dry season, at which time rain events that could cause significant surface runoff and erosion would not be expected to occur.

Replacement Project would not combine with the proposed project. No cumulative impact would occur.

Noise

The geographic extent for cumulative noise and vibration impacts is 2,000 feet from the project site. Noise impacts generally dissipate within a distance of 1,000 feet and vibration impacts dissipate within 50 to 100 feet. The project would result in temporary noise and groundborne vibration as a result of trenching along Silverado Trail and removal of the existing pipeline and concrete cap in Conn Creek. The construction schedule for the project would not overlap with construction of cumulative projects that occur within 1,000 feet of the project. No operational noise is associated with the project. No cumulative impact would occur.

Transportation

The geographic extent for the transportation cumulative analysis includes the local and regional roadways and highways that would be utilized for transportation of project materials and workers, notably Silverado Trail/SR 128 and Conn Creek Road. A cumulative impact would occur if a cumulative project resulted in a significant increase in traffic, due to construction traffic or detours, along Silverado Trail/SR 128 or Conn Creek Road during construction of the proposed project. Only the Conn Creek Winery Modifications Project and Benjamin Ranch Winery Project would be anticipated to result in increased traffic on Silverado Trail/SR 128 or Conn Creek Road. Neither cumulative project is anticipated to be constructed at the same time as the proposed project; therefore, no cumulative impact is anticipated.

Tribal Cultural Resources

As described under Cultural Resources above, no known historical, archaeological, or tribal cultural resources occur in the project area; however, through tribal consultation with the Mishewal-Wappo Tribe of Alexander Valley and Middletown Rancheria, the City determined that tribal cultural resources may occur within or adjacent to the project site. A cumulative impact would occur if a cumulative project results in substantial impacts to tribal resources affiliated with the Mishewal-Wappo Tribe of Alexander Valley or Middletown Rancheria. Since tribal representatives have indicated that resources may occur in or near the project site, and a sacred site is known to occur within the project vicinity, the potential for cumulative projects to impact resources affiliated with the Mishewal-Wappo Tribe and Middletown Rancheria exists. The project includes implementation of mitigation measures to protect tribal resources, such as inviting a tribal monitor to be present during ground-disturbing activities. MM TCR-1 through MM TCR-3 would reduce individual project impacts on tribal cultural resources to less than significant to ensure that the project's contribution to a potential cumulative impact is less than considerable.

Utilities and Service Systems

Existing underground and overhead utilities occur in the shoulder of Silverado Trail, within the pipeline alignment, including the NBA pipeline, underground and overhead power lines and an AT&T pedestal. None of the cumulative projects involve activities that could disrupt the

same utility services as the proposed project during construction. No cumulative impact would occur.

Wildfire

There are multiple projects that could undergo construction in a timeframe that overlaps with that of the project (see Table 4.21-1). Similar to the project, the construction of these projects would involve ground disturbing activities and the use of large equipment, which could pose risks for ignition within or near a fire-prone region. The cumulative projects that would be constructed at the same time as the proposed project are not anticipated to include any flammable or habitable structures. The Napa River Restoration Project and Chiles Pope Bridge Replacement Project would occur in locations proximal to waterways on sites with a relatively low level of risk due to these site conditions. No cumulative impact is anticipated.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact with Mitigation Incorporated. Potential adverse effects to human beings could occur as a result of project construction and use of equipment. Potential impacts would include effects to air quality, minor increases in construction-related traffic, and potential interruptions to existing utility services. These impacts would be short-term and would cease upon completion of construction. MM AIR-1, MM TRAN-1, and MM UTIL-1 have been identified to reduce temporary impacts to air quality, transportation, and utilities; therefore, impacts would not be considered significant. The project outcome would protect critical water infrastructure from scour and flooding conditions, reducing the chance of interrupted service to local communities, and would provide decades of useful life to the City's water transmission system. The project would not result in any environmental effects that would cause substantial direct or indirect adverse effects on human beings. Impacts would be less than significant with mitigation incorporated.

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6 Environmental Determination

On the basis of this initial evaluation:

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

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

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

I find that the project MAY have a "potentially significant impact" or "less than significant with mitigation incorporated" 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 project could have a significant effect on the environment, because all potential 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 project, nothing further is required. ☐

_____ _____

Signature Date

_____ _____

Printed Name Title

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APPENDICES

APPENDIX A NOTICE OF INTENT

NOTICE OF INTENT
TO
ADOPT A MITIGATED NEGATIVE DECLARATION
June 28, 2021

CITY OF CALISTOGA

Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project

In accordance with the California Environmental Quality Act (CEQA), the City of Calistoga has prepared an Initial Study/CEQA Checklist for the above referenced project. The City of Calistoga has determined that the proposed project as amended by the included mitigation measures will not have a significant adverse effect on the environment. The City of Calistoga intends to adopt the Mitigated Negative Declaration for the project.

Project Title: Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project

Project Location: Silverado Trail at Conn Creek, Napa County

Project Description: The project would upgrade an underground segment of the existing North Bay Aqueduct (NBA) pipeline that crosses the Conn Creek floodway. Approximately 100 linear feet of the underground NBA pipeline and associated concrete cap is proposed to be removed from Conn Creek. In addition, the project includes replacement of up to 3,000 linear feet of 12-inch-diameter underground ductile iron pipeline with new 16-inch-diameter ductile iron pipeline in the same location parallel to and along the south side of Silverado Trail. The majority of the replacement pipeline would be constructed underground. Approximately 100 linear feet of the underground NBA pipeline alignment is proposed to be relocated to an elevated position on the new Conn Creek Bridge, which was replaced by the California Department of Transportation (Caltrans) in 2020.

Applicant: City of Calistoga, Public Works Department, 414 Washington Street, Calistoga, CA 94515

Lead Agency Contact Person: Hamid Heidary, P.E., Senior Civil Engineer, City of Calistoga, Public Works Department, (707) 942-2828

Address where the Initial Study/Mitigated Negative Declaration and reference materials may be viewed:https://www.ci.calistoga.ca.us/city-hall/departments-services/public-works-department/capital-projects/ceqa-california-environmental-quality-act
Public Review Period: Written comments on the proposed Mitigated Negative Declaration must be received between June 28, 2021 and July 28, 2021. Please submit comments to Hamid Heidary, P.E., Senior Civil Engineer, City of Calistoga, Public Works Department, 414 Washington Street, Calistoga, CA 94515; or hheidary@ci.calistoga.ca.us.

Mitigation Measures: The potential adverse impacts have been found to be mitigated to less than significant, as discussed under the following topical areas in the Initial Study:

__ Aesthetics	__ Agriculture and Forestry Resources	X Air Quality
X Biological Resources	X Cultural Resources	__ Energy
__Geology & Soils	__ Greenhouse Gas Emissions	X Hazards & Hazardous Materials
__ Hydrology & Water Quality	__ Land Use & Planning	__ Mineral Resources
__ Noise	__ Population & Housing	__ Public Services
__Recreation	X Transportation	X Tribal Cultural Resources
X Utilities & Service Systems	X Wildfire	X Mandatory Findings of Significance

BY ORDER OF THE CITY OF CALISTOGA
PUBLIC WORKS DEPARTMENT

Hamid Heidary, P.E.
Senior Civil Engineer

06/09/2021
Date

APPENDIX B ENGINEERING PLANS – 65% DESIGN

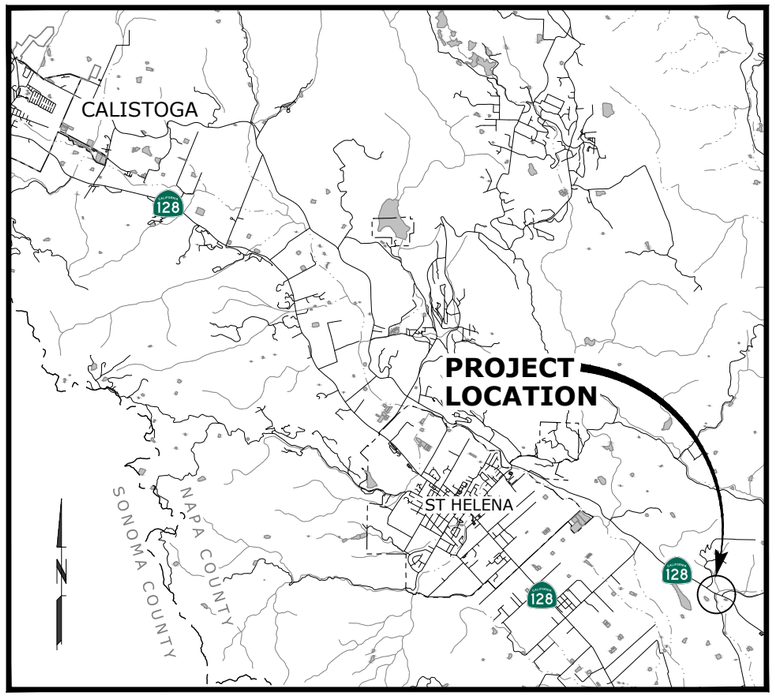
WATER RELIABILITY TRANSMISSION/DISTRIBUTION IMPROVEMENT - CONN CREEK WATER LINE PJ0402

AWARD/DISASTER# 4344-DR-CA

FIPS# 055-09892

JUNE 2021

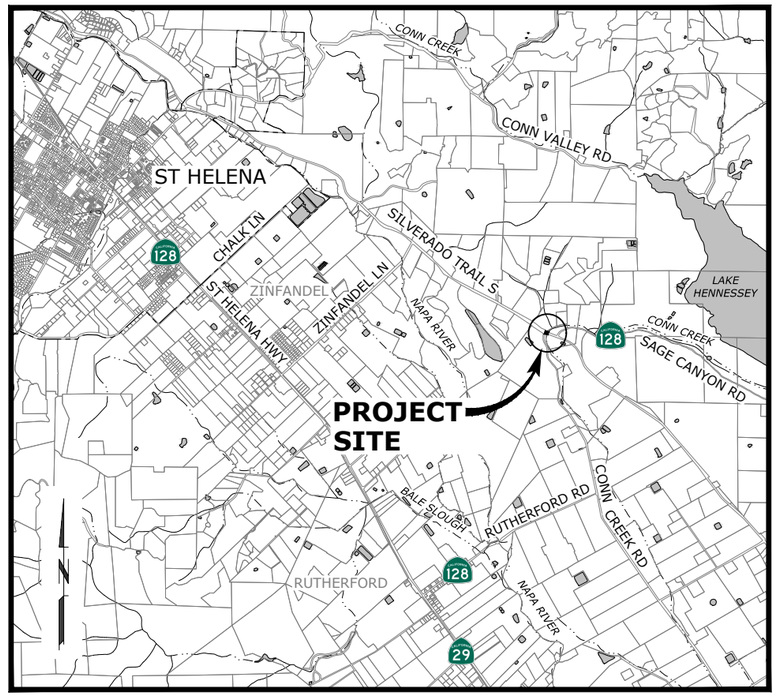
65% - SUBMITTAL



LOCATION MAP

SCALE: 1"=1 MILE

INDEX OF DRAWINGS



VICINITY MAP

SCALE: 1"=3,000'

murraysmith

3400 DOUGLAS BLVD, SUITE 190
ROSEVILLE, CA 95661
P 916.238.6431

811 Know what's **below.** **Call** before you dig.

20-2905.00

PIPE & FITTING SYMBOLS

WATERLINE	SCHEMATIC	
		WELDED JOINT
		FLANGED JOINT
		GROOVED END JOINT
		MECHANICAL JOINT
		PUSH-ON JOINT (RUBBER GASKET)
		FLANGED COUPLING ADAPTER
		DOUBLE BALL FLEXIBLE EXTENSION COUPLING
		FLEXIBLE COUPLING W/ THRUST RING
		90° BEND UP
		90° BEND DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		UNION
		BLIND FLANGE
		CAP
		LONG SLEEVE
		FLEXIBLE COUPLING
		FITTING (45°)

VALVE SYMBOLS

WATERLINE	SCHEMATIC	
		BUTTERFLY VALVE
		GATE VALVE
		GLOBE VALVE
		BALL VALVE
		BALANCING VALVE
		PLUG VALVE (TOP)
		PLUG VALVE (SIDE)
		3-WAY PLUG VALVE
		CHECK VALVE
		SWING CHECK VALVE
		DOUBLE CHECK ASSEMBLY
		BALL SWING CHECK
		SILENT CHECK VALVE
		PRESSURE REDUCING VALVE
		ALTITUDE CONTROL VALVE
		SOLENOID VALVE
		RELIEF VALVE
		NEEDLE VALVE
		HOSE VALVE
		REDUCED PRESSURE BACKFLOW PREVENTER W/ GATE VALVES
		HOSE BIBB

TOPOGRAPHIC LEGEND

	EXISTING	PROPOSED
WATERLINE	10"W	12"DI W
ELECTRICITY	E	E
GAS	4"G	4"G
TELEPHONE/TELEMETRY	T	T
CABLE TELEVISION	CATV	CATV
SANITARY SEWER LINE	8"SS	8"SS
SANITARY SEWER FORCE MAIN	6"FM	6"FM
STORM DRAIN	8"SD	8"SD
CULVERT		18"D
ABANDON PIPE		
DRAINAGE DITCH		
BARBWIRE FENCE		
CHAIN LINK FENCE		
TEMPORARY SILT FENCE		
GUARDRAIL		
ROCK WALL		
TREE/BUSH LINE		
CENTERLINE		
EASEMENT/PROPERTY LINE		
RIGHT-OF-WAY		
EDGE OF PAVEMENT/AC		
EDGE OF GRAVEL		
CURB		
SIDEWALK	S/W	
STRUCTURE OR FACILITY		
CONTOUR MINOR		
CONTOUR MAJOR	200	200
MANHOLE		
CLEAN-OUT		
CATCH BASIN/FIELD INLET		
THRUST BLOCK		
VALVE		
AIR INJECTION ASSEMBLY		
BLOW-OFF ASSEMBLY		
AIR RELEASE ASSEMBLY		
FIRE HYDRANT ASSEMBLY		
WATER METER		
PULL BOX/JUNCTION BOX		
UTILITY POLE		
GUY WIRE		
LIGHT POST		
MAILBOX		
SIGN		
BENCHMARK		
TREE DECIDUOUS		
TREE CONIFEROUS		
TREE TO BE REMOVED		
SURFACE ELEVATION	176X63	176X63

SECTION AND DETAIL DESIGNATIONS

SECTION DESIGNATIONS

SECTION LETTER DESIGNATION

A
2

SHEET WHERE SECTION IS SHOWN *

SECTION
SCALE:

SECTION LETTER DESIGNATION

A
2

SHEET FROM WHICH SECTION IS TAKEN *

DETAIL DESIGNATIONS

DETAIL
SCALE:

2
2

DETAIL NUMBER

SHEET FROM WHICH DETAIL IS TAKEN *

MISCELLANEOUS PIPING SYMBOLS

	STRAINER
	SIGHT GLASS
	PRESSURE GAUGE W/ COCK
	PRESSURE SWITCH W/ COCK
M	METER
SP	SLIP-ON JOINT PIPE
R	RESTRAINED JOINT PIPE

* NOTE: IF PLAN AND SECTION FOR DETAIL CALL-OUT AND DETAIL ARE SHOWN ON THE SAME DRAWING, DRAWING NUMBER IS REPLACED WITH A DASH.

NO.	DATE	BY	REVISION

NOTICE

0 ½ 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DSN DESIGNED
CAD DRAWN
CHK CHECKED

PRELIMINARY ONLY
DO NOT USE FOR CONSTRUCTION

JUNE 2021

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City of Calistoga

CONN CREEK WATER LINE PROJECT

SYMBOLS AND LEGEND

PROJECT NO.: 20-2905.00 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET
G-2
2 of 17

P:\roseville_client\calistoga\20-2905 Conn Creek\06 CAD\Sheets\20-2905-CA-G.dwg G-2 6/15/2021 5:27 PM ABBIE.MCNOMEE
ABBIE.MCNOMEE 23.0s (LMS Tech)

@	AT
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABAN(D)	ABANDON(ED)
ABS	ACRYLONITRILE BUTADIENE STYRENE
ABUT	ABUTMENT
ABV	ABOVE / ALCOHOL BY VOLUME
AC	ASPHALTIC CONCRETE
ACP	ASPHALTIC CONCRETE PAVING
ADJ	ADJUSTABLE
ADJC	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHR	ANCHOR
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
APPVD	APPROVED
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARCH	ARCHITECTURAL
ARV	AIR RELEASE VALVE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASSN	ASSOCIATION
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
ATM	ATMOSPHERE
AUTO	AUTOMATIC
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
B&S	BELL & SPIGOT
BC	BOLT CIRCLE
BD	BOARD
BETW	BETWEEN
BF	BOTH FACE
BFD	BACKFLOW PREVENTION DEVICE
BFILL	BACKFILL
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BKGD	BACKGROUND
BLDG	BUILDING
BLK	BLOCK
BLVD	BOULEVARD
BM	BENCHMARK / BEAM
BMP	BEST MANAGEMENT PRACTICES
BO	BLOW-OFF
BOC	BACK OF CURB
BR	BRIDGE
BS	BOTH SIDES
BSMT	BASEMENT
BTF	BOTTOM FACE
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BW	BOTH WAYS
C	CELSIUS
C TO C	CENTER TO CENTER
CALTRANS	CALIFORNIA DEPARTMENT OF TRANSPORTATION
CARV	COMBINATION AIR RELEASE VALVE
CATV	CABLE TELEVISION
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CCW	COUNTER CLOCKWISE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHAN	CHANNEL
CHEM	CHEMICAL
CHFR	CHAMFER
CHKV	CHECK VALVE
CI	CAST IRON
CIP	CAST IRON PIPE
CIPC	CAST IN PLACE CONCRETE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL OR C/L	CENTER LINE
CL2	CHLORINE
CLG	CEILING
CLJ	CONTROL JOINT
CLR	CLEAR
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS / CONTINUATION
CONTR	CONTRACT(OR)
COORD	COORDINATE
COP	COPPER
CORP	CORPORATION
CORR	CORRUGATED
CP	CONTROL POINT
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CRUSHED ROCK
CS	COMBINED SEWER
CSP	CONCRETE SEWER PIPE
CT	COURT
CTR	CENTER
CU	CUBIC
CULV	CULVERT
CV	CONTROL VALVE
CW	CLOCKWISE / COLD WATER
CY	CUBIC YARDS
CYL	CYLINDER LOCK
D	DRAIN
DC	DIRECT CURRENT
DEFL	DEFLECTION
DEQ	DEPARTMENT OF ENVIRONMENTAL QUALITY
DET	DETAIL
DIP	DUCTILE IRON PIPE
DIA	DIAMETER
DIM	DIMENSION
DIR	DIRECTION
DIST	DISTANCE
DN	DOWN
DR	DRIVE
DS	DOWNSPOUT
DWG	DRAWING
DWL	DOWEL
DWV	DRAIN WASTE AND VENT
DWY	DRIVEWAY
E / ELEC	ELECTRICAL
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EL	ELEVATION
ELB	ELBOW
ENCL	ENCLOSURE
EOD	EDGE OF DECK
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
ESMT	EASEMENT
EW	EACH WAY
EXC	EXCAVATE
EXIST	EXISTING
EXP	EXPANSION
EXP BT	EXPANSION BOLT
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F	FAHRENHEIT
F TO F	FACE TO FACE
FAB	FABRICATE
FB	FLAT BAR
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FEXT	FIRE EXTINGUISHER
FF	FAR FACE
FGL	FIBERGLASS
FH	FIRE HYDRANT
FIN	FINISH(ED)
FIPT	FEMALE IRON PIPE THREAD
FITG	FITTING
FL	FLOOR LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLL	FLOW LINE
FLR	FLOOR
FM	FORCE MAIN
FO	FIBER OPTIC
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET / FOOT
FTG	FOOTING
FUT	FUTURE
FXTR	FIXTURE
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GROOVED COUPLING
GFA	GROOVED FLANGE ADAPTER
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GJ	GRIP JOINT
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPS	GALLONS PER SECOND
GR	GRADE
GR LN	GRADE LINE
GRTG	GRATING
GV	GATE VALVE
GRVL	GRAVEL
GYP	GYPSUM
HB	HOSE BIBB
HC	HOLLOW CORE
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDWE	HARDWARE
HGR	HANGER
HGT	HEIGHT
HH	HANDHOLD
HM	HOLLOW METAL
HMAC	HOT MIX ASPHALT CONCRETE
HNDRL	HANDRAIL
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HORIZ	HORIZONTAL
HP	HIGH PRESSURE / HORSEPOWER
HPG	HIGH PRESSURE GAS
HPT	HIGH POINT
HR	HOUR
HSB	HIGH STRENGTH BOLT
HV	HOSE VALVE
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWL	HIGH WATER LINE
HWY	HIGHWAY
HYD	HYDRANT
HYDR	HYDRAULIC
I&C	INSTRUMENTATION & CONTROL
IAW	IN ACCORDANCE WITH
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IMPVT	IMPROVEMENT
IN	INCH
INCC	INCLUDE(D)(ING)
INFL	INFLUENT
INJ	INJECTION
INSTL	INSTALLATION / INSTALL
INSUL	INSULATION
INTER	INTERCEPTOR
INTR	INTERIOR
INV	INVERT
IP	IRON PIPE
IPT	IRON PIPE THREAD
IR	IRON ROD
IRRIG	IRRIGATION
ITD	IDAHO TRANSPORTATION DEPARTMENT
JT	JOINT
JUNC	JUNCTION
KPL	KICK PLATE
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWY	KEYWAY
L	LENGTH
LAB	LABORATORY
LAV	LAVATORY
LB	POUND
LF	LINEAR FOOT
LIN	LINEAL
LN	LANE
LOC	LOCATION
LONG	LONGITUDINAL
LP	LOW PRESSURE
LPT	LOW POINT
LRG	LARGE
LS	LONG SLEEVE / LUMP SUM
LT	LEFT
LVL	LEVEL
LWL	LOW WATER LINE
MAN	MANUAL
MAT	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MASTER CONTROL PANEL
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MIPT	MALE IRON PIPE THREAD
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT / MONOLITHIC
MOT	MOTOR
MP	MILEPOST
MSL	MEAN SEAL LEVEL
MTD	MOUNTED
NA	NOT APPLICABLE
NAVD	NORTH AMERICAN VERTICAL DATUM
NC	NORMALLY CLOSED
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO / NO.	NORMALLY OPEN / NUMBER
NOM	NOMINAL
NORM	NORMAL
NRS	NON-RISING STEM
NTS	NOT TO SCALE
O TO O	OUT TO OUT
OAR	OREGON ADMINISTRATIVE RULES
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODOT	OREGON DEPARTMENT OF TRANSPORTATION
OF	OVERFLOW / OUTSIDE FACE
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OVHD	OVERHEAD
P&ID	PROCESS & INSTRUMENTATION DIAGRAM
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PCVC	POINT OF CURVATURE ON VERTICAL CURVE
PE	PLAIN END
PERF	PERFORATED
PERM	PERMANENT
PERP	PERPENDICULAR
PG	PRESSURE GAUGE
PH	PIPE HANGER
PI	POINT OF INTERSECTION
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL OR P/L	PROPERTY LINE / PLATE / PLASTIC
PLBG	PLUMBING
PNL	PANEL
POC	POINT OF CURVATURE
POLY	POLYETHYLENE
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PRCST	PRECAST
PREP	PREPARATION
PRESS	PRESSURE
PRKG	PARKING
PROP	PROPERTY
PRV	PRESSURE REDUCING VALVE
PS	PUMP STATION
PSIG	POUNDS PER SQUARE INCH GAUGE
PSL	PIPE SLEEVE
PSPT	PIPE SUPPORT
PT	POINT OF TANGENCY
PTVC	POINT OF TANGENCY ON VERTICAL CURVE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWR	POWER
QTY	QUANTITY
RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD / ROOF DRAIN
RDCR	REDUCER
REF	REFERENCE
REINF	REINFORCE(D)(ING)(MENT)
REQ'D	REQUIRED
RESTR	RESTRAINED
RFCA	RESTRAINED FLANGE COUPLING ADAPTER
RM	ROOM
RMJ	RESTRAINED MECHANICAL JOINT
RND	ROUND
RO	ROUGH OPENING
R/W	RIGHT-OF-WAY
RPBPD	REDUCED PRESSURE BACKFLOW PREVENTION DEVICE
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RST	REINFORCED STEEL
RT	RIGHT
SALV	SALVAGE
SAN	SANITARY
SC	SOLID CORE
SCHED	SCHEDULE
SD	STORM DRAIN
SDL	SADDLE
SDR	STANDARD DIMENSION RATIO
SECT	SECTION
SHLDR	SHOULDER
SHT	SHEET
SIM	SIMILAR
SLP	SLOPE
SLV	SLEEVE
SOLN	SOLUTION
SP	SOIL PIPE / SEWER PIPE
SPCL	SPECIAL
SPEC(S)	SPECIFICATION(S)
SPG	SPACING
SPL	SPOOL
SPRT	SUPPORT
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRAIGHT
STRUCT	STRUCTURE / STRUCTURAL
SUBMG	SUBMERGED
SUCT	SUCTION
SV	SOLENOID VALVE
S/W	SIDEWALK
SWD	SIDEWATER DEPTH
SWGR	SWITCH GEAR
SYMM	SYMMETRICAL
SYS	SYSTEM
T OR TEL	TELEPHONE
T&B	TOP & BOTTOM
TAN	TANGENCY
TB	THRUST BLOCK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CONCRETE / TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE / TEMPORARY
T&G	TONGUE & GROOVE
THK	THICK / THICKNESS
THRD	THREAD (ED)
THRU	THROUGH
TP	TEST PIT / TOP OF PAVEMENT / TURNING POINT
TRANS	TRANSITION
TSP	TRI-SODIUM PHOSPHATE
TST	TOP OF STEEL
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UN	UNION
UON	UNLESS OTHERWISE NOTED
USGS	UNITED STATES GEOLOGIC SURVEY
V	VENT / VOLT
VAC	VACUUM
VB	VACUUM BREAKER
VBOX	VALVE BOX
VC	VERTICAL CURVE
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VCP	VITRIFIED CLAY PIPE
VTR	VENT THROUGH ROOF
W	WATER
W/	WITH
W/IN	WITHIN
W/O	WITHOUT
W/W	WALL TO WALL
WD	WOOD
WF	WIDE FLANGE
WH	WATER HEATER
WI	WROUGHT IRON
WM	WATER METER
WP	WORKING POINT / WATERPROOFING
WS	WATER SERVICE
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WT	WEIGHT
WTP	WATER TREATMENT PLANT
WTRT	WATERTIGHT
WWF	WELDED WIRE FABRIC
WWTF	WASTEWATER TREATMENT FACILITY
WWTP	WASTEWATER TREATMENT PLANT
X SECT	CROSS SECTION
XFMR	TRANSFORMER
YD	YARD DRAIN / YARD
YH	YARD HYDRANT
YR	YEAR
ZN	ZINC

NO.	DATE	BY	REVISION

NOTICE

0 ½ 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DSN DESIGNED

CAD DRAWN

CHK CHECKED

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JUNE 2021

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CONN CREEK WATER LINE PROJECT

ABBREVIATIONS

PROJECT NO.: 20-2905.00 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET

G-3

3 of 17

P:\roseville_client\calistoga\20-2905 Conn Creek\06 CAD\Sheets\20-2905-CA-G.dwg G-3 6/15/2021 5:27 PM ABBIE.MCNOMEE 23.0s (LMS Tech)

GENERAL NOTES

1. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION SHALL CONFORM TO THE CITY OF SANTA ROSE STANDARD PLANS AND SPECIFICATIONS FOR PUBLIC IMPROVEMENTS, MOST RECENT EDITION, THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE AND/OR APPLICABLE CITY OF CALISTOGA CODES, ORDINANCES, ZONING AND PLANNING LAWS, AND TO THE PROJECT SPECIFICATIONS, AND STATE STANDARD SPECIFICATIONS AND STANDARD PLANS.

2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES; CONFLICTS AND/OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. UNLESS NOTED OTHERWISE, EXISTING UTILITIES SHALL BE PROTECTED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL COOPERATE WITH ALL UTILITY COMPANIES AND OTHER CONTRACTORS WORKING WITHIN THE LIMITS OF THE PROJECT.

3. THE CONTRACTOR SHALL SECURE ALL ENCROACHMENT PERMITS FROM THE CITY OF CALISTOGA, CALTRANS, COUNTY OF NAPA AND ANY OTHER APPLICABLE AGENCIES PRIOR TO COMMENCEMENT OF WORK.

4. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA), 811 OR 800-227-2600 AT LEAST 48 HOURS TO ANY EXCAVATION, FOR MARK OUTS OF EXISTING UTILITIES.

5. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY: THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO HOLD HARMLESS, INDEMNIFY AND DEFEND THE OWNER, THE ENGINEER, CONSULTANTS, THE CITY OF CALISTOGA, AND EACH OF THEIR OFFICERS, EMPLOYEES, AND AGENTS.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING UTILITIES AND IMPROVEMENTS FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE SHALL BE REPAIRED/REPLACED TO THE SATISFACTION OF THE CITY AND AT NO COST TO THE CITY.

7. CONTRACTOR SHALL OBTAIN A DEWATERING PERMIT FROM THE BAY AREA REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) FOR ANY DEWATERING OPERATION THAT IS USED TO MANAGE REMOVAL OF WATER FROM EXCAVATION, COFFERDAMS, DIVERSIONS, AND AREAS OF PONDING (ACCUMULATED PRECIPITATION) WITH THE INTENT OF DISCHARGING SUCH WATERS TO THE STORM DRAIN OR WATER OF THE STATE OF CALIFORNIA.

8. CONTRACTOR IS RESPONSIBLE FOR PRESERVATION AND/OR PERPETUATION OF ALL EXISTING MONUMENTS WHICH CONTROL SUBDIVISIONS, TRACTS, STREET OR HIGHWAYS, OR PROVIDE SURVEY CONTROL WITH WILL BE DISTURBED OR REMOVED DUE TO CONTRACTOR'S WORK. CONTRACTOR SHALL PROVIDE A MINIMUM OF 10 WORKING DAYS NOTICE TO PROJECT ENGINEER/SURVEYOR PRIOR TO DISTURBANCE OR REMOVAL OF EXISTING MONUMENTS. PROJECT ENGINEER/SURVEYOR SHALL COORDINATE WITH CONTRACTOR TO RESET MONUMENTS OR PROVIDE PERMANENT WITNESS MONUMENTS AND FILE THE REQUIRED DOCUMENTATION WITH THE COUNTY SURVEYOR PER BUSINESS AND PROFESSIONS CODE SECTION 8871. NAPA COUNTY SURVEYOR: 707-258-8381.

9. CONTRACTOR SHALL CONFINE HOURS OF CONSTRUCTION OPERATION TO 7 A.M. TO 5 P.M. MONDAY THROUGH FRIDAY, UNLESS OTHERWISE APPROVED. ALL EQUIPMENT SHALL HAVE APPROPRIATE NOISE SUPPRESSION DEVICES (MUFFLERS) IN PLACE AND FUNCTIONING AT ALL TIME, IN ACCORDANCE WITH STATE GUIDELINES FOR SAME. NO ON-SITE WARM UP OF EQUIPMENT SHALL BE PERMITTED PRIOR TO 7:00 A.M. WARM UP TIMES SHALL BE MINIMIZED AND ANY EQUIPMENT NOT ACTIVELY IN USED SHALL BE SHUT DOWN IMMEDIATELY.

10. ALL WORK SHALL COMPLY WITH THE AIR QUALITY AND PERMITTING REQUIREMENTS OF THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT.

11. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A) STANDARDS AS FORTH BY THE FEDERAL DEPARTMENT OF LABOR AND/OR THE STATE OF CALIFORNIA. THE CONTRACTOR SHALL SECURE A TRENCH PERMIT FROM THE CALIFORNIA DIVISION OF INDUSTRIAL SAFETY PRIOR TO EXCAVATION OF ANY TRENCH OVER FIVE (5) FEET DEEP.

12. ALL WORK SHALL BE GOVERNED BY THE DIMENSIONS SHOWN ON THE DRAWINGS AND FIELD VERIFIED. DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR ADJUSTMENT PRIOR TO PROCEEDING WITH THE WORK.

13. THE CITY OF CALISTOGA DEPARTMENT OF PUBLIC WORKS SHALL BE NOTIFIED 48 HOURS PRIOR TO STARTING ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THESE AGENCIES INFORMED OF THEIR SCHEDULE.

14. CONTRACTOR SHALL PROVIDE 48 HOURS ADVANCE NOTICE TO THE ENGINEER FOR REQUESTED INSPECTIONS.

15. EXISTING UTILITIES SHALL BE KEPT IN SERVICE AT ALL TIMES. UTILITIES THAT INTERFERE WITH WORK TO BE PERFORMED UNDER THIS PROJECT SHALL BE PROTECTED AS REQUIRED IN ACCORDANCE WITH CITY OF CALISTOGA, P.G.& E., AND AT&T REQUIREMENTS.

16. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND INSPECTIONS FROM THE CITY OF CALISTOGA.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DAILY RECORD OF DIFFERING CONDITIONS. THE AS-BUILT INFORMATION SHALL BE RECORDED ON DRAWINGS PROVIDED BY OWNER. PRIOR TO FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE THE AS-BUILT DRAWINGS, SIGNED AND DATED BY THE CONTRACTOR.

18. DEVIATIONS FROM THIS PLAN, INCLUDING SUBSTITUTIONS FOR MATERIAL OR EQUIPMENT, SHALL NOT BE MADE WITHOUT THE WRITTEN CONSENT OF MURRAYSMITH, INC. AND THE CITY OF CALISTOGA.

19. CONTRACTOR SHALL COORDINATE WITH PG&E WORK RELATED TO THIS PROJECT.

20. THE LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CITY ONLY ASSUMES RESPONSIBILITY FOR THE ACCURACY OF THE LOCATION OF ITS OWN UNDERGROUND UTILITIES.

21. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY LINES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

22. THE CONTRACTOR SHALL POTHOLE ALL KNOWN UTILITY CROSSINGS 5 DAYS PRIOR TO SCHEDULED CONSTRUCTION OF NEW FACILITIES IN AN AREA.

23. UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

24. THE CONTRACTOR SHALL POSSESS THE CLASS(ES) OF LICENSE(S) AS SPECIFIED IN THE CONTRACT SPECIFICATIONS FOR THIS PROJECT.

25. EXISTING SHRUBBERY SHALL BE REMOVED ONLY AS DIRECTED BY THE ENGINEER.

26. ALL LANDSCAPING AND IRRIGATION SYSTEMS DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACE IN KIND.

27. THE CONTRACTOR SHALL REPLACE CURB AND GUTTER, PER CITY OF SANTA ROSA STANDARDS, AT CONTRACTOR'S COST AT ALL LOCATIONS WHERE EXCAVATION DISTURBS SUPPORTING SOIL UNDER THE CURB AND GUTTER.

28. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE THE CITY OF CALISTOGA PUBLIC WORKS DEPARTMENT A TRAFFIC PLAN IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

GENERAL WATER SYSTEM NOTES

1. ALL WATER SYSTEM CONSTRUCTION SHALL BE PREFORMED PER CITY DESIGN AND CONSTRUCTION STANDARDS.

2. ONLY QUALIFIED CITY OF CALISTOGA UTILITIES PERSONNEL SHALL OPERATE VALVES ON EXISTING WATER MAINS AND WATER SERVICES.

3. ALL WATER MAIN FINAL TIE-INS SHALL BE PERFORMED BY THE CONTRACTOR PER THE SPECIAL PROVISIONS AND UNDER CITY UTILITIES DEPARTMENT INSPECTION.

NO.	DATE	BY	REVISION

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0 ½ 1
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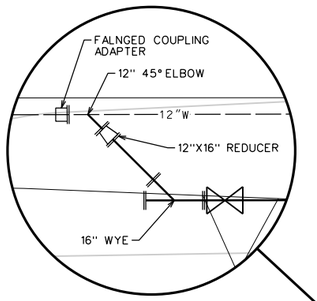
CONN CREEK WATER LINE PROJECT

GENERAL NOTES

PROJECT NO.: 20-2905.00 | SCALE: AS SHOWN | DATE: JUNE 2021

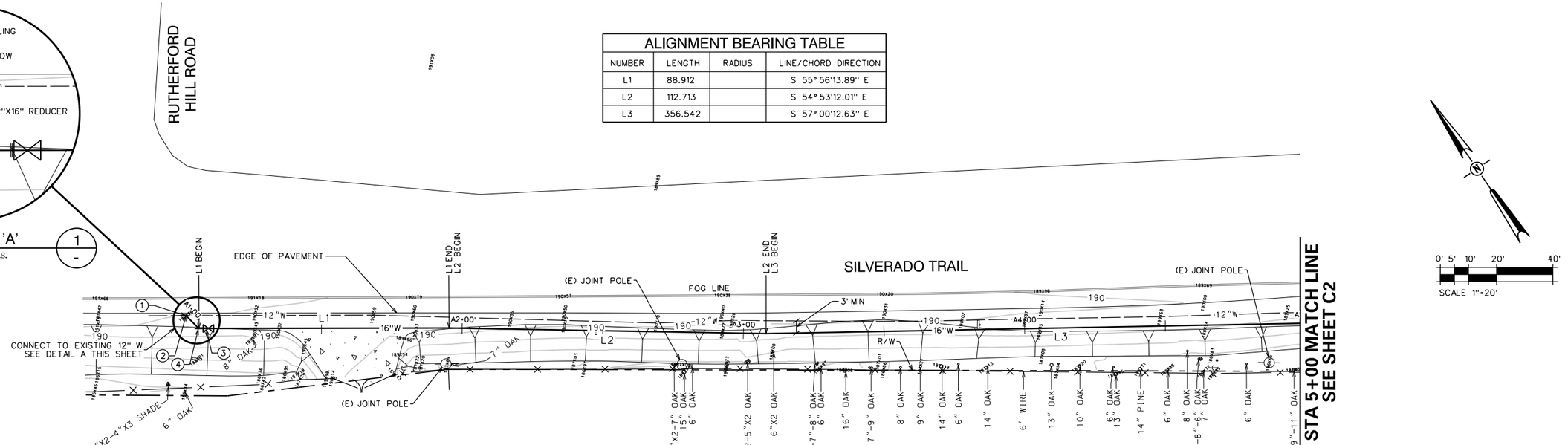
SHEET
G-4



DETAIL 'A'
SCALE: N.T.S.

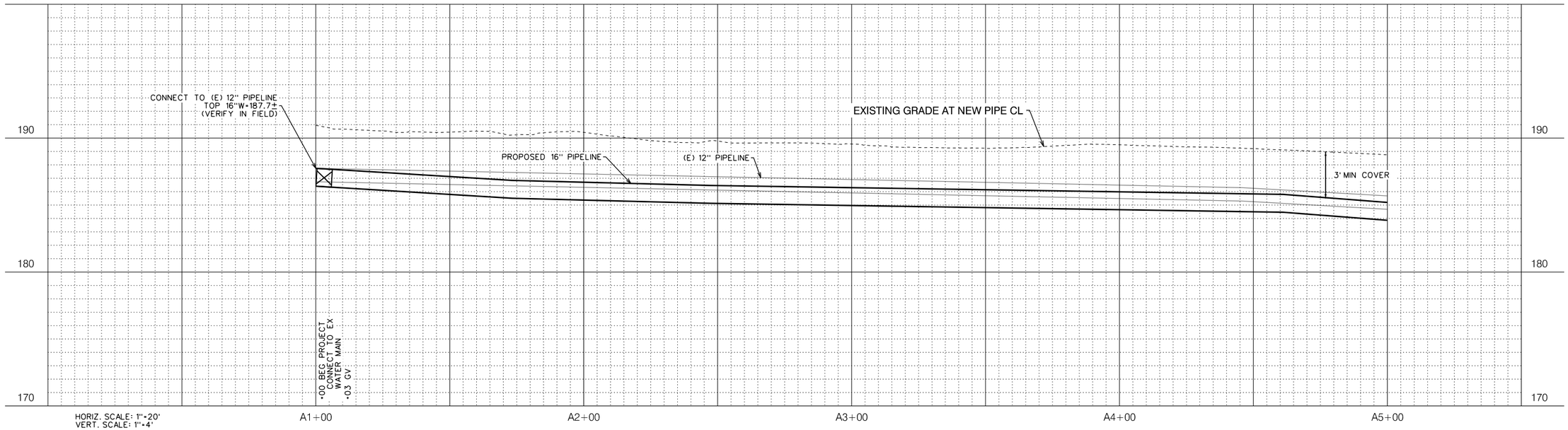
1
-

ALIGNMENT BEARING TABLE			
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION
L1	88.912		S 55°56'13.89" E
L2	112.713		S 54°53'12.01" E
L3	356.542		S 57°00'12.63" E



BUBBLE NOTES:

1. STA 1+00, FURNISH & INSTALL 12"X16" REDUCER
2. FURNISH & INSTALL 1 12" 45° RMJ BEND
3. FURNISH & INSTALL 1 16" GATE VALVE (GV)
4. FURNISH & INSTALL 1 16" WYE



NO.	DATE	BY	REVISION

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City of Calistoga

CONN CREEK WATER LINE PROJECT

PIPELINE IMPROVEMENT WEST OF BRIDGE CROSSING 1

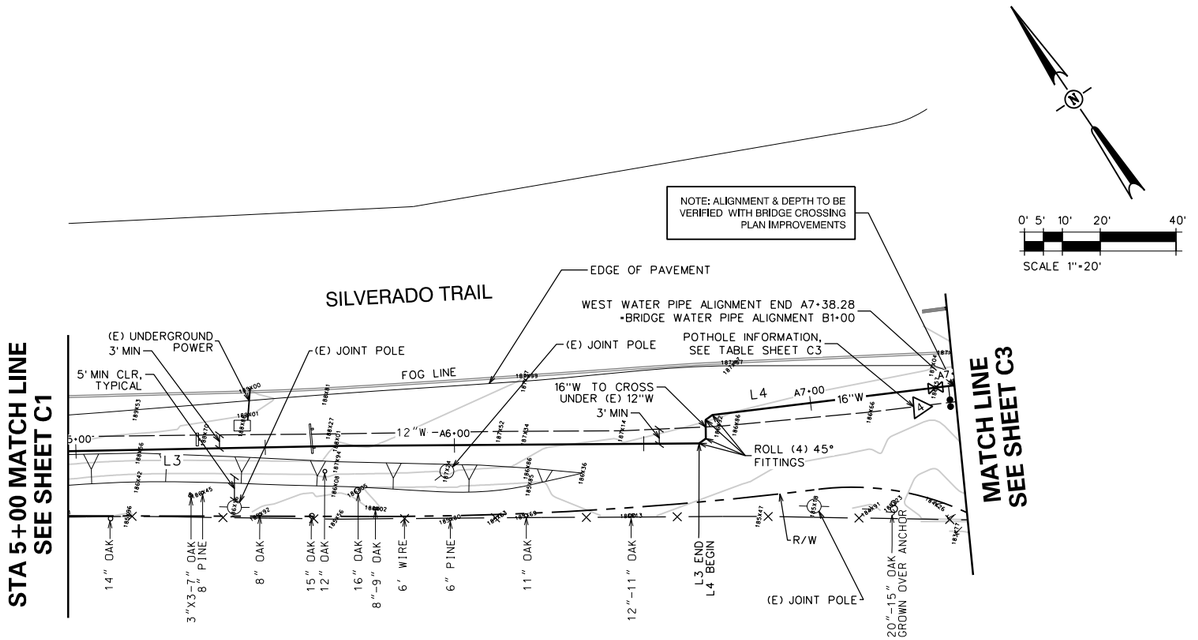
PROJECT NO.: 6098-01 | SCALE: AS SHOWN | DATE: JUNE 2021

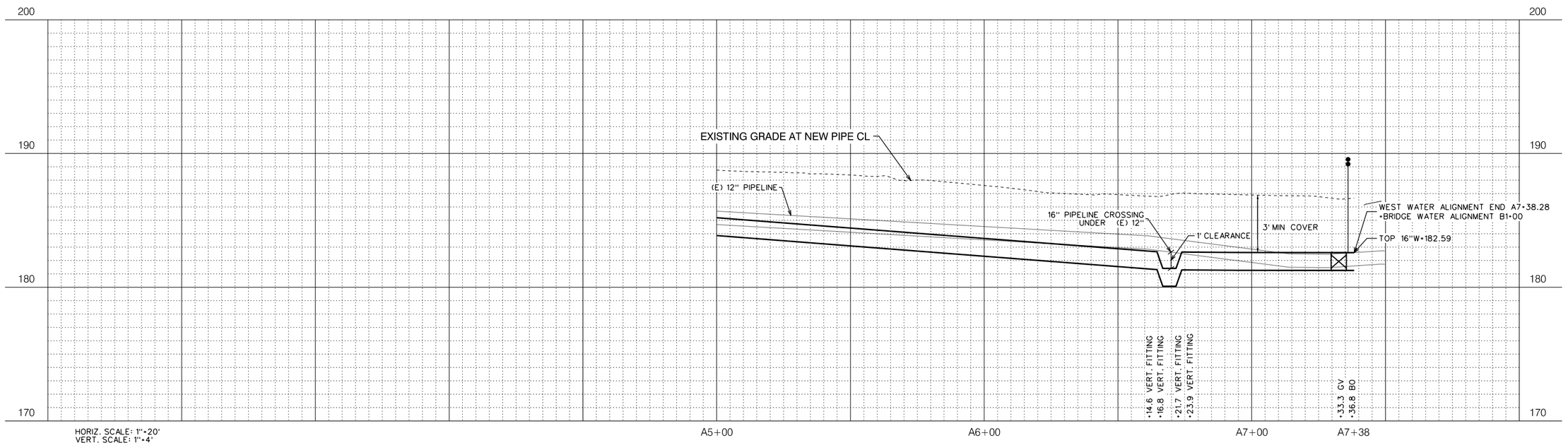
SHEET
C-1
5 of 17

CONSULTING KASL ENGINEERS

FILE: S:\6098-01 Conn Creek\Plans_C-1 PP-01.dgn
DATE: 6/18/2021

ALIGNMENT BEARING TABLE			
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION
L3	356.542		S 57°00'12.63" E
L4	72.924		S 61°33'27.14" E





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CONN CREEK WATER LINE PROJECT

PIPELINE IMPROVEMENT WEST OF BRIDGE CROSSING 2

PROJECT NO.: 6098-01 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET C-2
6 of 17

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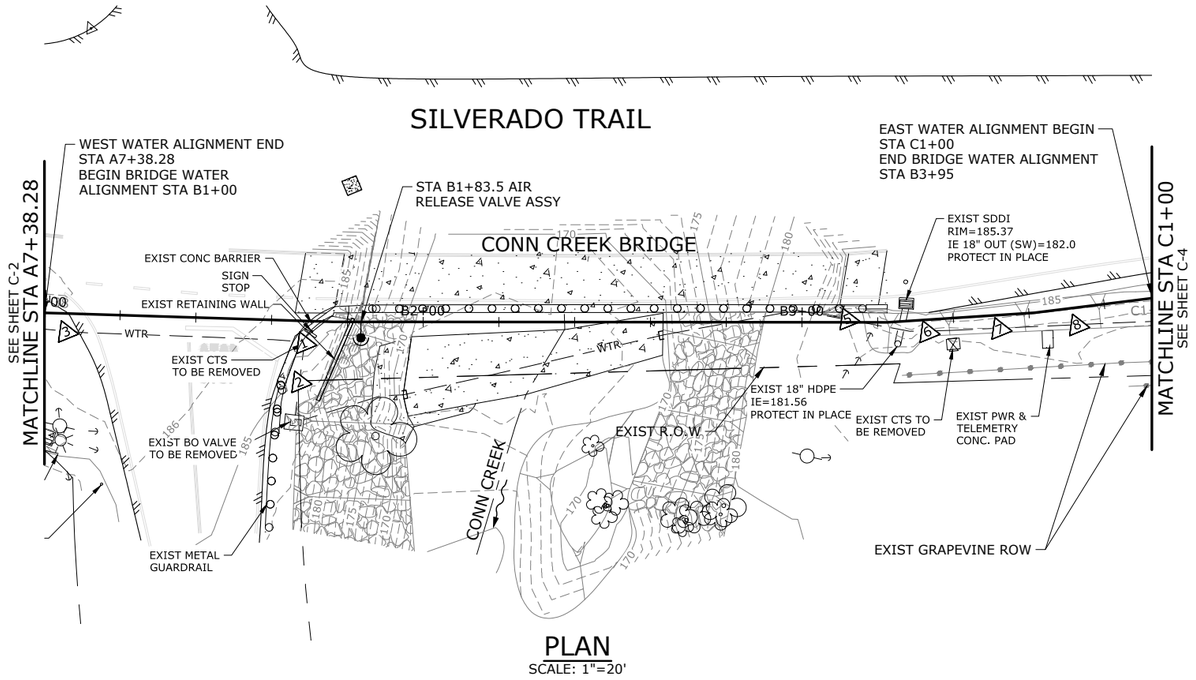
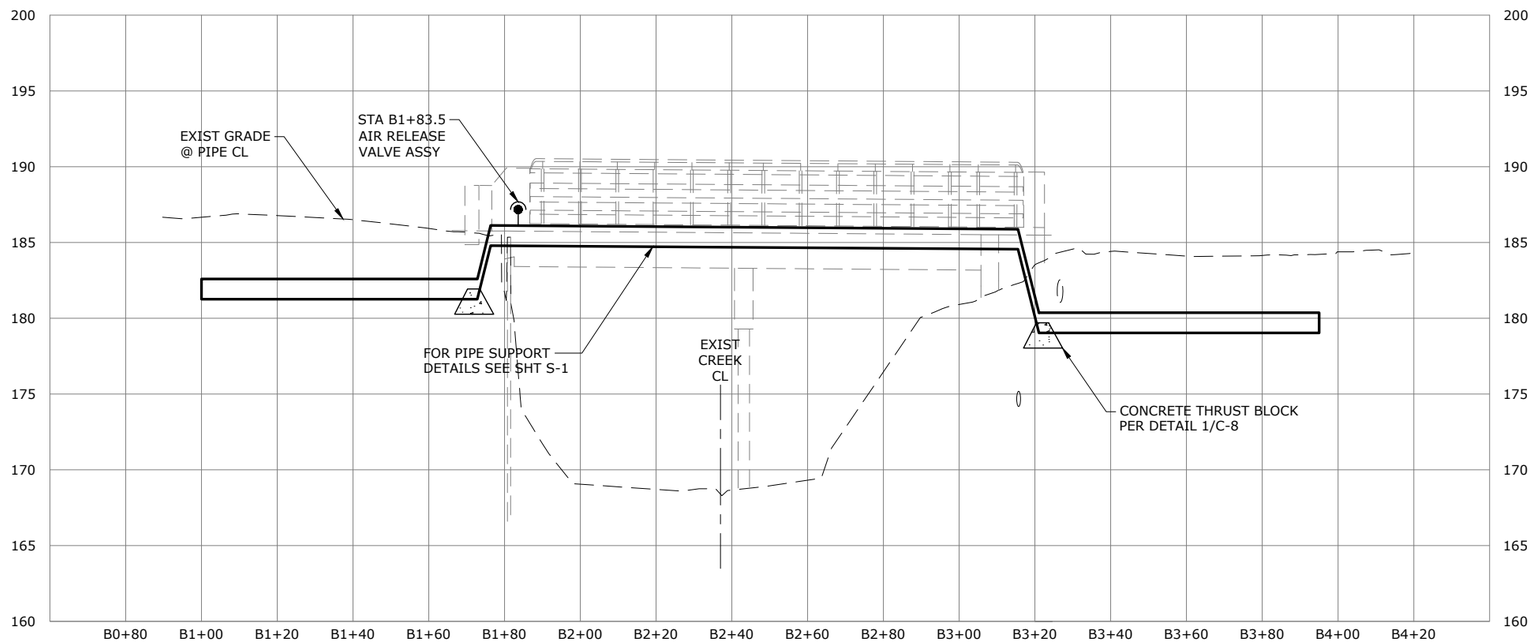
FILE: S:\6098-01 Conn Creek\Plans_C-2 PP-02.dgn
DATE: 6/18/2021



PLAN

SCALE: 1"=20'



BRIDGE WATER LINE PROFILE

SCALE: 1"=20' HORIZ; 1"=5' VERT

EXISTING 12" W POTHOLE INFORMATION

LOCATION ID	DEPTH FROM TOP OF SURFACE
1	40"
2	40"
3	48"
4	48"
5	84"
6	58"
7	41"
8	40"

NOTE: INFORMATION FROM 2014 BESS TESTLAB, INC DATA.

WATER LINE NOTES:

1. REFERENCE GENERAL NOTES, ABBREVIATIONS, AND LEGEND ON SHEETS G-2 THROUGH G-4.
2. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY AND EXISTING DRAWINGS. THE CITY OF CALISTOGA AND MURRAYSMITH, INC. MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. IN ADDITION, THE CITY OF CALISTOGA AND ENGINEER DOES NOT WARRANT THE THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED.
3. CONTRACTOR SHALL CONFIRM DEPTHS OF ALL UTILITY CROSSINGS BEFORE INSTALLING 16" DI WATER MAIN.
4. THE ENGINEER RESERVES THE RIGHT TO MAKE MINOR CHANGES TO THE GRADE, TYPE AND TO THE LOCATION OF THE PROPOSED WATER MAIN AND RELATED APPURTENANCES.
5. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE CITY OF SANTA ROSA STANDARDS AND TRENCH DETAIL PER DETAIL 215.
6. SEE SPECIFICATIONS FOR REQUIREMENTS OF THE ABANDONMENT EXISTING 12" WATER MAIN AND REMOVING APPURTENANCES.
7. ALL DUCTILE IRON PIPE JOINTS RESTRAINED UNLESS OTHERWISE NOTED.
8. SEE CREEK RESTORATION PLANS FOR WORK WITHIN CREEK.
9. SEE STRUCTURAL PLANS FOR BRIDGE CROSSING.

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CONN CREEK WATER LINE PROJECT

BRIDGE WATER LINE PLAN AND PROFILE

PROJECT NO.: 20-2905.00 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET C-3

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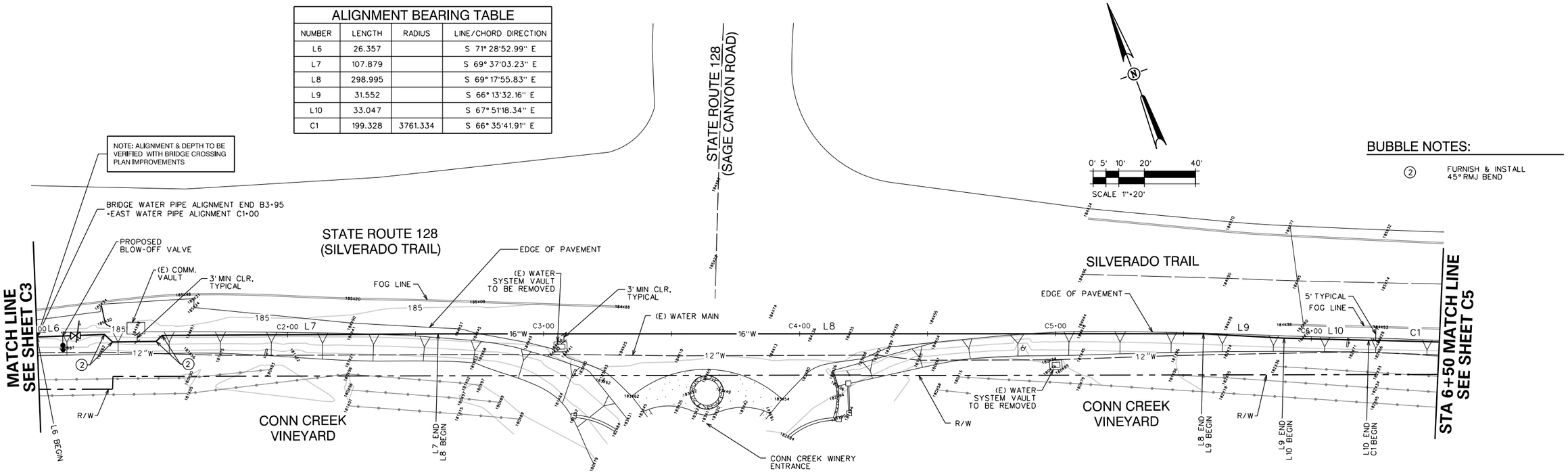
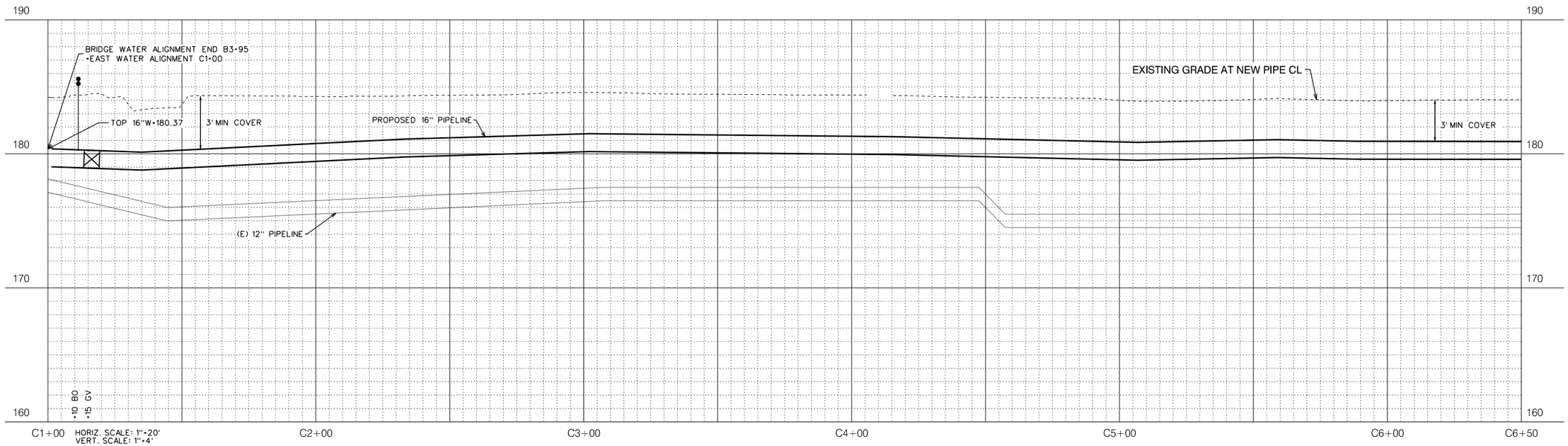
ALIGNMENT BEARING TABLE			
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION
L6	26.357		S 71° 28'52.99" E
L7	107.879		S 69° 37'03.23" E
L8	298.995		S 69° 17'55.83" E
L9	31.552		S 66° 13'32.16" E
L10	33.047		S 67° 51'18.34" E
C1	199.328	3761.334	S 66° 35'41.91" E

NOTE: ALIGNMENT & DEPTH TO BE VERIFIED WITH BRIDGE CROSSING PLAN IMPROVEMENTS



BUBBLE NOTES:

② FURNISH & INSTALL 45° RMJ BEND



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CONN CREEK WATER LINE PROJECT

PIPELINE IMPROVEMENTS EAST OF BRIDGE CROSSING 1

PROJECT NO.: 6098-01 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET C-4

8 of 17

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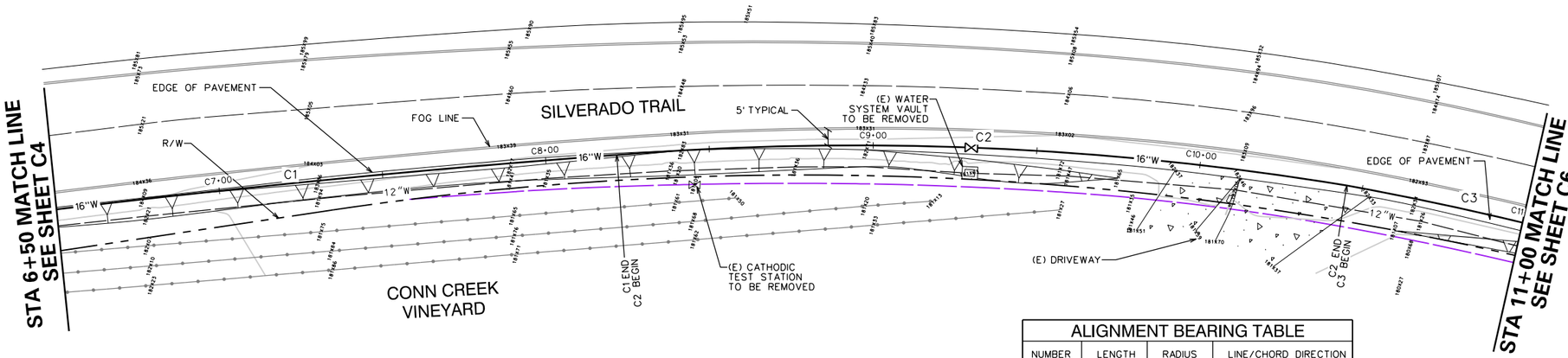
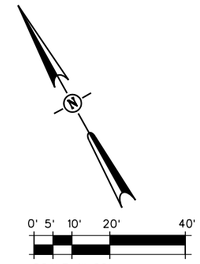
FILE: S:\6098-01 Conn Creek\Plans_C-4 PP-03.dgn
DATE: 6/18/2021

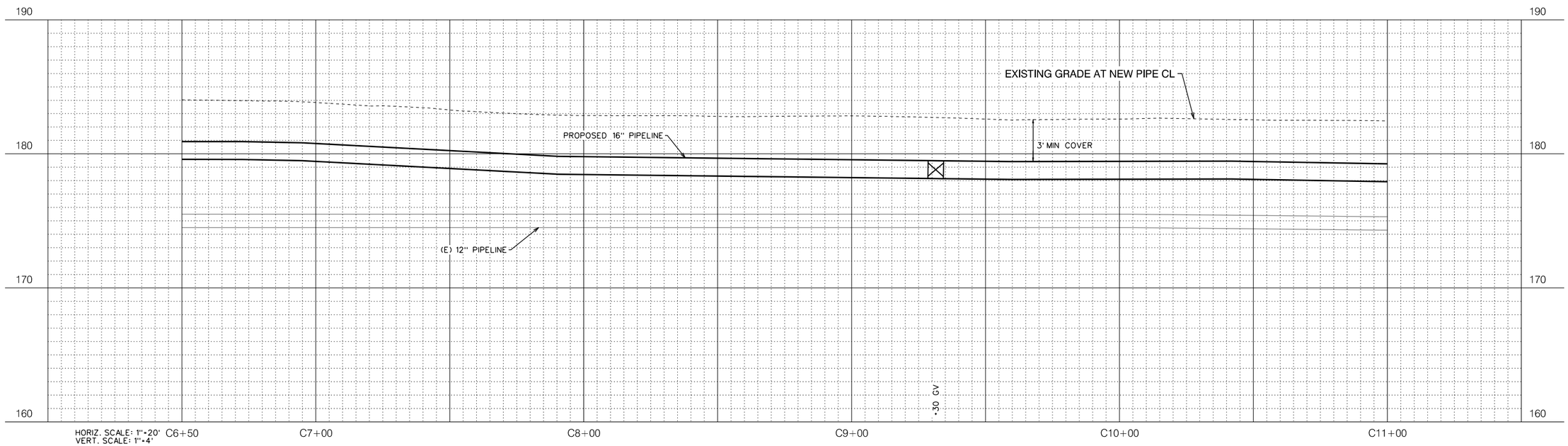




ALIGNMENT BEARING TABLE			
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION
C1	199.328	3761.334	S 66° 35'41.91" E
C2	223.512	918.700	S 58° 26'33.23" E
C3	221.634	1016.648	S 44° 13'29.83" E

NOTE:

EXISTING WATER PIPE TO BE ABANDONED IN PLACE PER CITY OF SANTA ROSA STANDARDS. EXISTING VALVES AND WATER APPURTENANCE TO BE REMOVED.



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City of Santa Rosa

CONN CREEK WATER LINE PROJECT

PIPELINE IMPROVEMENTS EAST OF BRIDGE CROSSING 2

PROJECT NO.: 6098-01 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET
C-5
9 of 17

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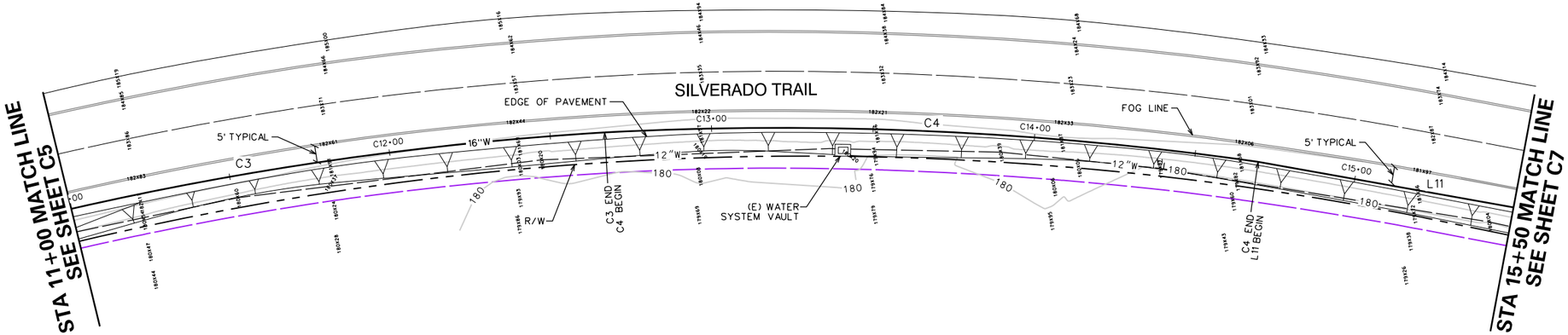
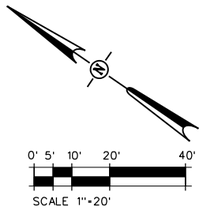
FILE: S:\6098-01 Conn Creek\Plans_C-5 PP-04.dgn
DATE: 6/18/2021





ALIGNMENT BEARING TABLE			
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION
C3	221.634	1016.648	S 44° 13'29.83" E
C4	202.748	1047.122	S 31° 56'39.82" E
L11	122.544		S 24° 22'37.20" E

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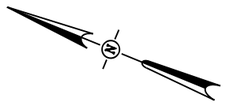
CONN CREEK WATER LINE PROJECT

PIPELINE IMPROVEMENTS EAST OF BRIDGE CROSSING 3

PROJECT NO.: 6098-01 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET
C-6
10 of 17

FILE: S:\6098-01 Conn Creek\Plans_C-6 PP-05.dgn
DATE: 6/18/2021



BUBBLE NOTES:

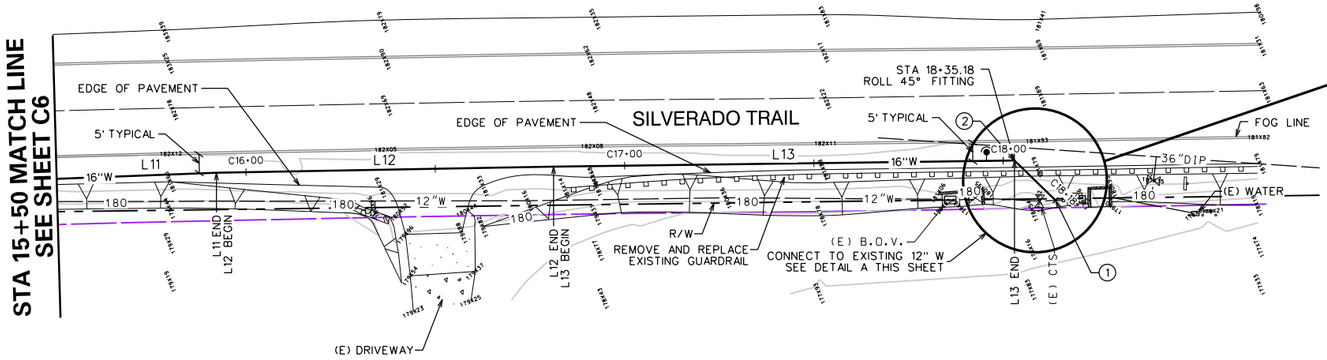
① STA 18+55.5, FURNISH & INSTALL 12"X16" REDUCER

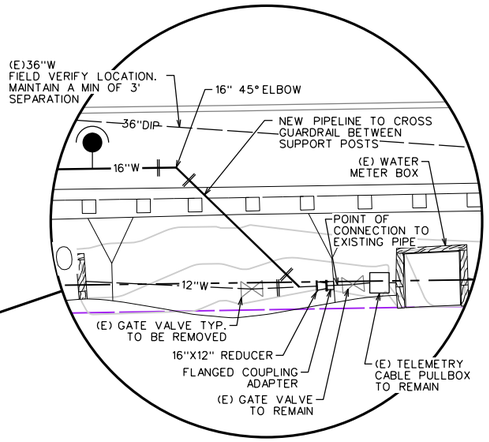
② FURNISH & INSTALL 45° RMJ BEND

ALIGNMENT BEARING TABLE			
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION
L11	122.544		S 24° 22'37.20" E
L12	89.069		S 23° 13'33.83" E
L13	153.883		S 22° 55'03.29" E

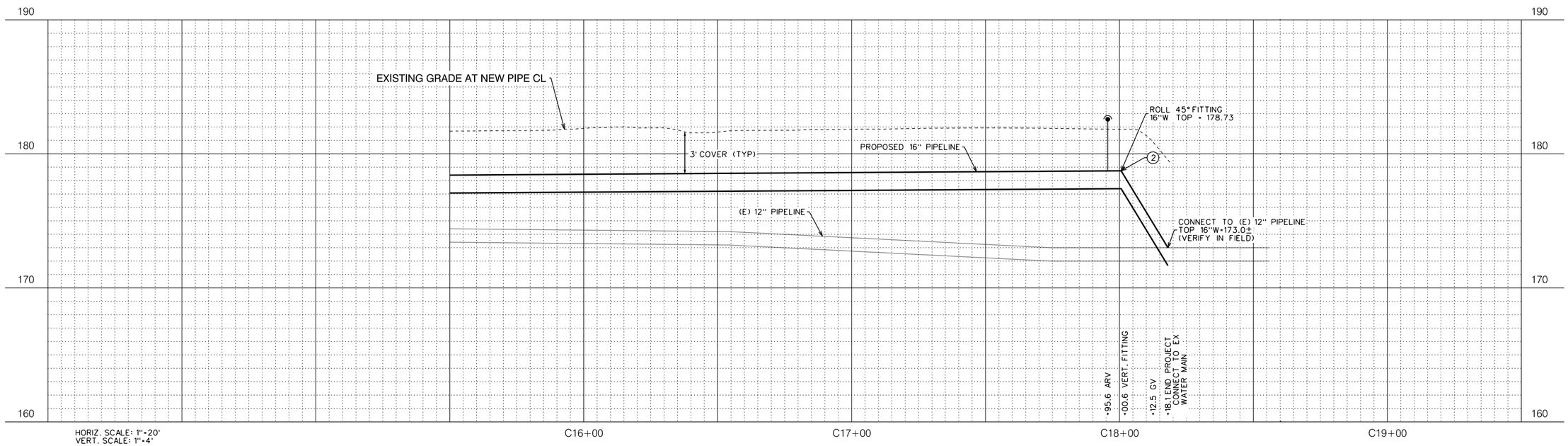
NOTE:

EXISTING WATER PIPE TO BE ABANDONED IN PLACE PER CITY OF SANTA ROSA STANDARDS. EXISTING VALVES AND WATER APPURTENANCE TO BE REMOVED.





DETAIL 'A' 1/-
SCALE: N.T.S.



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CONN CREEK WATER LINE PROJECT

PIPELINE IMPROVEMENTS EAST OF BRIDGE CROSSING 4

PROJECT NO.: 6098-01 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET C-7
11 of 17

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FILE: S:\6098-01 Conn Creek\Plans_C-7 PP-06.dgn
DATE: 6/18/2021

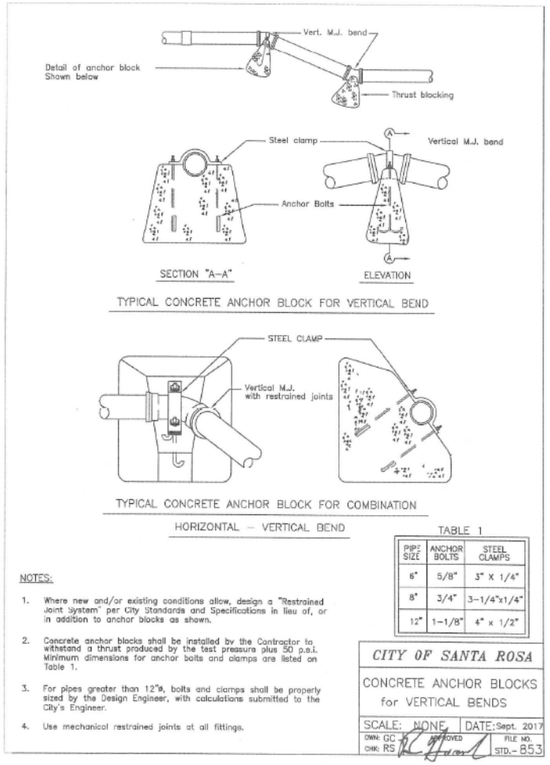


TABLE 1

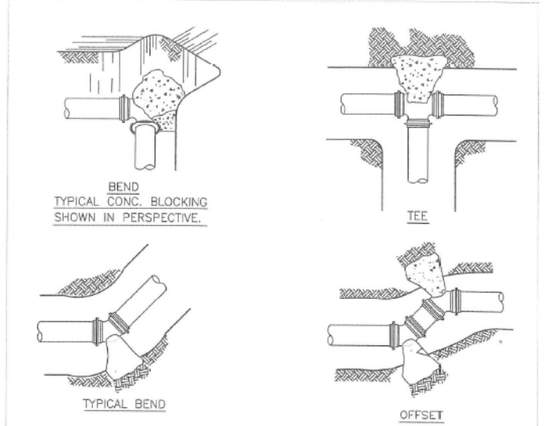
PIPE SIZE	ANCHOR BOLTS	STEEL CLAMPS
6"	5/8"	3" X 1/4"
8"	3/4"	3-1/4"x1/4"
12"	1-1/8"	4" x 1/2"

NOTES:

1. Where new and/or existing conditions allow, design a "Restrained Joint System" per City Standards and Specifications in lieu of, or in addition to anchor blocks as shown.
2. Concrete anchor blocks shall be installed by the Contractor to withstand a thrust produced by the test pressure plus 50 p.s.i. Minimum dimensions for anchor bolts and clamps are listed on Table 1.
3. For pipes greater than 12"ø, bolts and clamps shall be properly sized by the Design Engineer, with calculations submitted to the City's Engineer.
4. Use mechanical restrained joints at all fittings.

CITY OF SANTA ROSA
CONCRETE ANCHOR BLOCKS for VERTICAL BENDS
SCALE: NONE DATE: Sept. 2017
DWN: GC CHK: RS APPROVED FILE NO. STD.- 853

VERT. BEND ANCHOR BLOCKS (1)
NO SCALE



NOTES:

1. Where new and/or existing conditions allow, design a "Restrained Joint System" in lieu of or in addition to concrete thrust blocks as shown.
2. Concrete blocking shall be poured to extend from bells of fittings to undisturbed soil, and the entire bearing area must be against undisturbed soil. Bolts and nuts shall be protected and kept clear of concrete.
3. In using Table 1, assume 2000 P.S.F. bearing capacity unless otherwise shown on the plans. The Design Engineer shall specify thrust blocking requirements for all other soil bearing conditions.
4. Safe bearing load of soil for horizontal thrust shall not be exceeded.
5. See Water Distribution Construction Specification for fitting type requirements.
6. Install mechanical joint plug or blind flange on leg(s) of tee or cross installed for future use.
7. For pipes greater than 12"ø, concrete thrust blocks shall be properly sized by the Design Engineer, with calculations submitted to the City's Engineer.

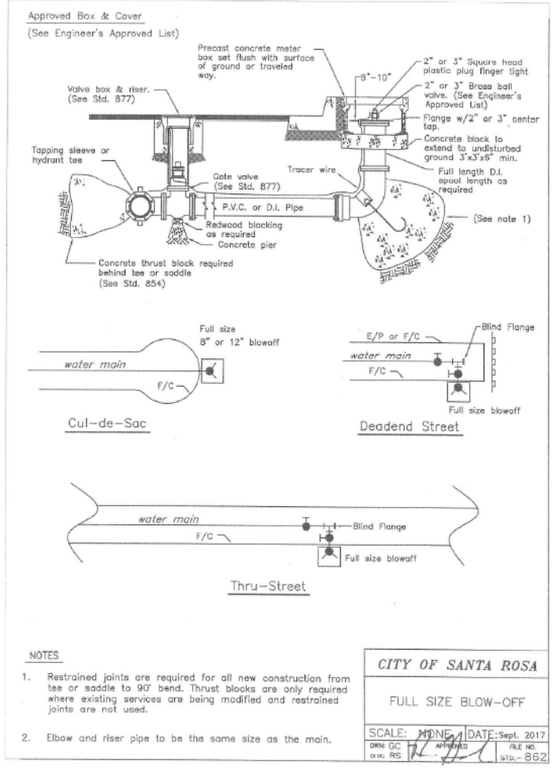
TABLE 1

MIN. REQ'D BEARING AREA IN SQ. FT. PER 100 P.S.I. TEST PRESSURE*					
PIPE SIZE	SOIL BEARING CAPACITY(PSF)	TEES & DEAD ENDS	90° BENDS	45° BENDS	22-1/2° BENDS
6"	1000	4	6	3	2
	2000	2	3	2	1
8"	1000	7	10	5	3
	2000	4	5	3	2
12"	1000	16	22	12	6
	2000	8	11	6	3

* MULTIPLY NO. IN TABLE BY TEST PRESSURE & DIVIDE BY 100

CITY OF SANTA ROSA
CONCRETE THRUST BLOCKS for HORIZONTAL BENDS
SCALE: NONE DATE: Sept. 2017
DWN: GC CHK: RS APPROVED FILE NO. STD.- 854

HORIZ. BEND ANCHOR BLOCKS (2)
NO SCALE

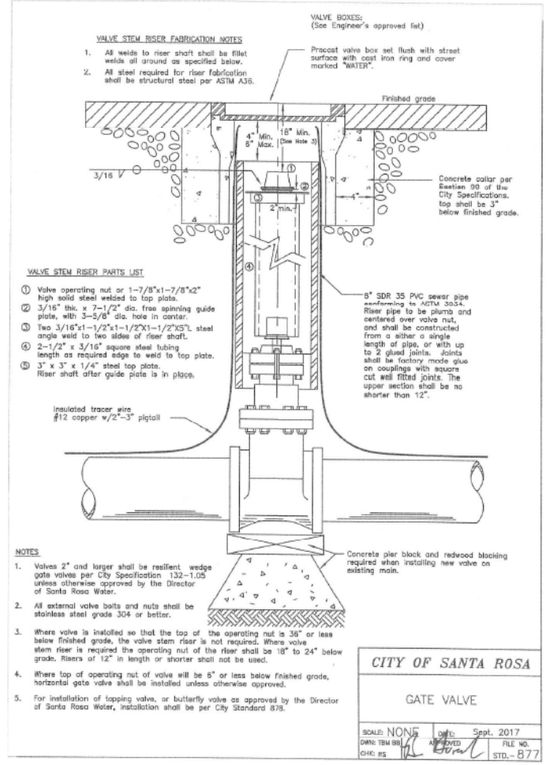


NOTES

1. Restrained joints are required for all new construction from tee or saddle to 90° bend. Thrust blocks are only required where existing services are being modified and restrained joints are not used.
2. Elbow and riser pipe to be the same size as the main.

CITY OF SANTA ROSA
FULL SIZE BLOW-OFF
SCALE: NONE DATE: Sept. 2017
DWN: GC CHK: RS APPROVED FILE NO. STD.- 862

FULL SIZE BLOW-OFF (3)
NO SCALE

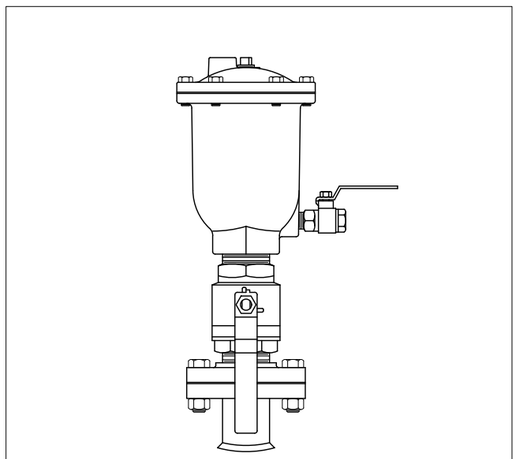


NOTES

1. Valves 2" and larger shall be resilient wedge gate valves per City Specification 132-1.05 unless otherwise approved by the Director of Santa Rosa Water.
2. All external valve bolts and nuts shall be stainless steel grade 304 or better.
3. Where valve is installed so that the top of the operating nut is 36" or less below finished grade, the valve stem riser is not required. Where valve stem riser is required the operating nut of the riser shall be 18" to 24" below grade. Risers of 12" in length or shorter shall not be used.
4. Where top of operating nut of valve will be 6" or less below finished grade, horizontal gate valve shall be installed unless otherwise approved.
5. For installation of tapping valve, or butterfly valve as approved by the Director of Santa Rosa Water, installation shall be per City Standard 878.

CITY OF SANTA ROSA
GATE VALVE
SCALE: NONE DATE: Sept. 2017
DWN: TBM BB CHK: RS APPROVED FILE NO. STD.- 877

GATE VALVE (4)
NO SCALE



AIR RELEASE VALVE (4 / C-3)
NTS

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City of Calistoga

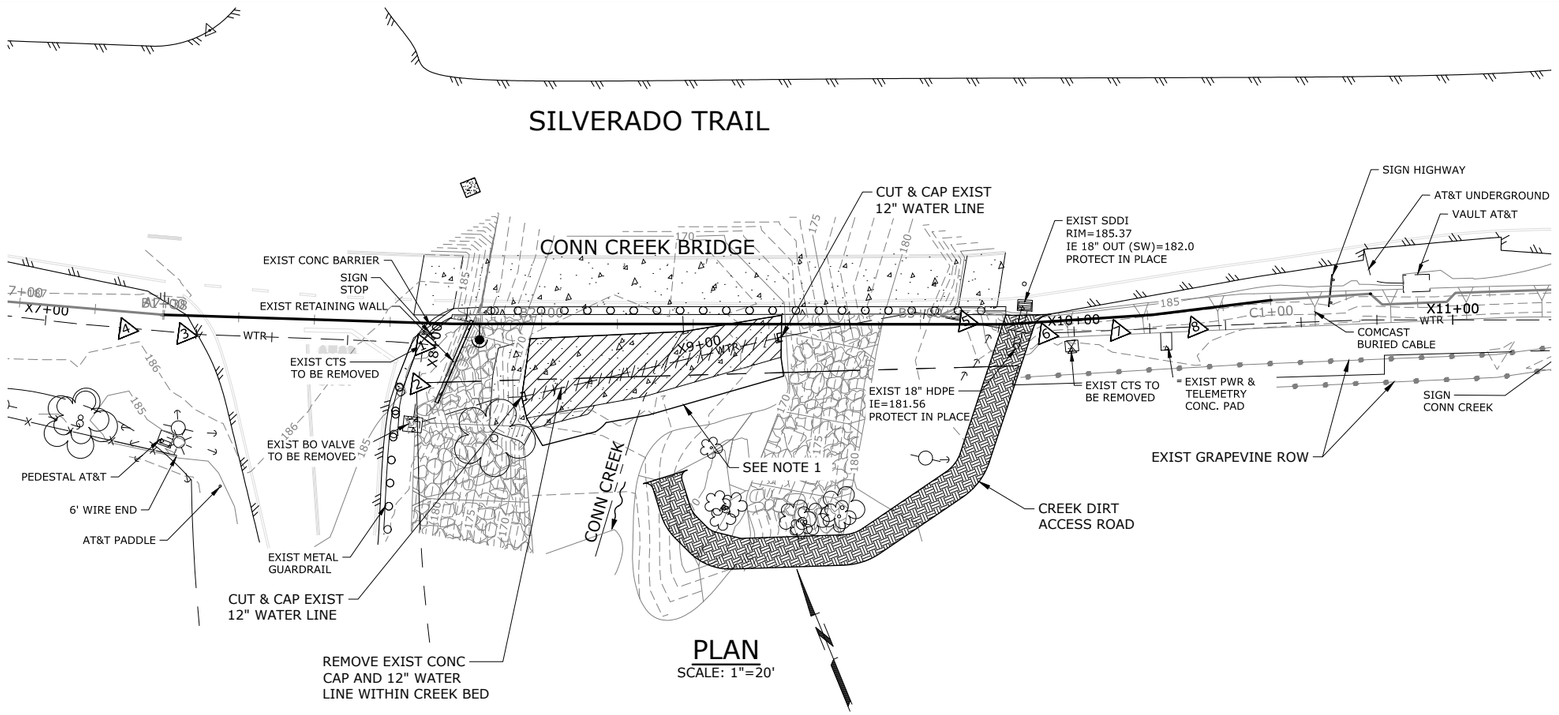
CONN CREEK WATER LINE PROJECT

CIVIL DETAILS

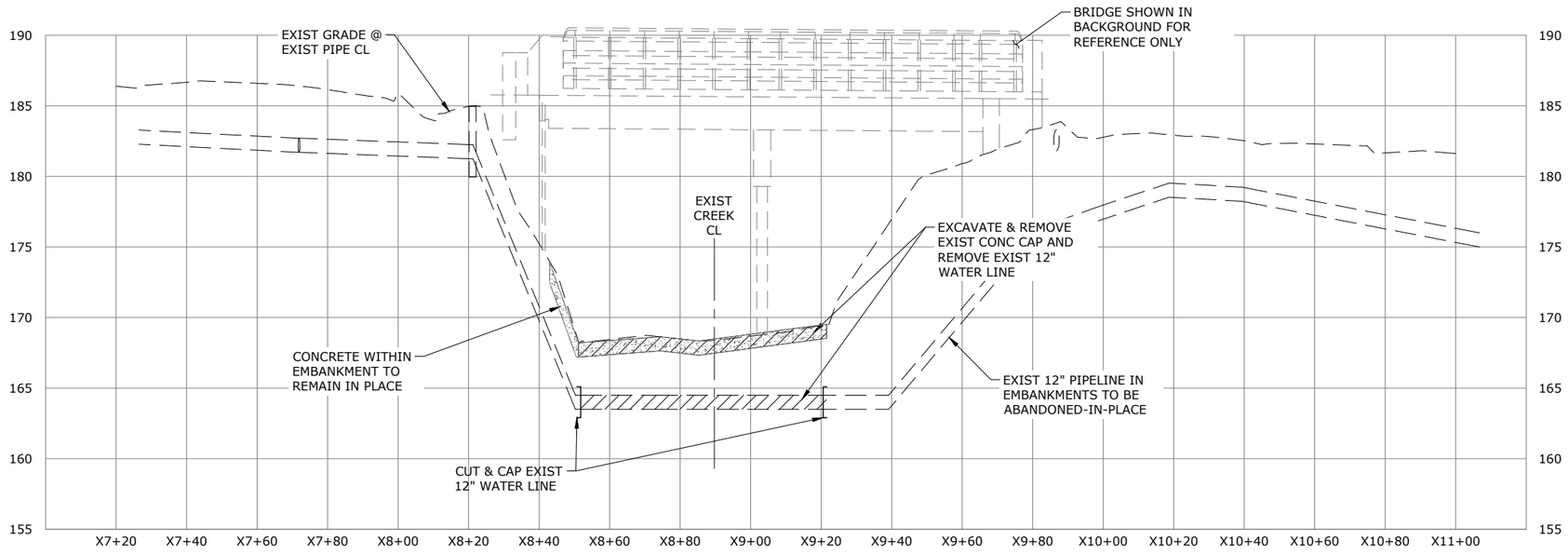
PROJECT NO.: 6098-01 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET
C-8
12 of 17

FILE: S:\6098-01 Conn Creek\Plans_C-8 CIVIL DETAILS.dgn
DATE: 6/8/2021



PLAN
SCALE: 1"=20'



NOTE: STATIONING OF PROFILE FOLLOWS EXISTING PIPE ALIGNMENT

REMOVAL OF EXISTING WATER LINE AND CONCRETE CAP
SCALE: 1"=20' HORIZ, 1"=5' VERT

NOTES:

1. LIMITS OF WORK LIMITED TO THE EXISTING CONCRETE CAP PLUS 5' OF WORKING AREA ON DOWNSTREAM SIDE OF CONCRETE CAP.
2. ALL DEMOLITION WORK AND REMOVAL OF EXISTING PIPELINE IS LIMITED TO THE CREEK BED.
3. NO WORK IS TO BE DONE ON EMBANKMENTS.

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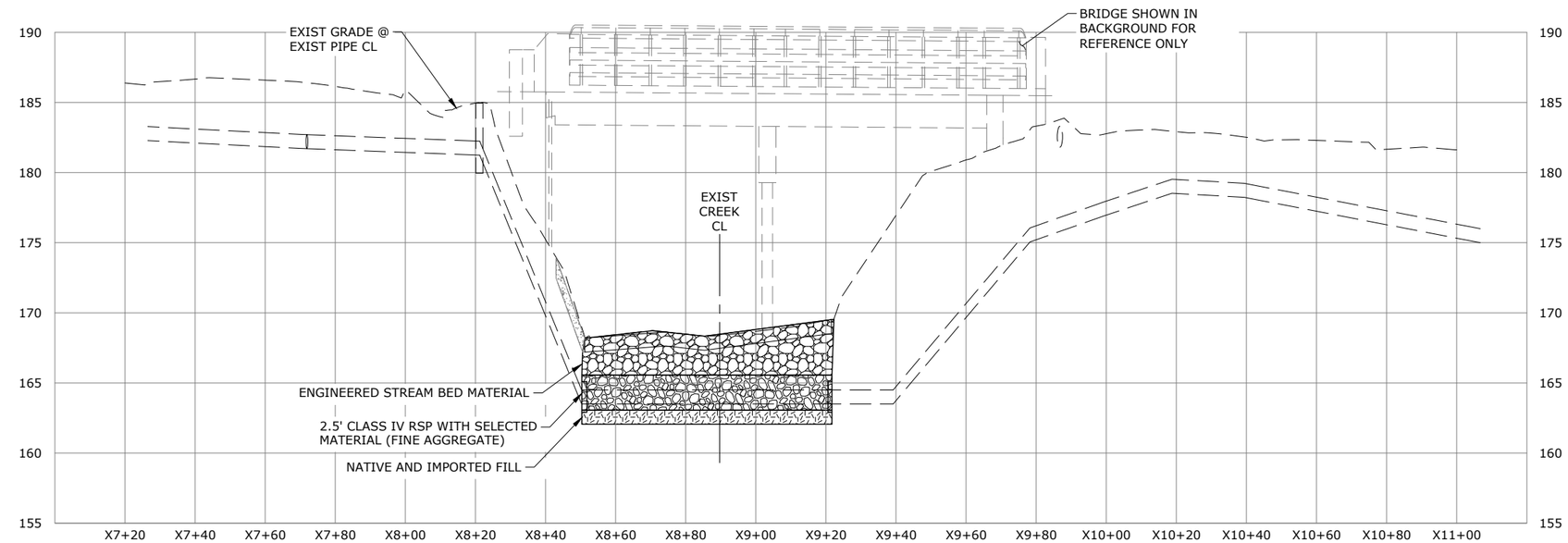
CONN CREEK WATER LINE PROJECT

CREEK RESTORATION PLAN AND PROFILE

PROJECT NO.: 20-2905.00 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET
C-9
13 of 17



NOTE: STATIONING OF PROFILE FOLLOWS EXISTING PIPE ALIGNMENT

CREEK RESTORATION MATERIAL CROSS SECTION

SCALE: 1"=20' HORIZ; 1"=5' VERT

TABLE 1

ENGINEERED STREAMBED MATERIAL REQUIREMENTS

ENGINEERED STREAMBED ROCK MATERIAL	PERCENTAGE BY VOLUME
CLASS IV (300#)	15
CLASS III (150#)	15
CLASS II (60#)	20
5-10 INCHES	20
VOID FILLER*	30
TOTAL	**100**

* VOID FILLER IS USED TO FILL THE SPACE BETWEEN THE LARGER ROCK AND MUST FULFILL THE GRADUATION REQUIREMENTS PROVIDED IN TABLE 2.

TABLE 2

VOID FILLER GRADATION REQUIREMENTS*

SIEVE SIZES	PERCENTAGE PASSING
5 INCHES	100
2 INCHES	75
1 INCH	50
0.5 INCH	25

* VOID FILLER MUST BE A COMBINATION OF AGGREGATES FROM ALLUVIAL DEPOSITS FROM QUARRIES THAT ARE CRUSHED FROM LARGER ROCK MATERIALS.

ENGINEERED STREAM BED MATERIAL COMPOSITION

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City of Calistoga Incorporated Jan. 6, 1876

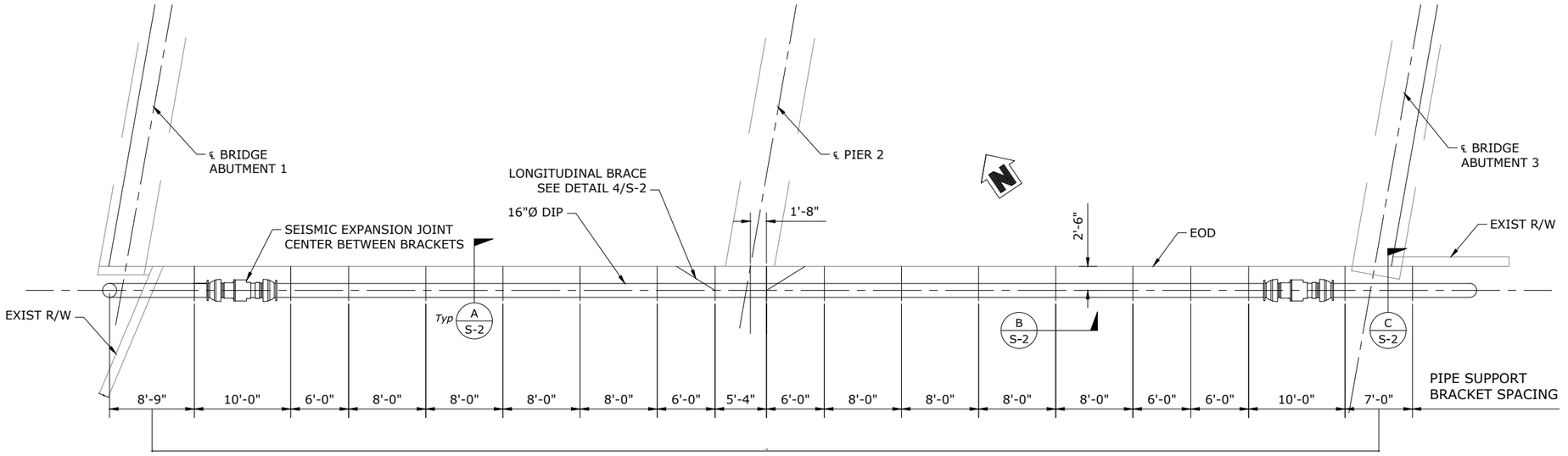
CONN CREEK WATER LINE PROJECT

CREEK RESTORATION DETAILS - 1

PROJECT NO.: 20-2905.00 | SCALE: AS SHOWN | DATE: JUNE 2021

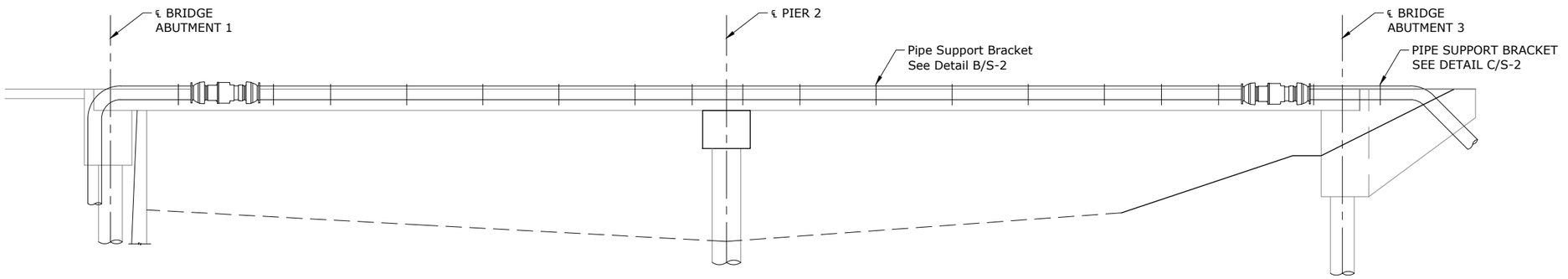
SHEET
C-10
14 of 17

P:\roseville_client\calistoga\20-2905 Conn Creek\06 CAD\Sheets\20-2905-CA-C.dwg C-10 6/16/2021 12:35 PM ABBIE.MCNOMEE 23.0s (LMS Tech)



PLAN

NOTES:
1. BRIDGE RAIL NOT SHOWN FOR CLARITY.



ELEVATION

NO.	DATE	BY	REVISION

NOTICE
0 ½ 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DSN DESIGNED
CAD DRAWN
CHK CHECKED

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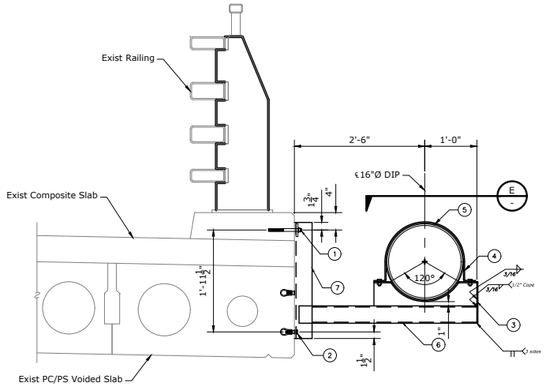
City of Calistoga

CONN CREEK WATER LINE PROJECT

STRUCTURAL DETAILS - 1

PROJECT NO.: 20-2905.00 | SCALE: AS SHOWN | DATE: JUNE 2021

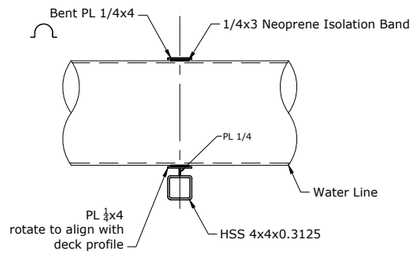
SHEET
S-1
15 of 17



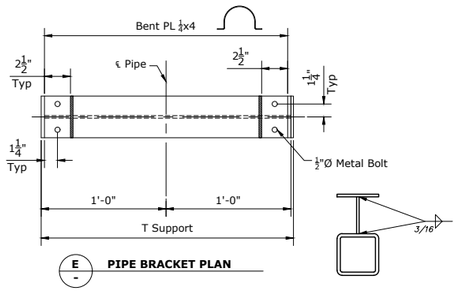
A S-1 PIPE BRACKET SECTION

Key Notes:

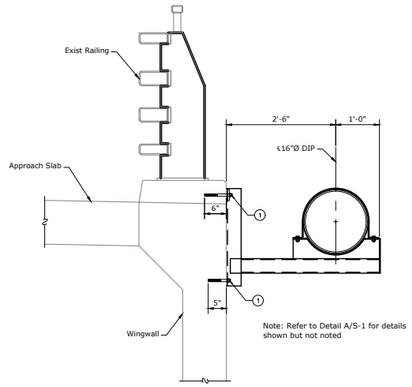
1. Hilti HAS-R 316 SS $\frac{5}{8}$"Ø Rod set in Drilled hole with Hilti HIT-HY 200R adhesive. Detail 2/S-2
2. New $\frac{1}{2}$"Ø metal bolt set in Existing Meadow-Burke $\frac{1}{2}$"Ø FX-5 Ferrule Insert with plug
3. PL $\frac{1}{4}$x4 end plate
4. Bent PL $\frac{1}{4}$x4
5. $\frac{1}{4}$x3 neoprene band
6. HSS 4x4x0.3125. See Detail 3/S-2 for connection to Bent PL Channel
7. Bent PL Channel. See Detail 1/S-2



B S-1 PIPE BRACKET ELEVATION



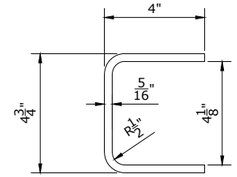
E - PIPE BRACKET PLAN



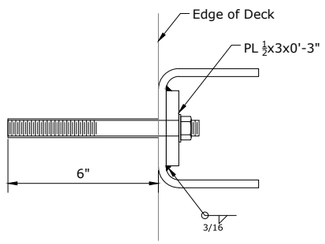
C S-1 PIPE BRACKET AT WINGWALL

General Notes:

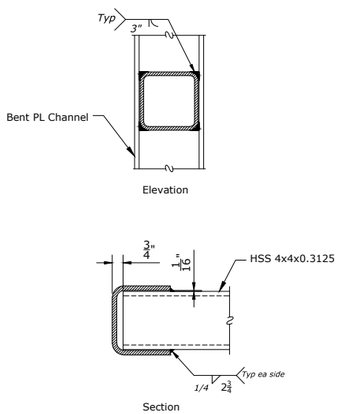
1. Install Hilti HAS-R 316 SS and Hilti HIT-HY 200R adhesive in accordance with manufacturer's installation instructions and ICC-ES ESR-3187.
2. Metal bolts shall conform to ASTM A307 and shall be hot dipped galvanized.
3. Plates shall conform to ASTM A36
4. HSS 4x4x0.3125 shall conform to ASTM A500 Grade C
5. Steel pipe shall conform to Schedule 40 ASTM A53 Grade B hot dipped galvanized.
6. All steel components except stainless steel (SS) shall be hot dipped galvanized after fabrication in accordance with ASTM A123
7. Provide thread locking system for all bolts and nuts per Caltrans 2018 Standard Specification Section 75-3
8. Install Anvil Figure AF771 in accordance with the manufacturer's installation instructions.
9. Field verify existing ferrule insert locations and deck slope before fabricating materials.



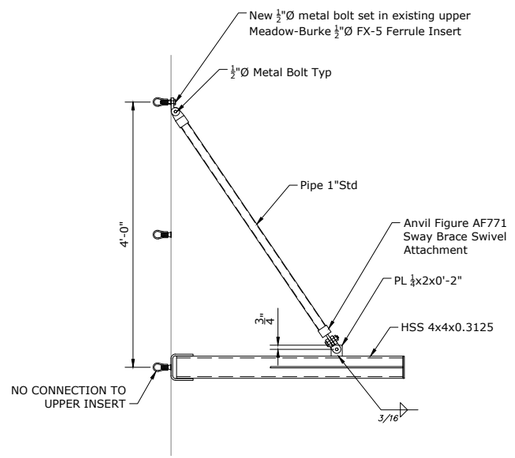
1 S-2 BENT PL CHANNEL



2 S-2 UPPER CHANNEL CONNECTION



3 S-2 HSS - CHANNEL CONNECTION



4 S-1 LONGITUDINAL BRACE PLAN

NO.	DATE	BY	REVISION

NOTICE
0 ½ 1
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City of Calistoga Incorporated Jan 6 1876

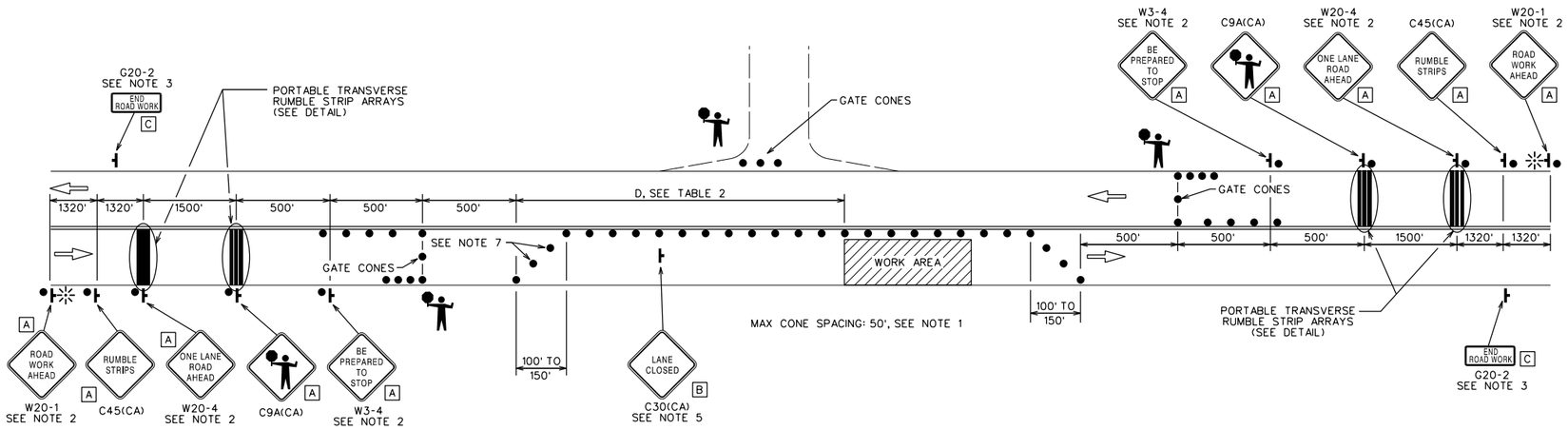
CONN CREEK WATER LINE PROJECT

STRUCTURAL DETAILS - 2

PROJECT NO.: 20-2905.00 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET
S-2
16 of 17

P:\roseville_client\calistoga\20-2905 Conn Creek\06 CAD\Sheets\20-2905-CA-STRUCT.dwg S-2 6/15/2021 5:28 PM ABBIE.MCNOMEE 23.0s (LMS Tech)



NOTES

1. PORTABLE DELINEATORS PLACED AT ONE-HALF THE SPACING INDICATED FOR TRAFFIC CONES MAY BE USED INSTEAD OF CONES FOR DAYTIME CLOSURES ONLY.
2. EACH ADVANCE WARNING SIGN SHALL BE EQUIPPED WITH AT LEAST TWO FLAGS FOR DAYTIME CLOSURE. EACH FLAG SHALL BE AT LEAST 16"x16" IN SIZE AND SHALL BE ORANGE OR FLORESCENT RED-ORANGE IN COLOR. FLASHING BEACONS SHALL BE PLACED AT THE LOCATIONS INDICATED FOR LANE CLOSURE DURING HOURS OF DARKNESS.
3. A G20-2 "END ROAD WORK" SIGN, SHALL BE PLACED AT THE END OF THE LANE CLOSURE UNLESS THE END OF WORK AREA IS OBVIOUS OR ENDS WITHIN THE LARGER PROJECT LIMITS.
4. AN OPTIONAL C29(CA) SIGN MAY BE PLACED BELOW THE C9A(CA) SIGN.
5. PLACE C30(CA) "LANE CLOSED" SIGN AT 500' TO 1000' INTERVALS THROUGHOUT EXTENDED WORK AREA. THEY ARE OPTIONAL IF THE WORK AREA IS VISIBLE FROM THE FLAGGER STATION.
6. LENGTH MAY BE REDUCED BY THE ENGINEER TO ADDRESS SITE CONDITIONS.
7. EITHER TRAFFIC CONES OR BARRICADES SHALL BE PLACED ON THE TAPER. BARRICADES SHALL BE TYPE I, II, OR III.
8. WHEN A PILOT CAR IS USED, PLACE A C37(CA) "TRAFFIC CONTROL- WAIT AND FOLLOW PILOT CAR" SIGN WITH BLACK LEGEND ON WHITE BACKGROUND AT ALL INTERSECTION, DRIVEWAYS AND ALLEYS WITHOUT A FLAGGER WITHIN THE TRAFFIC CONTROL AREA.
9. PLACE CMS BOARDS ON SILVERADO TRAIL AT TRANCAS STREET, DEER PARK ROAD AND HIGHWAY 29 INTERSECTIONS ONE WEEK PRIOR TO CONSTRUCTION.

LEGEND

- TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- PORTABLE FLASHING BEACON
- FLAGGER

SIGN PANEL SIZE (MIN)

- A 48" x 48"
- B 30" x 30"
- C 36" x 36"

TABLE 2

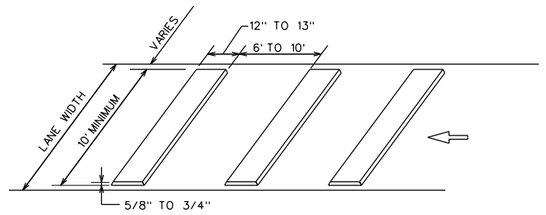
LONGITUDINAL BUFFER SPACE & FLAGGER STATION SPACING			
	DOWNGRADE MIN D •••		
MIN D••	-3%	-6%	-9%
645'	682'	728'	785'

• - SPEED: 65 MPH

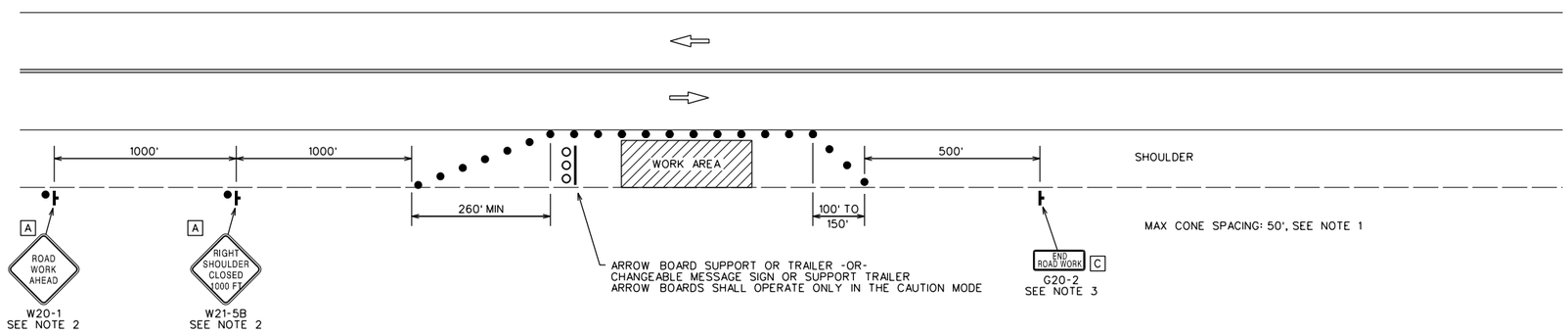
•• - LONGITUDINAL BUFFER SPACE OR FLAGGER STATION SPACING

••• - USE ON SUSTAINED DOWNGRADE STEEPER THAN -3% AND LONGER THAN 1 MILE

PORTABLE TRANSVERSE RUMBLE STRIP ARRAY DETAIL



TYPICAL LANE CLOSURE TRAFFIC CONTROL



TYPICAL SHOULDER CLOSURE TRAFFIC CONTROL

CONSULTING KASL ENGINEERS

NO.	DATE	BY	REVISION

NOTICE
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City of Calistoga

CONN CREEK WATER LINE PROJECT

TYPICAL TEMPORARY TRAFFIC CONTROL

PROJECT NO.: 6098-01 | SCALE: AS SHOWN | DATE: JUNE 2021

SHEET
TC-1
17 of 17

FILE: S:\6098-01 Conn Creek\Plans_TC-1 TRAFFIC CONTROL.dgn
DATE: 6/18/2021

APPENDIX C AIR QUALITY MODELING EMISSIONS CALCULATIONS

City of Calistoga Conn Creek Pipeline Relocation Project

San Francisco Bay Area Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.60	1000sqft	0.01	600.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

City of Calistoga Conn Creek Pipeline Relocation Project - San Francisco Bay Area Air Basin, Annual

Project Characteristics - Start May 13, 2023

Land Use - 600 sf asphalt

Construction Phase - Refer to Project Description

Off-road Equipment - Up to 2 10kW generators, no crane needed

Off-road Equipment - No grading/grader needed

Off-road Equipment -

Off-road Equipment - No grader needed

Off-road Equipment -

Grading - 0.4 acres disturbed; cut/fill addressed under truck trips

Demolition - Addressed in truck trips

Trips and VMT - Worker counts and truck trips provided by client; average one-way commute distance for workers 18.2 miles

Construction Off-road Equipment Mitigation - Water 3x a day

Table Name	Column Name	Default Value	New Value
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tblConstructionPhase	NumDays	1.00	20.00
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tblConstructionPhase	PhaseEndDate	5/29/2023	5/27/2023
tblConstructionPhase	PhaseStartDate	5/13/2023	7/19/2023
tblConstructionPhase	PhaseStartDate	5/27/2023	5/21/2023
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tblOffRoadEquipment	HorsePower	231.00	0.00
tblOffRoadEquipment	HorsePower	84.00	10.00
tblOffRoadEquipment	LoadFactor	0.41	0.00

tblOffRoadEquipment	LoadFactor	0.41	0.00
tblOffRoadEquipment	LoadFactor	0.29	0.00
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
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tblTripsAndVMT	HaulingTripNumber	0.00	139.00
tblTripsAndVMT	HaulingTripNumber	0.00	29.00
tblTripsAndVMT	HaulingTripNumber	0.00	69.00
tblTripsAndVMT	HaulingTripNumber	0.00	24.00
tblTripsAndVMT	WorkerTripLength	10.80	18.20
tblTripsAndVMT	WorkerTripLength	10.80	18.20
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tblTripsAndVMT	WorkerTripLength	10.80	18.20
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tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0113	0.1143	0.1314	3.1000e-004	5.4100e-003	4.5200e-003	9.9400e-003	1.4300e-003	4.2400e-003	5.6700e-003	0.0000	27.7869	27.7869	4.5400e-003	0.0000	27.9004
Maximum	**0.0113**	**0.1143**	**0.1314**	**3.1000e-004**	**5.4100e-003**	**4.5200e-003**	**9.9400e-003**	**1.4300e-003**	**4.2400e-003**	**5.6700e-003**	**0.0000**	**27.7869**	**27.7869**	**4.5400e-003**	**0.0000**	**27.9004**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0113	0.1143	0.1314	3.1000e-004	5.2900e-003	4.5200e-003	9.8100e-003	1.4100e-003	4.2400e-003	5.6600e-003	0.0000	27.7869	27.7869	4.5400e-003	0.0000	27.9004
Maximum	**0.0113**	**0.1143**	**0.1314**	**3.1000e-004**	**5.2900e-003**	**4.5200e-003**	**9.8100e-003**	**1.4100e-003**	**4.2400e-003**	**5.6600e-003**	**0.0000**	**27.7869**	**27.7869**	**4.5400e-003**	**0.0000**	**27.9004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**2.22**	**0.00**	**1.31**	**1.40**	**0.00**	**0.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-13-2023	8-12-2023	0.1526	0.1526
2	8-13-2023	9-30-2023	0.0138	0.0138
		Highest	0.1526	0.1526

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0000e-005	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0000e-005	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

City of Calistoga Conn Creek Pipeline Relocation Project - San Francisco Bay Area Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/21/2023	5/27/2023	5	5	
2	Pipeline Installation	Building Construction	6/14/2023	6/27/2023	5	10	
3	Pipeline Removal/Abandonment	Demolition	7/19/2023	8/1/2023	5	10	
4	Restoration	Site Preparation	8/7/2023	9/1/2023	5	20	
5	Pipeline Installation - Paving	Paving	6/29/2023	7/5/2023	5	5	

Acres of Grading (Site Preparation Phase): 0.4

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.01

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Restoration	Graders	0	0.00	0	0.00
Restoration	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline Removal/Abandonment	Concrete/Industrial Saws	1	8.00	81	0.73
Pipeline Installation	Cranes	0	0.00	0	0.00
Pipeline Installation	Forklifts	2	6.00	89	0.20
Pipeline Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	0	0.00
Pipeline Installation	Generator Sets	2	8.00	10	0.74
Pipeline Installation - Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Pipeline Removal/Abandonment	Rubber Tired Dozers	1	1.00	247	0.40
Pipeline Installation - Paving	Pavers	1	7.00	130	0.42
Pipeline Installation - Paving	Rollers	1	7.00	80	0.38
Pipeline Removal/Abandonment	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Pipeline Installation - Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Restoration	1	6.00	0.00	24.00	18.20	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Installation	6	10.00	0.00	139.00	18.20	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Removal/Abandonme	4	10.00	0.00	29.00	18.20	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Installation - Paving	7	10.00	0.00	69.00	18.20	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	10.00	0.00	24.00	18.20	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1000e-004	0.0000	2.1000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8000e-004	3.8400e-003	5.5800e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.7000e-004	1.7000e-004	0.0000	0.6840	0.6840	2.2000e-004	0.0000	0.6895
Total	**3.8000e-004**	**3.8400e-003**	**5.5800e-003**	**1.0000e-005**	**2.1000e-004**	**1.9000e-004**	**4.0000e-004**	**2.0000e-005**	**1.7000e-004**	**1.9000e-004**	**0.0000**	**0.6840**	**0.6840**	**2.2000e-004**	**0.0000**	**0.6895**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	1.9900e-003	6.1000e-004	1.0000e-005	2.0000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.8614	0.8614	4.0000e-005	0.0000	0.8624
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2576	0.2576	0.0000	0.0000	0.2577
Total	**1.6000e-004**	**2.0600e-003**	**1.3500e-003**	**1.0000e-005**	**5.3000e-004**	**0.0000**	**5.4000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.1189**	**1.1189**	**4.0000e-005**	**0.0000**	**1.1201**

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-005	0.0000	8.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8000e-004	3.8400e-003	5.5800e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.7000e-004	1.7000e-004	0.0000	0.6840	0.6840	2.2000e-004	0.0000	0.6895
Total	**3.8000e-004**	**3.8400e-003**	**5.5800e-003**	**1.0000e-005**	**8.0000e-005**	**1.9000e-004**	**2.7000e-004**	**1.0000e-005**	**1.7000e-004**	**1.8000e-004**	**0.0000**	**0.6840**	**0.6840**	**2.2000e-004**	**0.0000**	**0.6895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	1.9900e-003	6.1000e-004	1.0000e-005	2.0000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.8614	0.8614	4.0000e-005	0.0000	0.8624
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2576	0.2576	0.0000	0.0000	0.2577
Total	**1.6000e-004**	**2.0600e-003**	**1.3500e-003**	**1.0000e-005**	**5.3000e-004**	**0.0000**	**5.4000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.1189**	**1.1189**	**4.0000e-005**	**0.0000**	**1.1201**

3.3 Pipeline Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0900e-003	0.0282	0.0355	5.0000e-005		1.4500e-003	1.4500e-003		1.3500e-003	1.3500e-003	0.0000	4.4159	4.4159	1.2800e-003	0.0000	4.4478
Total	**3.0900e-003**	**0.0282**	**0.0355**	**5.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**4.4159**	**4.4159**	**1.2800e-003**	**0.0000**	**4.4478**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5000e-004	0.0115	3.5600e-003	5.0000e-005	1.1700e-003	2.0000e-005	1.1900e-003	3.2000e-004	2.0000e-005	3.4000e-004	0.0000	4.9887	4.9887	2.4000e-004	0.0000	4.9946
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.4800e-003	1.0000e-005	6.7000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5152	0.5152	1.0000e-005	0.0000	0.5154
Total	**5.5000e-004**	**0.0117**	**5.0400e-003**	**6.0000e-005**	**1.8400e-003**	**2.0000e-005**	**1.8600e-003**	**5.0000e-004**	**2.0000e-005**	**5.2000e-004**	**0.0000**	**5.5039**	**5.5039**	**2.5000e-004**	**0.0000**	**5.5100**

3.3 Pipeline Installation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0900e-003	0.0282	0.0355	5.0000e-005		1.4500e-003	1.4500e-003		1.3500e-003	1.3500e-003	0.0000	4.4159	4.4159	1.2800e-003	0.0000	4.4478
Total	**3.0900e-003**	**0.0282**	**0.0355**	**5.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**4.4159**	**4.4159**	**1.2800e-003**	**0.0000**	**4.4478**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5000e-004	0.0115	3.5600e-003	5.0000e-005	1.1700e-003	2.0000e-005	1.1900e-003	3.2000e-004	2.0000e-005	3.4000e-004	0.0000	4.9887	4.9887	2.4000e-004	0.0000	4.9946
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.4800e-003	1.0000e-005	6.7000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5152	0.5152	1.0000e-005	0.0000	0.5154
Total	**5.5000e-004**	**0.0117**	**5.0400e-003**	**6.0000e-005**	**1.8400e-003**	**2.0000e-005**	**1.8600e-003**	**5.0000e-004**	**2.0000e-005**	**5.2000e-004**	**0.0000**	**5.5039**	**5.5039**	**2.5000e-004**	**0.0000**	**5.5100**

3.4 Pipeline Removal/Abandonment - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2300e-003	0.0289	0.0370	6.0000e-005		1.4100e-003	1.4100e-003		1.3500e-003	1.3500e-003	0.0000	5.2091	5.2091	9.5000e-004	0.0000	5.2328
Total	**3.2300e-003**	**0.0289**	**0.0370**	**6.0000e-005**	**0.0000**	**1.4100e-003**	**1.4100e-003**	**0.0000**	**1.3500e-003**	**1.3500e-003**	**0.0000**	**5.2091**	**5.2091**	**9.5000e-004**	**0.0000**	**5.2328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.4100e-003	7.4000e-004	1.0000e-005	2.4000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	1.0408	1.0408	5.0000e-005	0.0000	1.0420
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.4800e-003	1.0000e-005	6.7000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5152	0.5152	1.0000e-005	0.0000	0.5154
Total	**2.7000e-004**	**2.5500e-003**	**2.2200e-003**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**9.2000e-004**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**1.5560**	**1.5560**	**6.0000e-005**	**0.0000**	**1.5574**

3.4 Pipeline Removal/Abandonment - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2300e-003	0.0289	0.0370	6.0000e-005		1.4100e-003	1.4100e-003		1.3500e-003	1.3500e-003	0.0000	5.2091	5.2091	9.5000e-004	0.0000	5.2328
Total	**3.2300e-003**	**0.0289**	**0.0370**	**6.0000e-005**	**0.0000**	**1.4100e-003**	**1.4100e-003**	**0.0000**	**1.3500e-003**	**1.3500e-003**	**0.0000**	**5.2091**	**5.2091**	**9.5000e-004**	**0.0000**	**5.2328**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.4100e-003	7.4000e-004	1.0000e-005	2.4000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	1.0408	1.0408	5.0000e-005	0.0000	1.0420
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.4800e-003	1.0000e-005	6.7000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5152	0.5152	1.0000e-005	0.0000	0.5154
Total	**2.7000e-004**	**2.5500e-003**	**2.2200e-003**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**9.2000e-004**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**1.5560**	**1.5560**	**6.0000e-005**	**0.0000**	**1.5574**

3.5 Restoration - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5100e-003	0.0154	0.0223	3.0000e-005		7.6000e-004	7.6000e-004		7.0000e-004	7.0000e-004	0.0000	2.7359	2.7359	8.8000e-004	0.0000	2.7580
Total	**1.5100e-003**	**0.0154**	**0.0223**	**3.0000e-005**	**0.0000**	**7.6000e-004**	**7.6000e-004**	**0.0000**	**7.0000e-004**	**7.0000e-004**	**0.0000**	**2.7359**	**2.7359**	**8.8000e-004**	**0.0000**	**2.7580**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	1.9900e-003	6.1000e-004	1.0000e-005	2.0000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.8614	0.8614	4.0000e-005	0.0000	0.8624
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.6000e-004	1.7700e-003	1.0000e-005	8.0000e-004	0.0000	8.0000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6182	0.6182	1.0000e-005	0.0000	0.6185
Total	**3.0000e-004**	**2.1500e-003**	**2.3800e-003**	**2.0000e-005**	**1.0000e-003**	**0.0000**	**1.0100e-003**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**1.4796**	**1.4796**	**5.0000e-005**	**0.0000**	**1.4809**

3.5 Restoration - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5100e-003	0.0154	0.0223	3.0000e-005		7.6000e-004	7.6000e-004		7.0000e-004	7.0000e-004	0.0000	2.7359	2.7359	8.8000e-004	0.0000	2.7580
Total	**1.5100e-003**	**0.0154**	**0.0223**	**3.0000e-005**	**0.0000**	**7.6000e-004**	**7.6000e-004**	**0.0000**	**7.0000e-004**	**7.0000e-004**	**0.0000**	**2.7359**	**2.7359**	**8.8000e-004**	**0.0000**	**2.7580**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	1.9900e-003	6.1000e-004	1.0000e-005	2.0000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.8614	0.8614	4.0000e-005	0.0000	0.8624
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.6000e-004	1.7700e-003	1.0000e-005	8.0000e-004	0.0000	8.0000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6182	0.6182	1.0000e-005	0.0000	0.6185
Total	**3.0000e-004**	**2.1500e-003**	**2.3800e-003**	**2.0000e-005**	**1.0000e-003**	**0.0000**	**1.0100e-003**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**1.4796**	**1.4796**	**5.0000e-005**	**0.0000**	**1.4809**

3.6 Pipeline Installation - Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5300e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5400e-003**	**0.0138**	**0.0176**	**3.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**2.3498**	**2.3498**	**6.8000e-004**	**0.0000**	**2.3669**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8000e-004	5.7200e-003	1.7700e-003	3.0000e-005	5.8000e-004	1.0000e-005	5.9000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	2.4764	2.4764	1.2000e-004	0.0000	2.4793
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2576	0.2576	0.0000	0.0000	0.2577
Total	**2.8000e-004**	**5.7900e-003**	**2.5100e-003**	**3.0000e-005**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**2.7340**	**2.7340**	**1.2000e-004**	**0.0000**	**2.7370**

3.6 Pipeline Installation - Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5300e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5400e-003**	**0.0138**	**0.0176**	**3.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**2.3498**	**2.3498**	**6.8000e-004**	**0.0000**	**2.3669**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8000e-004	5.7200e-003	1.7700e-003	3.0000e-005	5.8000e-004	1.0000e-005	5.9000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	2.4764	2.4764	1.2000e-004	0.0000	2.4793
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2576	0.2576	0.0000	0.0000	0.2577
Total	**2.8000e-004**	**5.7900e-003**	**2.5100e-003**	**3.0000e-005**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**2.7340**	**2.7340**	**1.2000e-004**	**0.0000**	**2.7370**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**6.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**6.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX D BIOLOGICAL RESOURCES REPORT

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Biological Evaluation Report

Conn Creek Bridge Water Pipe Crossing Project
City of Calistoga, California

Prepared for:

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Sacramento, CA 95811
Contact: Rita Wilke | 650/290-7214

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December 2020
J-487

Table of Contents

Figures, Tables, and Appendices

1.0 INTRODUCTION

This report presents the methods and results of a biological habitat evaluation conducted by Vollmar Natural Lands Consulting, Inc. (VNLC) for the Conn Creek Bridge Water Pipe Crossing Project (project). The report is prepared on behalf of Panorama Environmental, Inc., which also contributed project documentation. The project site is located along Silverado Trail at the intersection of State Route 128 (also referred to as Conn Creek Road and Sage Canyon Road), approximately two miles southeast of the City of St. Helena, Napa County, California (**Figure 1**). The project is proposed by the City of Calistoga and involves upgrading an underground section of the existing North Bay Aqueduct (NBA) pipeline which crosses Conn Creek. The pipeline will be relocated to an elevated position on the recently replaced Conn Creek Bridge. Additionally, approximately 3,000 linear feet of 12-inch underground pipeline will be replaced with 16-inch underground pipeline along the southern edge of Silverado Trail, both east and west of the Conn Creek Bridge.

This habitat evaluation was conducted to identify and characterize existing conditions within the study area, as well as to assess the potential for special-status species, habitats, and jurisdictional features to occur in the area. For the purposes of habitat analyses presented in this report, the study area includes the 3,000-foot extent of Silverado Trail right-of-way along with a 50-foot buffer around the right-of-way, within which project disturbance or direct or indirect impacts could occur.

1.1 Special-status Species Potentially Affected

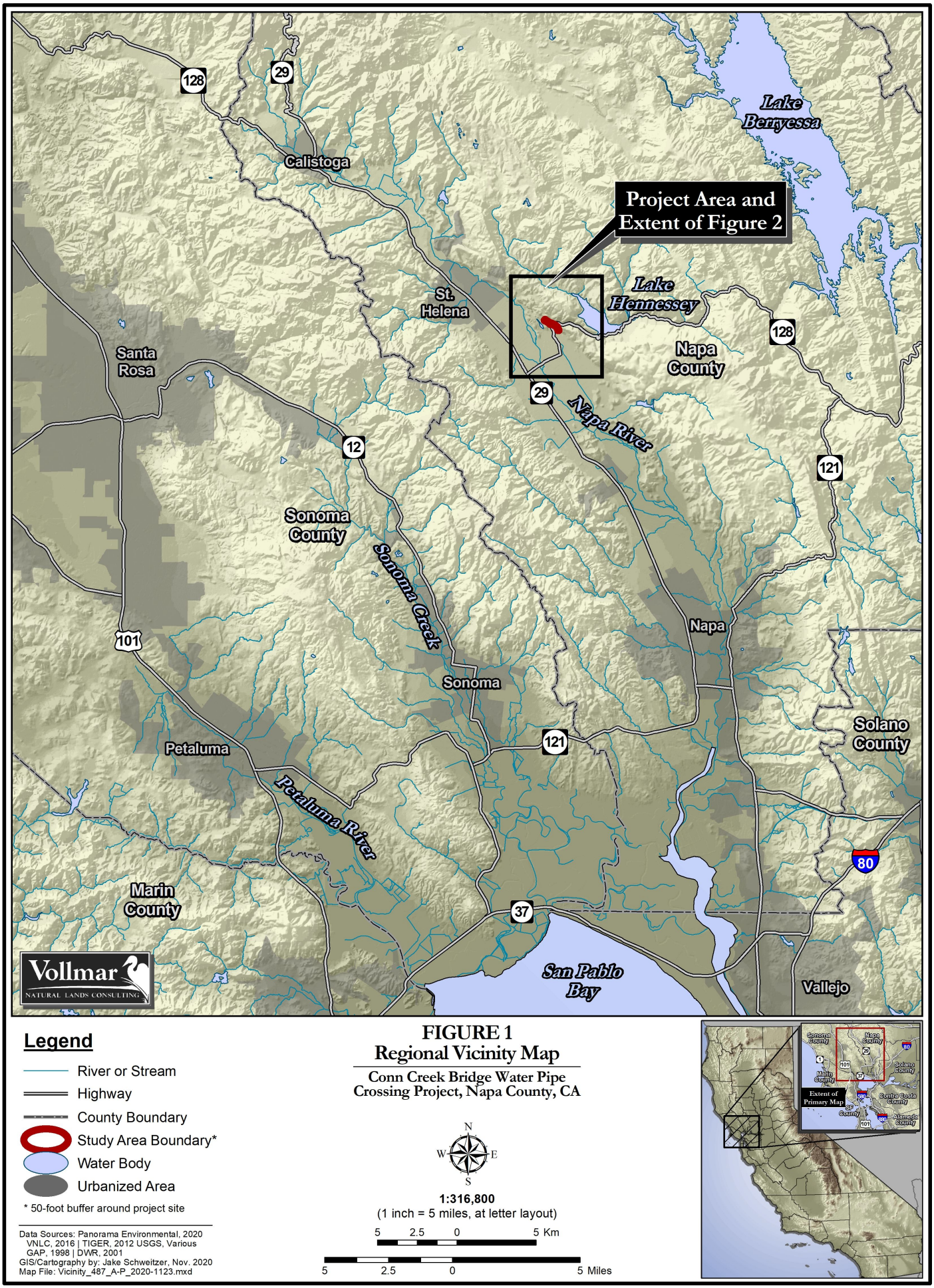
Based on habitat requirements and occurrence distributions, there are a total of 16 special-status wildlife species with some potential to occur within the immediate proximity of the study area. These include:

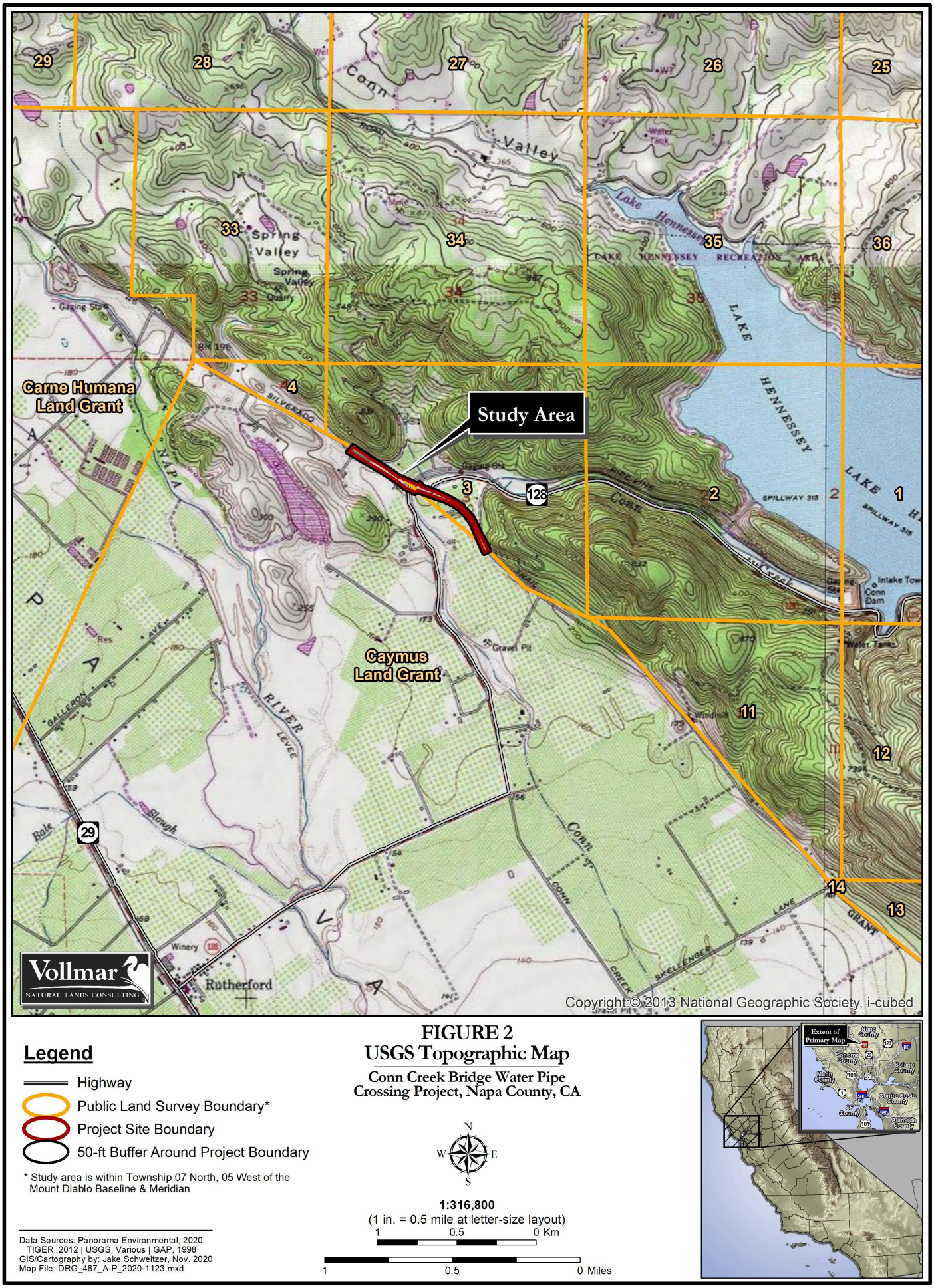
- Four federally or state listed species: Tricolored Blackbird (*Agelaius tricolor*), Swainson's Hawk (*Buteo swainsoni*), Bald Eagle (*Haliaeetus leucocephalus*), steelhead, Central California Coast Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus* pop. 8); and
- Twelve non-listed special-status species: foothill yellow-legged frog (FYLF) (*Rana boylii*) Northwest/North Coast clade, northwestern pond turtle (*Actinemys marmorata*), Golden Eagle (*Aquila chrysaetos*), White-tailed Kite (*Elanus leucurus*), American Peregrine Falcon (*Falco peregrinus anatum*), Yellow-breasted Chat (*Icteria virens*), Purple Martin (*Progne subis*), Yellow Warbler (*Setophaga petechia*), Pacific lamprey (*Entosphenus tridentatus*), hardhead (*Mylopharodon conocephalus)*, pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

In addition, there are at least two special-status plant species with some potential to occur in the study area, as discussed in **Section 4.2.4**. Additional information about these and all other special-status species known from the project area is provided in **Appendix B**.

1.2 Critical Habitat

The site is not located within any designated critical habitat. The closest critical habitat is for Northern Spotted Owl (*Strix occidentalis caurina*), located approximately four miles to the north and southwest. There is no suitable habitat for this species within the study area, and its presence is not further addressed in this report.


Project Area and Extent of Figure 2
Lake Berryessa
Calistoga
St. Helena
Lake Hennessey
Napa County
Santa Rosa
Napa River
Sonoma County
Sonoma Creek
Napa
Sonoma
Petaluma
Petaluma River
Solano County
Marin County
San Pablo Bay
Vallejo
128
29
12
121
101
37
80
Vollmar
NATURAL LANDS CONSULTING
Legend
River or Stream
Highway
County Boundary
Study Area Boundary*
Water Body
Urbanized Area
* 50-foot buffer around project site
Data Sources: Panorama Environmental, 2020
VNLC, 2016 | TIGER, 2012 USGS, Various
GAP, 1998 | DWR, 2001
GIS/Cartography by: Jake Schweitzer, Nov. 2020
Map File: Vicinity_487_A-P_2020-1123.mxd
FIGURE 1
Regional Vicinity Map
Conn Creek Bridge Water Pipe
Crossing Project, Napa County, CA
N
W
E
S
1:316,800
(1 inch = 5 miles, at letter layout)
5 2.5 0 5 Km
5 2.5 0 5 Miles
Extent of Primary Map



Legend

- Highway
- Public Land Survey Boundary*
- Project Site Boundary
- 50-ft Buffer Around Project Boundary

* Study area is within Township 07 North, 05 West of the Mount Diablo Baseline & Meridian

Data Sources: Panorama Environmental, 2020
TIGER, 2012 | USGS, Various | GAP, 1998
GIS/Cartography by: Jake Schweitzer, Nov. 2020
Map File: DRG_487_A-P_2020-1123.mxd

FIGURE 2
USGS Topographic Map
Conn Creek Bridge Water Pipe Crossing Project, Napa County, CA

N W E S

1:316,800
(1 in. = 0.5 mile at letter-size layout)

1 0.5 0 Km

1 0.5 0 Miles

1.3 Potential Impacts to Additional Resources

The study area encompasses potentially jurisdictional aquatic habitats that are associated with Conn Creek, including wetland and riparian vegetation as well as unvegetated channel below the ordinary high water mark (OHWM). A potentially jurisdictional wetland swale is also present within the study area, adjacent to Conn Creek. The only other substantial natural habitat is oak woodland, which is present along the bank tops of Conn Creek as well as along the margins of stretches of Silverado Trail. Stream habitats and oak woodlands are sensitive and also provide most of the potential habitat for special-status plants and animals in the study area. Impacts to these habitats are regulated by federal and/or state agencies.

2.0 PROJECT LOCATION

The project is located along Silverado Trail at the intersection of State Route 128 (also called Conn Creek Road and Sage Canyon Road), approximately two miles southeast of the City of St. Helena, Napa County, California. The project area consists of a single contiguous area along approximately 3,000 feet of Silverado Trail within the rights-of-way owned by Napa County and Caltrans. As noted above, the study area consists of the project area and a 50-foot buffer, and averages approximately 200 feet wide and a little over 3,000 feet long. It is mapped within the Rutherford 7.5' U.S. Geological Survey (USGS) topographic quadrangle, straddling the Caymus Landgrant and Section 3 of Township 07 North, Range 05 West (**Figure 2**). The project centroid along Silverado Trail is at 122.4058 west and 38.4873 north.

The study area encompasses primarily anthropogenic habitats, in the form of Silverado Trail and its adjacent roadside habitats (primarily gravel and mowed vegetation), along with managed vineyards. However, there are semi-natural woodland habitats as well as habitats associated with Conn Creek. Habitats within the study area are described in detail within **Section 4.1** below.

3.0 METHODS

3.1 Preliminary Review

Prior to the site visit, VNLC ecologists reviewed the latest version of the California Natural Diversity Database (CNDDB) to identify special-status plants and wildlife observations in the project vicinity. Additionally, ecologists compiled and reviewed the U.S. Fish and Wildlife Service (USFWS) Information Planning and Consultation System (IPaC) for the project area. A nine-quad search for rare and listed plant species was also conducted through the California Native Plant Society (CNPS) online "Inventory of Rare and Endangered Plants." Specifically, the search centered on the Rutherford quadrangle and included all surrounding quads. The list provides information pertaining to the special-status plants known from the area, including preferred habitat, elevation range, and blooming period. The list was used to help determine the potential for special-status plants to occur in the study area. Ecologists also reviewed site aerial imagery, project description, and general regional conditions prior to the site visit. This information guided the development of field survey strategies for those special-status species with potential to occur in the study area.

3.2 Targeted Sensitive Biological Resources

Special-status animal species targeted and analyzed in this report include those listed by the USFWS or California Department of Fish and Wildlife (CDFW) as threatened or endangered, as well as those proposed for listing or that are candidates for listing as threatened or endangered. The listing of "Endangered, Rare, or Threatened" is defined in Section 15380 of the *State of California Environmental Quality Act* (*CEQA*) *Guidelines*. Section 15380(b) states that a species of animal or plant is "endangered" when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. A species is "rare" when either "(A) although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or (B) the species is likely to become endangered within the foreseeable future throughout all or a portion of its range and may be considered 'threatened' as that term is used in the Federal Endangered Species Act" (ESA).

Animal species may also be designated as "Species of Special Concern" or "Fully Protected" by the CDFW. Although these species have no legal status under the California Endangered Species Act (CESA), the CDFW recommends their protection as their populations are generally declining and they could be listed as threatened or endangered (under CESA) in the future. "Fully Protected" species generally may not be harmed ("taken") or possessed at any time. The CDFW may only authorize take for necessary scientific research and may authorize live capture and relocation of "fully protected" birds to protect livestock.

Birds may be designated by the USFWS as "Birds of Conservation Concern." Although these species have no legal status under ESA, the USFWS recommends their protection as their populations are generally declining, and they could be listed as threatened or endangered (under ESA) in the future.

Special-status plants include species that are designated rare, threatened, or endangered as well as candidate species for listing by the USFWS. Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as those plant species identified by the CNPS as California Rare Plant Rank (CRPR) 1A, 1B, and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the CNPS. Finally, special-status plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included as CRPR List 3 in the CNPS Inventory.

For the purposes of this report, 'sensitive plant communities' include those designated as such by the CDFW, either in the CNDDB, the list of California Sensitive Natural Communities (CDFW 2018), or as sensitive alliances classified in the Manual of California Vegetation (MCV) (Sawyer et al. 2009). Alliances included within the MCV that are designated as global or state rank ("G" or "S") 1-3 are considered "rare or threatened" at the global and/or state level, and are therefore considered sensitive.

In addition, wetland and riparian habitats, regardless of MCV status, are considered sensitive. Streams, impounded water bodies, and interconnecting or adjacent wetlands and drainages are

subject to the jurisdiction of the U.S. Army Corps of Engineers (ACOE) under Section 404 of the Federal Clean Water Act (CWA). The CDFW also generally has jurisdiction over drainages and adjacent aquatic resources, together with other aquatic features that provide an existing fish and wildlife resource pursuant to Sections 1602-1603 of the California Fish and Game Code. The CDFW asserts jurisdiction to the outer edge of vegetation (i.e., the tree dripline) associated with a riparian corridor, or to the top of the stream bank, whichever is further. The Regional Water Quality Control Board (RWQCB) also generally has jurisdiction over surface waters, including streams and wetlands. Any grading, excavation, or filling of jurisdictional drainage corridors or wetlands would require federal and/or state permits (e.g., Section 404 and/or 401 permits) and will require mitigation.

Figure 3 shows the distribution of special-status wildlife species documented within the CNDDB in the surrounding area. These and other special-status wildlife species known from the project region are identified in **Appendix B**, along with their regulatory status, habitat requirements, and an evaluation of their potential to occur within the study area.

3.3 Field Survey

VNLC Senior Ecologist Jake Schweitzer and VNLC Wildlife Biologist Linnea Neuhaus conducted a site survey on November 24, 2020. Mr. Schweitzer and Ms. Neuhaus walked the entire study area to gain visual coverage of all habitat types present. Since much of the study area encompasses the Silverado Trail and private agricultural lands, the survey focused primarily on natural habitats, in particular the natural wooded habitats and areas within Conn Creek. Dominant plant species within each habitat type were recorded, along with common wildlife species, general conditions (e.g., level of disturbance), and notable habitat features. A search was conducted for sensitive habitats (e.g., riparian) and habitat potential for special-status species, such as nesting potential, burrows, and aquatic features. Photographs detailing representative site conditions were also collected from across the site (**Appendix A**).

Reaches of Conn Creek at least 200 feet both upstream and downstream of the established study area boundary were investigated for any unique habitats or habitat elements with potential to support special-status plants and animals. Within the study area, the stream's OHWM was surveyed with a professional-grade GPS unit, using changes in vegetation and soil conditions to identify the habitat boundary location. The dripline of riparian vegetation as well as the inflection point at the top of the stream bank were also surveyed with a GPS unit.

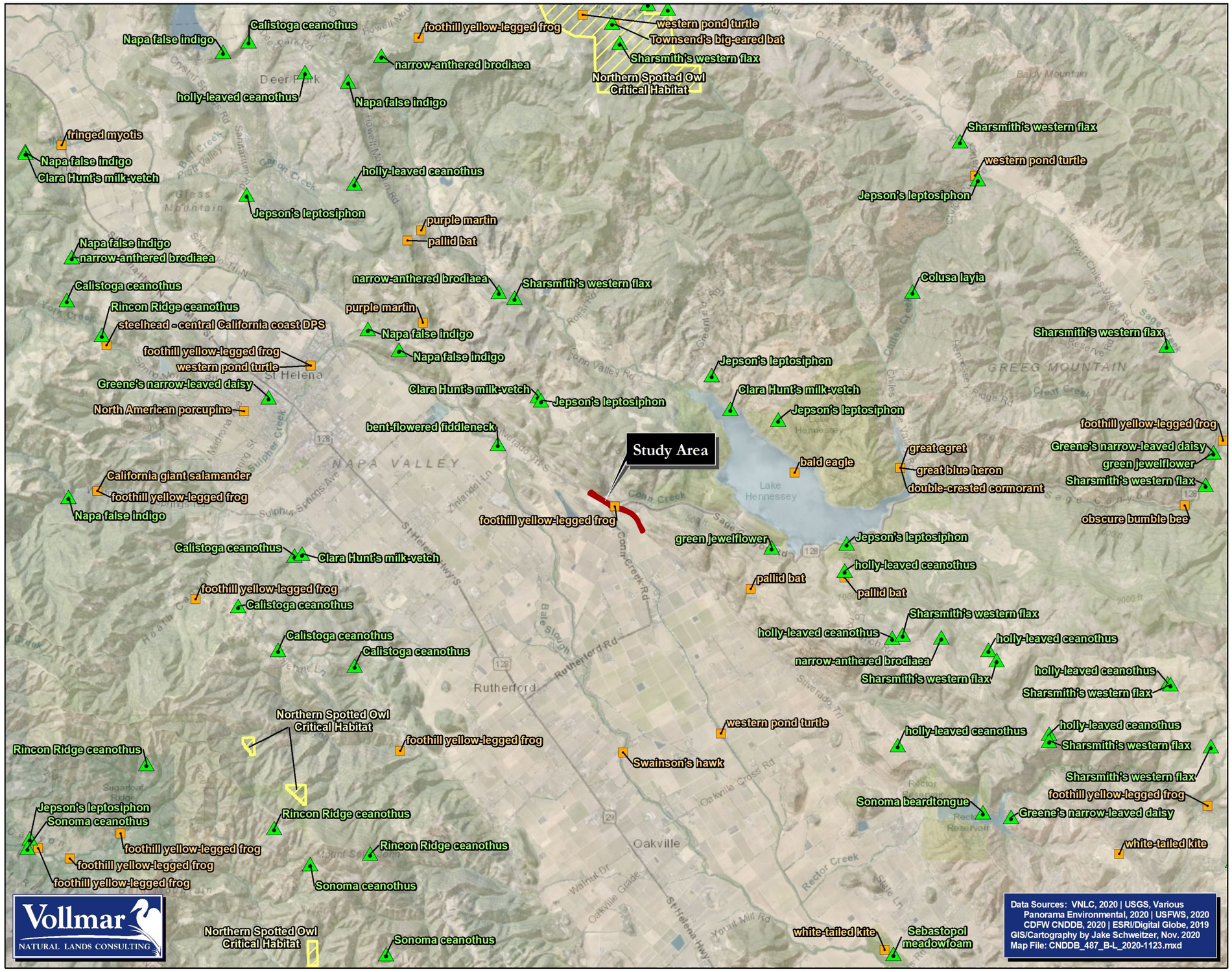
4.0 RESULTS

4.1 Existing Conditions

The study area is located in a rural part of Napa County, approximately two miles southeast of the City of St. Helena. Land use in the region consists primarily of vineyards and associated agricultural and commercial infrastructure, along with low-density residential housing. Much of the study area consists of Silverado Trail and its road shoulders, which generally encompass gravel and scattered stands of weedy grasses and forbs that are regularly mowed. Silverado Trail is a heavily trafficked thoroughfare that serves as an alternate commuter route to Highway 29. Beyond the road shoulders are highly managed vineyards along the flat areas, and oak woodlands along hill slopes. Habitats associated with Conn Creek are limited in extent, but are significant in terms of biological resources, and impacts will need to be addressed accordingly.

FIGURE 3
Regional Biological Resources

Conn Creek Bridge Water Pipe
Crossing Project, Napa County, CA



Legend

- CNDDB Plant
- CNDDB Animal
- Designated Critical Habitat*
- Study Area Boundary

* See map labels

N
W E
S

1:63,360
(1 inch = 1 mile at tabloid layout)

0 1 2 Km
0 0.5 1 2 Miles

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4.1.1 Climate

The climate in the region is characterized as "Mediterranean," with cool, wet winters and warm, fairly dry summers as well as high inter- and intra-annual variability in precipitation. The study area is east of a series of ridges that make up the Coast Ranges, which serve to block maritime weather patterns associated with the Pacific Ocean. Therefore, coastal fog is generally absent and the difference between mean summer temperatures and mean winter temperatures is substantial in comparison to more coastal regions. Mean annual precipitation and temperature in the vicinity of the study area are 35.8 inches and 60.6 degrees Fahrenheit (F), respectively (PRISM 2020). More than 98 percent of annual precipitation occurs during the "wet season," which extends from October to May.

The 2019-2020 wet season experienced lower than average precipitation and slightly higher than average temperatures. Specifically, precipitation was 49 percent of normal (17.4 versus 35.2 inches), and mean temperatures were 101 percent of normal (55.7 versus 55.0 degrees F) (ibid). Moreover, the timing of the precipitation was highly erratic, with October and January receiving no measurable precipitation, but December and May receiving higher than average precipitation. As a result of the early winter and peak spring heavy rains, conditions for plant growth were likely close to normal, despite the overall low wet season precipitation.

4.1.2 Topography

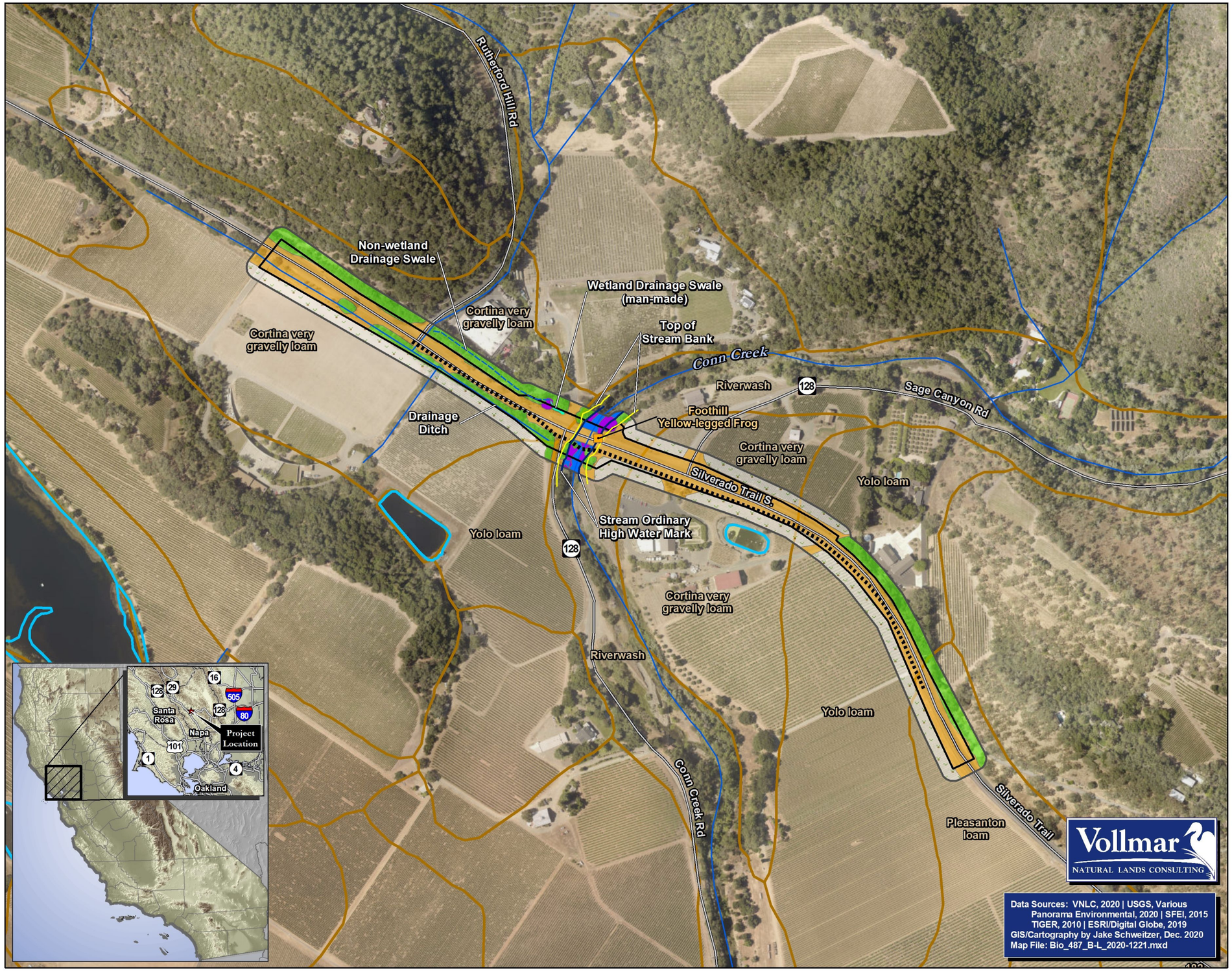
Encompassing primarily the Silverado Trail road and adjacent areas, the elevation range and topographic variations are limited. The elevation ranges from approximately 174 to 225 feet (68.7 to 53 meters) above sea level, with elevation rising gradually from southeast to northwest (USGS 1997). Slope ranges from nearly flat along the road and road edges, to nearly vertical along portions of the stream banks of Conn Creek. There are moderately steep hill slopes adjacent to the northwestern and southeastern edges of the site, but the majority of the study area is fairly flat. The average slope across the study area is approximately four percent (ibid).

4.1.3 Substrates

All of the substrates within the study area are of alluvial origin and of Quaternary age. That is, they are all derived from river or stream sediments and are roughly 2.6 million to 10,000 years old (Sowers et al. 1998, USDA 2020). However, some of the alluvium is originally derived from igneous and metamorphic materials from the volcanic hill slopes that surround the study area. A total of four soil units are mapped within the study area, as shown on **Figure 4** below. All of the soil units feature surface textures of loam, very gravelly loam, or sandy materials, and are therefore generally well drained to excessively drained, indicating that they may be prone to erosion (USDA 2020). The pH rating for the soils indicates that all of the rated units are fairly close to neutral, ranging from 6.6 to 7.3. The primary characteristics related to the soil materials and their relationship to plant growth are presented in **Table 1** below. The total percent cover of each unit within the study area is also provided. Note that more than half of the entire study area is mapped as a single soil unit, namely Cortina very gravelly loam, which is mapped over 58.7 percent of the area. Of significance in assessing the potential for rare plants to occur in the study area is the fact that none of the units are of the type that typically support rare plant species. There are no units derived from unique or uncommon rocks such as serpentinite or limestone, no heavy clay soils, no extreme pH values, or other such traits.

FIGURE 4
Local Biological Resources

Conn Creek Bridge Water Pipe
Crossing Project, Napa County, CA



Legend

- CNDDB Special-status Animal Occurrence
- Conn Creek Ordinary High Water Mark
- Conn Creek Top of Bank
- Non-wetland Swale
- Road
- Original Pipeline Replacement Line
- BAARI Wetland
- Soil Unit Boundary
- Project Site Boundary (8.2 ac.)
- Study Area (50-ft buffer around project site)

Habitat Types

- Road & Roadside/Ruderal (7.65 ac.)
- Vineyard (4.89 ac.)
- Oak Woodland (4.12 ac.)[1]
- Riparian Habitat (0.24 ac.)[2]
- Non-riparian Stream Below OHWM (0.30 ac.)[2]
- Wetland Swale (0.01 ac.)

1. Including a variety of oaks as well as foothill pine, European olive, silver wattle, and other tree species
2. Total area below OHWM is 0.50 acre, including area under bridge (this habitat is double-counted) and oak canopy

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Data Sources: VNLC, 2020 | USGS, Various
Panorama Environmental, 2020 | SFEI, 2015
TIGER, 2010 | ESRI/Digital Globe, 2019
GIS/Cartography by Jake Schweitzer, Dec. 2020
Map File: Bio_487_B-L_2020-1221.mxd

N
W E
S

1:4,800
(1 inch = 400 feet at tabloid layout)

0 100 200 Meters
0 200 400 800 Feet

Table 1. Characteristics of Soil Units Mapped within the Study Area

Soil Unit Name and Percent of the Study Area	Parent Material	Surface Texture*	pH*	Drainage
Cortina very gravelly loam (58.7%)	Alluvium derived from igneous, metamorphic, and sedimentary rock	Very gravelly loam	7.39	Excessively drained
Yolo loam (19.3%)	Alluvium derived from igneous, metamorphic, and sedimentary rock	Loam	6.6	Well drained
Pleasanton loam (11.0%)	Alluvium derived from sedimentary rock	Loam	6.7	Well drained
Riverwash (10.9%)	Sandy and gravelly alluvium	Not rated (but observed to be sandy/gravelly)	Not rated	Excessively drained

Source: U.S. Department of Agriculture Natural Resources Conservation Service, SoilWeb website, 2020. Unit names exclude slope descriptors.
*Dominant condition. Values for surface texture, pH and organic matter correspond to the top 24 inches.

4.1.4 Habitats

Roadside and Vineyard

The majority of the study area consists of anthropogenic habitats, in the form of Silverado Trail and its adjacent road shoulders as well as adjacent agricultural lands. The total area of these habitats is 12.54 acres—or 73 percent of the total study area—with the paved road and its shoulders occupying 7.65 acres and vineyards amounting to 4.89 acres (see **Figure 4**). While the vineyards are planted with carefully managed wine grapes (*Vitis vinifera*), the edges of the Silverado Trail consist of a mix of gravel and ruderal, mowed vegetation. Where vegetation is present along the road shoulders, the dominant plant species are primarily introduced herbaceous weeds, including annual grasses such as ripgut brome (*Bromus diandrus*), slender wild oat (*Avena barbata*), and foxtail (*Hordeum murinum*), along with weedy forbs such as prickly wild lettuce (*Lactuca serriola*), Mediterranean mustard (*Hirschfeldia incana*), English plantain (*Plantago lanceolata*), Queen Anne's lace (*Daucus carota*), chicory (*Cichorium intybus*), and prostrate knotweed (*Polygonum aviculare*). In order to maximize visibility and reduce fire hazard, these vegetated areas are regularly mowed. A short stretch of the road shoulder to the southeast of the Conn Creek Bridge is undergoing restoration, as evidenced by erosion control netting and wattles. This is presumably part of the final phase of the recent bridge construction project, which likely resulted in habitat disturbance. No specialized habitat elements with potential to support special-status animals, such as mammal burrows, large rock outcrops, or specialized soils were observed along Silverado Trail or in the vineyards.

Oak Woodland

Covering 4.12 acres, the most widespread natural habitat within the study area is oak woodland, which is most prevalent near the northwestern and southeastern edges of the study area, where the study area is bounded by unfarmed hill slopes (**Figure 4**). The woodlands extend well up the hill slopes, where oak woodlands form a patchy mosaic along with pine woodlands, chaparral, grasslands, and a few scattered vineyards. Oak woodland is also present along a narrow strip of the upper bank slopes of Conn Creek, and the tree canopies extend over the stream at a few locations. For the purpose of assessing potential habitat for rare plants, the habitat most closely corresponds to "Cismontane Woodland," as described by the CNPS (2020). In all portions of the study area, the habitat is dominated by broadleaf native trees, particularly oaks, but also including many introduced species of all strata. The most common trees include the native coast live oak

(*Quercus agrifolia*), valley oak (*Q. lobata*), black oak (*Q. kelloggii*), foothill pine (*Pinus sabiniana*), and California bay (*Umbellularia californica*). These are interspersed with a few introduced species, primarily European olive (*Olea europaea*), silver wattle (*Acacia melanoxylon*), and Monterey pine (*Pinus radiata*) (a species native to California, but not to the study area). The trees include large and mature trees as well as a few seedlings and saplings. The shrub and vine stratum likewise consists of a mix of native and introduced species, though the native species are all very common, generalist species. The most prevalent shrubs and vines observed include native poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), and toyon (*Heteromeles arbutifolia*). Associated introduced species include the invasive Himalayan blackberry (*Rubus armeniacus*) and bigleaf periwinkle (*Vinca major*). The herbaceous understory of the oak woodland consists almost entirely of weedy grasses and forbs, most notably ripgut brome, slender wild oat, field hedge-parsley (*Torilis arvensis*), large quaking grass (*Briza maxima*), smilo grass (*Stipa miliacea*), and flax-leaved horseweed (*Erigeron bonariensis*). It should be noted that the tree canopy of this habitat extends over portions of the Silverado Trail road, but the mapped acreage does not include such areas, as that would artificially inflate the natural habitat where there is no habitat for most special-status plants and animals. No special habitat elements, such as mammal burrows or large rock outcrops, were observed in the onsite oak woodlands.

Conn Creek Stream Habitats

Aside from oak woodland, the only significant natural habitat within the study area is along Conn Creek, which occupies 0.5 acre below the stream OHWM (**Figure 4**). Conn Creek is a major stream in the local vicinity that conveys water from the hills east of the study area toward the Napa River. The local watershed (hydrologic unit 12) is referred to as the Rector Creek-Conn Creek Watershed (USGS 2013), which in turn is part of the Napa River and greater San Pablo Bay Watersheds. Within the study area, Conn Creek is a large sixth order stream (Strahler order), and would thus likely be a perennial stream under natural conditions. However, the study area is just two miles downstream of Lake Hennessey, a reservoir that captures and stores most of the stream's flow. Therefore, within the study area, the stream is only seasonally inundated, following the release of water from Lake Hennessey.

At the time of the November 24 field survey, the stream was completely dry all the way down to its thalweg, and this seasonal hydrology is reflected in the stream's ecology. There are obligate and facultative wetland plants along the stream, but only a few individuals or small stands—mostly conspicuously red willow (*Salix laevigata*), sandbar willow (*S. exigua*), broadleaf cattail (*Typha latifolia*), tall flatsedge (*Cyperus eragrostis*), and green dock (*Rumex conglomeratus*). In addition, a few native wetland plant species are found along the bank slope adjacent to Conn Creek Bridge, which are presumably being planted as part of the post-construction restoration process. The willow trees, along with a few young California black walnut trees (*Juglans hindsii*), form small stands of riparian vegetation, and for the purposes of rare plant habitat analysis, this habitat most closely corresponds to "Riparian Woodland" or "Riparian Scrub," as defined by the CNPS (2020). Such deep-rooted woody species occur along the bank slopes as well as along the margins of the stream bed. More shallow-rooted herbaceous wetland species are found primarily in concave basins along the stream bed, where they can more readily extract subsurface soil moisture. Most of the more abundant wetland indicator plants are "facultative" (FAC) species, indicating that they are equally likely to occur in uplands as they are in wetlands, and a few species are primarily associated with upland habitats, albeit mesic (i.e., moist) uplands. Examples of such quasi-

hydrophytic species include mule fat (*Baccharis salicifolia*), Bermuda grass (*Cynodon dactylon*), rough cocklebur (*Xanthium strumarium*), and Himalayan blackberry. Many of these species are also characteristic of disturbance, which is not uncommon even within fairly intact streams. However, the level of disturbance is likely higher as a result of the stream's altered hydrology—seasonal streams are generally more subject to colonization by invasive plant species—and also due to the proximity of a major thoroughfare as well as the presence of intensive agriculture, where soils are routinely disturbed.

Despite the altered hydrology, vegetation within the stream is sufficiently distinct that there is a fairly well-defined OHWM, even where topography is subtle. While hydrophytic species form a majority of the plant cover below the OHWM, strictly upland species are found above it. At this habitat boundary, willows, Himalayan blackberry, Bermuda grass, and rough cocklebur transition into coast live oak, foothill pine, toyon, bigleaf periwinkle, wild oat (*Avena fatua*), and Mediterranean mustard. In addition, there is a shift in soil texture, with gravelly sand giving way to sandy loam along the bank slopes. Note that long stretches of the stream bed feature a dense layer of cobbles as well as occasional boulders that overly the sandy soils, and many of these areas are devoid of any vegetation, as can be seen in the habitat photos in **Appendix A**. The stream also encompasses some woody debris and other features that could provide habitat complexity for special-status species (e.g., western pond turtle—see below).

Within the study area, lands immediately beyond the stream bank tops and the fringing oak woodlands are developed as vineyard on both sides. South of the study area, vineyards continue as the predominant adjacent land use along the stream's length, all the way to its confluence with the Napa River more than five miles southeast of the site. However, starting at approximately 0.2-mile northeast (upstream) of the study area, natural woodland and chaparral habitats surround Conn Creek on both sides, and continue to be prevalent at least to Lake Hennessey, two miles northeast of the study area.

Swale

Just northwest of Conn Creek Bridge is a 0.01-acre swale that supports wetland vegetation. The swale appears to have been constructed, or at least enhanced, as part of the bridge construction project. It drains into a newly constructed culvert that conveys water to Conn Creek. It also appears to have been planted with horticultural plant species such as iris (*Iris* sp.), but is dominated by weedy hydrophytic species such as pennyroyal (*Mentha pulegium*) and other mints, along with dallis grass (*Paspalum dilatatum*), dotted smartweed (*Persicaria punctata*), and Himalayan blackberry. A small stand of arroyo willow (*Salix lasiolepis*) occurs at the northwestern edge of the swale, within the study area. While much of its flow appears to derive from a constructed swale that winds through a development northwest and outside of the study area, some of the flow derives from a swale that follows Silverado Trail within the study area. This is a non-wetland swale that supports weedy upland herbs and is surrounded by upland trees and shrubs—the habitat is indistinguishable from oak woodlands as described in detail above.

4.2 Special-status Species

Based on habitat requirements, there are 16 special-status animal species and two special-status plant taxa with some potential to occur within the study area. These include four state or federally listed animal species and 12 non-listed special-status animal species, as well as multiple birds that fall under the Migratory Bird Treaty Act (MBTA). Both of the special-status plants are CRPR taxa

with no federal or status listing. **Figure 3** shows the distribution of special-status animal and plant species that are documented in the surrounding region, and all special-status taxa are listed in **Appendix B**, along with their regulatory status, habitat requirements, and an evaluation of their potential to occur in the study area. These animal and plant taxa are described in more detail below.

4.2.1 Listed Animal Species

Tricolored Blackbird (*Agelaius tricolor*) – State Threatened, Species of Special Concern, Bird of Conservation Concern

The Tricolored Blackbird (nesting colony) is listed as State Threatened, and is a CDFW Species of Special Concern and USFWS Bird of Conservation Concern. This species is most often found in large freshwater marshes, especially those which are saturated with cattails (*Typha* spp.) and tules (*Schoenoplectus* spp.). They tend to nest in areas with protective, spiny vegetation, especially where there is abundant insect prey within a short radius of the colony (Shuford et al. 2008). These birds forage in flocks, mostly on the ground, but occasionally in shrubs and trees (Kaufman 2005). The nesting behavior of the Tricolored Blackbird is highly social. They form the largest colonies of any North American land bird, forming breeding groups of tens of thousands of individuals (Cook and Toft 2005). The birds in these colonies pack their nests closely together in dense cattail or bulrush marshes. Breeding takes place from mid-March through July (ibid).

Unlike the Red-winged Blackbird, which is abundant throughout the continent, the Tricolored Blackbird has a very small range in the Pacific states. Tricolored Blackbird populations have seriously declined in recent decades due to habitat destruction. It is speculated that its habit of nesting in dense colonies make the Tricolored Blackbird more susceptible to population decline (Cook and Toft 2005).

Although the study area does not provide suitable nesting habitat for this species, surrounding land may provide foraging habitat. This species has been documented around Lake Hennessey (approximately 1.25 miles away) according to a citizen bird tracking organization (data available from ebird.org). No impacts to adjacent agricultural areas are expected from the proposed project, so impacts to Tricolored Blackbird foraging habitat are not anticipated to occur. No avoidance measures are recommended.

Swainson's Hawk (*Buteo swainsoni*) – State Threatened, Bird of Conservation Concern

Swainson's Hawk (nesting) is listed as State Threatened and is a USFWS Bird of Conservation Concern. Swainson's Hawks are migratory birds and can be found breeding throughout western North America before migrating south as far as Argentina. Swainson's Hawk population numbers have dropped within California significantly within the last 100 years, and California listed the species as threatened in 1983 (CDFW 2011). One of the biggest threats they face is habitat loss due to various factors such as conversion of foraging and breeding habitat to agricultural or urban development, climate change, and pesticide poisoning (Battistone et al. 2016). Swainson's Hawks are known to inhabit open habitats, such as grassland, meadows, prairies, desert, relatively sparse shrubland, croplands, and other habitat that allows foraging for prey from above (Polite 1988). Much of their natural habitats have been converted to urban developments or cultivated agricultural uses. However, areas of moderate agricultural development, besides orchards and vineyards, are often used by Swainson's Hawks as foraging grounds, particularly alfalfa crop (Battistone et al. 2016; England et al. 1997). They will often nest in stands of trees or other vegetation adjacent to the open grassland habitat they use for foraging (CDFW 2011).

Much of the project area borders agricultural fields, which could support potential foraging habitat. In addition, some areas surrounding Conn Creek support grassland or riparian woodland, providing both potential foraging and nesting habitat. Swainson's Hawk could nest within trees adjacent to the site, on the upper banks of the creek. The removal of large trees should be avoided to prevent impacts to Swainson's Hawk habitat and/or pre-construction nesting surveys should be conducted. No impacts to adjacent agricultural areas are expected from the proposed project. Avoidance measures are detailed in **Section 5.0**.

Bald Eagle (*Haliaeetus leucocephalus*) – State Endangered, Fully Protected, Bird of Conservation Concern

Bald Eagle is a State Endangered and Fully Protected species as well as a Bird of Conservation Concern. During their breeding season, this species will occur in many types of wetland habitats such as seacoasts, rivers, large lakes, or other large bodies of open water with an abundance of fish. In California, Bald Eagles now primarily breed in northern California at lower elevations (Polite and Pratt 1988a). Males and females work together to build large stick nests in the canopies of tall trees typically located near a large body of water (Call 1978). Bald Eagles are also known to consume carrion, smaller birds, and rodents. They perch high in large trees, on snags, or on rocks near water (Polite and Pratt 1988a). Populations declined steadily after World War II due to human disturbance, habitat loss, and widespread use of the pesticide, DDT (Polite and Pratt 1988a). Successful recovery efforts have enabled populations to rebound across the United States.

The study area may provide potential nesting habitat within large trees along Conn Creek. The species has been documented around Lake Hennessey (1.25 miles away) (CNDDB 2020). To avoid potential impacts to Bald Eagle nesting, the project should avoid the removal of large trees and/or conduct pre-construction nesting surveys. Avoidance measure are detailed in **Section 5.0**.

Steelhead, Central California Coast DPS (*Oncorhynchus mykiss irideus pop. 8*) – Federal Threatened

Central California Coast DPS Steelhead is listed as Federal Threatened. This species is found in streams, rivers, lakes, estuaries, and ocean. Steelhead spawn in loose gravels at pool tails, typically during late spring. Juvenile steelhead require cool, clear, fast-flowing water. The Central California Coast DPS includes all populations below natural and manmade barriers in California streams in the Russian River and south to Aptos Creek (Moyle et al. 2008). There are two dominant populations located in the Russian River and San Francisco Bay, although independent populations are found elsewhere (Spence et al. 2007).

Steelhead have been documented approximately 5 miles downstream of the study area within the Napa River (CNDDB 2020). The project should avoid or mitigate impacts to Conn Creek to minimize impacts to potential steelhead habitat. Avoidance measures are detailed in **Section 5.0**.

4.2.2 Non-listed Special-status Animal Species

Foothill yellow-legged frog (*Rana boylii*) Northwest/North Coast Clade – Species of Special Concern

The foothill yellow-legged frog (FYLF) Northwest/North Coast Clade is listed as a CDFW Species of Special Concern. This species' aquatic habitat includes partly shaded, low gradient ephemeral and permanent streams, rivers, and adjacent moist terrestrial habitats (Hayes et al 2016). FYLF

prefer partly shaded, shallow streams and riffles with a rocky substrate that is at least cobble-sized. They occur in streams and rivers in woodland, chaparral, and forest habitats (Stebbins 2012). Breeding occurs between mid-March to early June after high water of streams subsides (Stebbins 2012).

Historically, FYLF ranged from central Oregon south along the coastal Cascade ranges, and south along the foothills of the western side of the Sierra Nevada Mountains to northern Baja California. FYLF has disappeared from 55% of its habitat range in Oregon, 45% of its overall range in California, and 66% of its range in the California Sierra. The few remaining populations in the southern Sierra Nevada, specifically those south of I-80, are nearly extinct (Stebbins 2012). Frogs in this area have been largely affected by reservoir water release. Poorly timed water releases can wash away eggs and larvae, or retard their development (Kupferberg et al. 2012). Additionally, changes to flow regimes and downstream habitat alteration resulting from hydroelectric power generation and other water management projects have greatly impacted FYLF's dependence on riverine environments (ibid). FYLF are also susceptible to other environmental impacts including loss of habitat, predation by non-native species such as American bullfrogs and crayfish, and air-borne pesticides (Davidson et al. 2002, Ashton et al. 1998).

Conn Creek provides suitable habitat for FYLF, and there are several documentations of the species in the vicinity. There is a documentation of FYLF within the project site itself, and although it is from 1958, and despite the fact that most upland areas surrounding the study area are developed as vineyards (which provide marginal upland habitat), the species has potential to inhabit the site. The species is most likely to occur within the stream during times when water is present, though recent research indicates that the species may shelter in moist micro-habitats within dry streams (Kupferberg pers. comm.). Frogs have been found sheltering within mid-sized to large rocks and in vegetation along stream beds and banks. The project should avoid or mitigate impacts to Conn Creek to minimize impacts to potential FYLF habitat. Avoidance and mitigation measures are detailed in **Section 5.0**.

Northwestern pond turtle (*Actinemys marmorata*) – Species of Special Concern

Northwestern pond turtle (NPT) is a CDFW Species of Special Concern. They are found in rivers, streams, lakes, ponds, wetlands, reservoirs, and brackish estuarine waters (Holland 1994; Jennings and Hayes 1994). Northwestern pond turtles often bask outside of the water, but quickly re-enter if they are threatened. They prefer habitats with areas for cover (vegetation, logs) and basking sites (rocks and other substrates) (Holland 1994). Summer droughts and cold winters are survived by aestivating or burying in loose soil or mud. Northwestern pond turtles are omnivores, with the potential to be opportunistic predators and scavengers (Holland 1985a, 1985b, Bury 1986). Females leave drying creeks from May to July to lay eggs in sunny upland habitats, including grazed pastures (Zeiner and Laudenslayer 1990).

The northwestern pond turtle is declining in most of its range. It is almost extinct in the San Joaquin Valley and has seen extensive habitat loss, in part due to predation as well as competition from introduced animals, including exotic pet turtles that have been released into the wild (Zeiner and Laudenslayer 1990).

Though the stream was dry at the time of the survey, Conn Creek provides suitable habitat for NPT with abundant potential basking sites (rocks, logs, and riparian vegetation). Due to the close

proximity of documented occurrences (within approximately 2.2 miles of the project site), the potential for NPT within the stream systems should be presumed. Therefore, to prevent impacts to NPT, the project should avoid or mitigate impacts to Conn Creek and surrounding riparian habitat. Avoidance measures are detailed in **Section 5.0**.

Golden Eagle (*Aquila chrysaetos*) – Fully Protected, Bird of Conservation Concern

Golden Eagle is a CDFW Fully Protected species and USFWS Bird of Conservation Concern. Golden Eagles nest and forage in a variety of habitats and have large home ranges. This species is found in rolling foothills, mountains, sage-juniper flats, and deserts from sea level up to 11,500 feet (Polite and Pratt 1988, Grinnell and Miller 1944). They hunt for small mammals, other birds, and reptiles in open terrain including grasslands, deserts, savannahs, and forest and shrub habitats (Polite and Pratt 1988). Golden Eagles typically nest in high places including cliffs and tall trees (McGahan 1968). They build large nests throughout the year, which they may return to in subsequent breeding years (TCLO 2019).

Though the study area does not provide suitable nesting habitat (primarily cliffs), Golden Eagle has been documented around Lake Hennessey, approximately 1.25 miles away. Due to the proximity of Lake Hennessey and nearby open space and oak woodlands, this species may travel through or forage within the study area. No permanent impacts to oak woodland and open space habitats are anticipated as a result of project activities. Therefore, no impacts to this species are expected to occur, and no avoidance measures are recommended.

White-tailed Kite (*Elanus leucurus*) – Fully Protected

White-tailed Kite is a CDFW Fully Protected species. White-tailed Kite forages in grasslands, meadows, wetlands, farmlands and other open areas with high small-mammal prey abundance. They are known to nest in dense stands of oaks, willows or other tree species. White-tailed Kite nests also tend to be surrounded by more agriculture, grassland, riparian, and woodland habitat, and significantly less chaparral habitat (Niemela 2007). White-tailed Kite populations were threatened with extinction in the early 20th century due to shooting and egg collecting, but have recovered as available habitat areas have been produced with year-round irrigation of agricultural land. Their numbers are lower in riparian areas as compared to fields near rivers due to their foraging habits (Briden and Thompson 1995). Land development can threaten the species by depriving them of nest trees, and modern farming techniques can eliminate vegetation for its main prey (Dunk 1995).

The study area is adjacent to foraging habitat for the White-tailed Kite, as well as trees on the upper banks of the creek and along Silverado Trail for perching and nesting habitat. To avoid potential impacts to White-tailed Kite nesting, the project should avoid impacts to large trees and/or conduct pre-construction nesting surveys (see **Section 5.0)**.

American Peregrine Falcon (*Falco peregrinus anatum*) – Fully Protected, Bird of Conservation Concern

American Peregrine Falcon was delisted from its status as federally and state endangered in 2008, but is still a CDFW Fully Protected species and USFWS Bird of Conservation Concern. There are three subspecies that occur within North America, but *Falco peregrinus anatum* is the only subspecies that breeds in California (Mitchell 2000). American Peregrine Falcons are known to

occur throughout California. Their breeding range occurs along the length of the coast and, less frequently, on the east side of the Sierras (Comrack and Logsdon 2008). American Peregrine Falcons prefer to breed near water with vertical nesting sites such as cliffs, steep banks, and ledges. They tend to establish territories near abundant food sources, which primarily consist of birds, though small mammals may also be consumed. Some of the American Peregrine Falcon populations occurring in California are migrants, while others are year-round residents (ibid). The main threats to the species include pesticide consumption which reduces reproductive success by thinning eggshells and poisoning birds, and habitat degradation from urban development (ibid).

Although the study area does not provide nesting habitat for this species due to the lack of cliffs and ledges, the proximity to Lake Hennessey (approximately 1.25 miles away), where the species has been documented, means the species could utilize Conn Creek and nearby riparian habitat for hunting. Any impacts to Conn Creek and nearby riparian habitat should be mitigated to avoid a reduction in American Peregrine Falcon foraging habitat (see **Section 5.0)**.

Yellow-breasted Chat (*Icteria virens*) – Species of Special Concern

Yellow-breasted Chat is a CDFW Species of Special Concern. This bird species can be found in coastal California and in foothills of the Sierra Nevada in valley foothill riparian and desert riparian habitats (Gaines 1977, Garrett and Dunn 1981). Yellow-breasted Chat nests in dense shrubs along a stream or river. They usually arrive in California in April and depart by late September for wintering grounds in Central America. The loss and degradation of riparian habitat throughout California has caused a decline in the breeding population in recent decades (Green 1988c).

Riparian habitat and shrubs within the study area provide potential nesting habitat for Yellow-breasted Chat. This species is known to occur within the Napa River Ecological Reserve, approximately 5.5 miles from the study area. To avoid potential impacts to Yellow-breasted Chat nesting, the project should avoid disturbance to riparian habitat and shrubs, and/or conduct pre-construction nesting surveys (see **Section 5.0)**.

Purple Martin (*Progne subis*) – Species of Special Concern

Purple Martin is a CDFW Species of Special Concern. This bird species is found in a variety of wooded, low-elevation habitats through California such as valley foothill and montane hardwood, valley foothill and montane hardwood-conifer, riparian, and coniferous habitats. Purple Martin inhabits open forests, woodlands, and riparian areas during the breeding season, and open habitats such as grassland, wet meadow, and fresh emergent wetland during migration (Green 1988a). They commonly nest in old woodpecker cavities in tall, old, isolated trees near a body of water (Dawson 1923). Purple Martin has been eliminated from much of its previous range in California in recent decades due to the loss of riparian habitat, removal of snags, and competition with other birds (Remsen 1978).

Trees and snags within the study area around Conn Creek provide potential nesting habitat for Purple Martin. This species has been documented around Lake Hennessey (approximately 1.25 miles away) according to a citizen bird tracking organization (ebird.org). To avoid potential impacts to Purple Martin nesting, the project should avoid disturbance to large trees or snags, and/or conduct pre-construction nesting surveys (see **Section 5.0)**.

Yellow Warbler (*Setophaga petechia*) – Species of Special Concern, Bird of Conservation Concern

Yellow Warbler is a CDFW Species of Special Concern and USFWS Bird of Conservation Concern. This species breeds in thickets or heavy brush in riparian woodlands from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada, as well as in montane chaparral and open ponderosa pine and mixed conifer habitats (Green 1988b, Gaines 1977). Yellow Warbler can be found in woodland, forest, and shrub habitats during migration (Green 1988b). In recent decades, Yellow Warbler populations have seen a drastic decline, mainly as a result of brood parasitism by Brown-headed Cowbirds (Bent 1953, Garrett and Dunn 1981, Remsen 1978)

The study area provides potential nesting and foraging habitat for Yellow Warbler. This species was documented in September 2020 within the study area, according to a citizen bird tracking organization (data from ebird.org). To avoid potential impacts to Yellow Warbler nesting, the project should avoid or mitigate the removal of thickets or brush around Conn Creek, and conduct pre-construction nesting surveys if construction activities commence during nesting season (see **Section 5.0)**.

Pacific lamprey (*Entosphenus tridentatus*) – Species of Special Concern

Pacific lamprey is a CDFW Species of Special Concern. Pacific lampreys are found in cold, clear water for spawning and incubation (Moyle 2002). Adults build nests in areas with cover such as gravel and cobble, vegetation, and woody debris (Kostow 2002). When they live in the ocean, adult Pacific lampreys feed on prey larger than themselves, such as fish and marine mammals (Beamish 1980, Close et al. 2002). Adults spend approximately 3-4 years in the ocean, with spawning migrations usually taking place between March and June (Moyle et al. 2015).

Pacific lamprey is known from the Napa River, approximately 5 miles downstream of the study area. Conn Creek may provide potential spawning habitat for this species; habitat requirements depend on water temperature and flow velocity during March through July. The project should avoid or mitigate impacts to Conn Creek to avoid potential impacts to Pacific lamprey (see **Section 5.0)**.

Hardhead (*Mylopharodon conocephalus*) – Species of Special Concern

Hardhead, a fish species, is a CDFW Species of Special Concern. This species is often found at low to mid-elevations in relatively undisturbed habitats of larger streams with clear, cool water (Moyle and Daniels 1982, Mayden et al. 1991). Hardhead can also be found in mid-elevation reservoirs (Moyle et al. 2015). They are widely distributed in streams in the Sacramento-San Joaquin and Russian River drainages (Leidy 1984, Moyle 2002). Hardhead is found in the Napa River, although this population is very restricted in its distribution (Moyle et al. 2015).

Conn Creek provides marginal potential habitat for hardhead. This species is known to be present but extremely rare within the Napa River (Moyle 2002). The project should avoid or mitigate impacts to Conn Creek to avoid potential impacts to hardhead by conducting work within the dry season (see **Section 5.0)**.

Pallid bat (*Antrozous pallidus*) – Species of Special Concern, WBWG High Priority
Pallid bat is a CDFW Species of Special Concern, and is listed as "high" priority by the Western Bat Working Group (WBWG). Pallid bats range from southern British Columbia through the western U.S. to Mexico (Weber 2009). This species is found in low elevations throughout California in a wide variety of habitats including grasslands, shrublands, woodlands, and forests (Harris 1998b). Pallid bat is most commonly found in open dry habitats with rocky areas for roosting (Weber 2009). They roost in caves, crevices, mines, cliffs, and hollow trees. This species forages for insects and arachnids over open ground. Pallid bats mate from late October to February, with young born from April to July. Pallid bat is very sensitive to disturbance of their roosting sites, which are important for conserving energy and juvenile growth (Harris 1998b).

The study area is within the vicinity of foraging habitat, and some roosting potential exists within large trees within the oak woodlands and Conn Creek. The bridge may also provide potential night roosting, as it lacks any underside crevices. The nearest pallid bat occurrence is documented within approximately 1.2 miles of the study area. To avoid potential impacts to bats, avoidance and mitigation measures should be implemented, as described in **Section 5.0**.

Townsend's big-eared bat (*Corynorhinus townsendii*) – Species of Special Concern, WBWG High Priority
Townsend's big-eared bat is a CDFW Species of Special Concern, and is listed as "high" priority by the WBWG. This species is found in nearly all habitats except subalpine and alpine habitats throughout California (Harris 1988c). They roost in large cavities such as caves, mines, tunnels, buildings, or other human-made structures, and sometimes large hollows of trees (Gruver and Keinath 2006). They are generally found in dry uplands, but also occur in mesic habitats such as coniferous and deciduous forest (Kunz and Martin 1982). Townsend's big-eared bat is extremely sensitive to disturbance of roosting sites (Gruver and Keinath 2006). Breeding occurs in the fall or winter seasons.

The study area is within the vicinity of foraging habitat, and some roosting potential exists within large trees within the oak woodlands and Conn Creek. Roosting potential also exists within the large culvert adjacent to the bridge. The nearest Townsend's big-eared bat occurrence is documented within approximately 4.8 miles of the study area. To avoid potential impacts to bats, avoidance and mitigation measures should be implemented, as described in **Section 5.0**.

4.2.3 Migratory and Nesting Birds

The Migratory Bird Treaty Act (16 U.S.C. 704) and the California Fish and Game Code (Section 3503) prohibits the take of migratory birds, or disturbance to the active nests of most native birds. In addition to the special-status birds listed in **Section 4.2.1**, a number of additional migratory birds have potential to occur within the immediate vicinity of the project area. These include Allen's Hummingbird (*Selasphorus sasin*), Clark's Grebe (*Aechmophorus clarkii*), Common Yellowthroat (*Geothlypis trichas sinuosa*), Lawrence's Goldfinch (*Carduelis lawrencei*), Nuttall's Woodpecker (*Picoides nuttalli*), Oak Titmouse (*Baeolophus inornatus*), Rufous Hummingbird (*Selasphorus rufus*), Song Sparrow (*Melospiza melodia*), Spotted Towhee (*Pipilo maculates clementae*), and Wrentit (*Chamaea fasciata*).

Multiple bird species were observed within or adjacent to the study area during the field visit, including Turkey Vulture (*Cathartes aura*), Western Bluebird (*Sialia mexicana*), White-crowned

Sparrow (*Zonotrichia leucophrys*), Red-tailed Hawk (*Buteo jamaicensis*), House Finch (*Haemorhous mexicanus*), Dark-eyed Junco (*Junco hyemalis*), Spotted Towhee, Acorn Woodpecker (*Melanerpes formicivorus*), Ruby-crowned Kinglet (*Regulus calendula*), Yellow-rumped Warbler (*Setophaga coronata*), and California Scrub-Jay (*Aphelocoma californica*). Bird habitat within or immediately adjacent to the study area includes large trees, riparian vegetation, shrublands, artificial perches (power poles, fences), and large box culverts that convey the streams below the road crossings. To avoid impacts to migratory or nesting birds, the project should avoid or mitigate the removal of large trees and mature riparian vegetation. The project should also avoid heightened levels of noise disturbance during the general nesting season (February through August). Avoidance measures are detailed in **Section 5.0**.

4.2.4 Special-status Plant Species

The study area encompasses primarily un-vegetated, ruderal, and agricultural habitats adjacent to Silverado Trail. Soils generally consist of common materials that support generalist plant species, as described in **Section 4.1.3**. There is some potential for special-status plants to occur within Conn Creek as well as within the narrow strip of oak woodlands along Silverado Trail and Conn Creek, but the habitat is limited and marginal. Special-status plant taxa with potential to occur in the study area are those associated with "Cismontane Woodland," "Riparian Woodland," or "Riparian Scrub," as defined by the CNPS (2020) and included in **Appendix B**, **Table 2**. The onsite natural habitats within the study area most closely correspond to these habitats, though the onsite habitats are relatively disturbed. Among the taxa known to occur in these habitats, those that are also known to occur within the elevation range found within the study area (174 to 225 feet/68.7 to 53 meters), and that are also documented in the vicinity of the study area (e.g., within 5 to 10 air miles of the site) are considered most likely to occur on the site. There are only two plant taxa that fit the criteria: Napa false indigo (*Amorpha californica* var. *napensis*) and Napa bluecurls (*Trichostema ruygtii*), both of which are known to occur in Cismontane Woodland—no species associated with other onsite habitats have potential to occur in the study area. Both of these taxa are ranked by the CNPS as CRPR 1B.2, and neither is listed at the state or federal level. It should be noted that Northern California black walnut (*Juglans hindsii*) was observed within the study area during the reconnaissance-level biological survey. This species was formerly ranked as CRPR 1B.1 (no state or federal listing), but recent research has revealed that the species is not as rare as once thought, and is currently being de-listed by the CNPS—this has been confirmed by Jake Schweitzer, who is on the rare plant review team for the CNPS.

4.3 Protected Habitats

4.3.1 Wetlands or Waters of the U.S. and State of California

While a formal wetland delineation of potential Waters was not conducted as part of this project, the stream was carefully investigated and the OHWM and top of bank of both sides of Conn Creek were surveyed. The survey revealed that the study area encompasses 0.50 acre of stream habitats within Conn Creek, including wetland and riparian habitats as well as unvegetated channel below the OHWM. These habitats are described in detail in **Section 4.1** above. Conn Creek is presumed to be a federally jurisdictional stream that would also likely be regulated by the CDFW and the RWQCB. An additional 0.01 acre of swale is present within the study area just northwest of the Conn Creek Bridge, and this is likely jurisdictional as well because it is a wetland swale that drains directly into Conn Creek.

According to the project description, approximately 0.04 acre (30 feet by 160 feet) of creek bed and bank would be disturbed during removal of the pipeline and concrete cap from Conn Creek. However, the project includes restoration of all disturbed areas, thus resulting in a net increase in native vegetation, as described below.

4.3.2 Sensitive Plant Communities

Aside from the stream and wetland habitats, the only sensitive habitat type is oak woodland, which occurs over 4.12 acres of the study area (see **Section 4.1**). There are no species-based plant communities present that have been designated as sensitive by the CDFW, either in the MCV, the CNDDB, or special habitats list. Oak woodlands and individual oak trees are considered sensitive at the state level, and are protected by Napa County, which requires mitigation for impacted oak canopies or individual trees. While no tree removal is included as part of the project plan, tree avoidance and protections measures are included in **Section 5.0** below.

5.0 AVOIDANCE MEASURES

In addition to avoidance measures listed below, all construction personnel involved in the project shall attend environmental awareness training prior to the commencement of potential project disturbance activities. The training shall be conducted by a qualified biologist and shall involve the presentation of sensitive species and habitats documented or potentially occurring in the study area. The training should include handouts that describe each resource with respect to listing status, habitat preferences, distinguishing physical characteristics, causes of its decline, and potential protection and avoidance measures. Information should be documented within a paper handout to be distributed among construction personnel, and should include photographs of the resources in order to facilitate identification by the personnel.

The following avoidance measures are recommended, as follows:

Measure 1: To prevent impacts to sensitive amphibians and reptiles (FYLF and NPT).

- No more than twenty-four (24) hours prior to the date of initial ground disturbance, a pre-construction survey for FYLF and NPT shall be conducted by a qualified biologist at the project site. The survey shall consist of walking the study area limits of Conn Creek and at least 400 feet beyond in order to ascertain the possible presence of FYLF and NPT. The biologist shall investigate all potential areas that could be used by the species for feeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as those of California ground squirrels or pocket gophers. If any special-status amphibians or reptiles are found, the biologist shall follow the procedures specified below.
- Among the project crew members to undergo environmental awareness training, one person shall be designated to look for frogs and turtles within disturbance areas at the beginning of each work day (and to keep a look out for animals throughout the day), as frogs in particular could be present even if they are not seen during initial disturbances, the designated crew member should be someone who is expected to be on site every workday. They shall also maintain the provided training materials as well as contact information for the project biologists (i.e., Ms. Neuhaus or Mr. Schweitzer of VNLC). The designated crew member should contact the project biologists if any frogs or turtles of any kind are observed within the project area.

- Temporary exclusion fencing shall be installed around the limits of work areas and access routes to ensure special-status amphibians, reptiles, and mammals cannot enter the work area. Installation of exclusion fencing shall occur under the supervision of a designated biologist and immediately following a clearance survey of the area. The exclusion fencing shall have a minimum aboveground height of 30 inches, and the bottom of the fence should be keyed in at least 4 inches deep and backfilled with soil to prevent wildlife from passing under the fencing. Exclusion fencing shall be installed to prevent species entry into active work areas and to mark the limits of construction disturbance at equipment staging areas, site access routes, construction equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed.
- Initial ground-disturbing activities shall be avoided between November 1 and March 31 to avoid the time period when amphibians and reptiles are most likely to be moving through the project area.
- To the maximum extent practicable, no construction activities shall occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a designated biologist will inspect the project area and all equipment/materials for the presence of FYLF or NPT.
- Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the project site because amphibians and reptiles can become entangled and trapped in them. Any such material found on-site shall be immediately removed by the construction personnel. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer, or other synthetic materials shall not be used.
- Uneaten human food and other refuse attracts crows, ravens, coyotes, raccoons, and other predators of FYLF, NPT, and other wildlife. A litter control program shall be instituted at the project site. All workers shall ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed garbage containers. The garbage containers shall be removed from the project site at the end of each working day.
- If a FYLF or NPT is encountered during project activities, the biologist will determine if relocating the individual is appropriate (e.g., if the species is at risk of injury). If the biologist determines relocation is necessary, the biologist will be given sufficient time to move the animal from the work site before ground disturbance is initiated. If the biologist determines relocation is not necessary, the biologist will monitor the species until it leaves the project vicinity.

Measure 2: To prevent impacts to other aquatic species (steelhead, Pacific lamprey, and hardhead).

- Any required construction activities within Conn Creek should be conducted while the creek is dry. The project should be scheduled to conduct all work during the dry season (from May to October).
- In order to prevent sedimentation, the construction contractor shall install sediment mats, straw wattles, and silt fencing.

Measure 3: To prevent impacts to nesting and foraging habitat of special-status raptors, passerines, and other migratory birds (Swainson's Hawk, Bald Eagle, White-tailed Kite, American Peregrine Falcon, Yellow-breasted Chat, Purple Martin, and Yellow Warbler).

- Prior to the removal of or impact to any trees (dead or alive), shrubs, or riparian habitat as part of the project, a pre-construction survey for nesting birds should be conducted by a qualified biologist at most two weeks prior to initiation of construction activities, if activities are to occur within nesting/breeding season of native bird species (February-August). At minimum, a 50-foot fence buffer must be built around the site of passerine (songbird) nests, 200-foot for raptor nests, and 500-foot for rookery nests, and the fence must be maintained until the young have fledged and left the site, as determined by a qualified biologist.
- If riparian or other native vegetation is removed due to project activities, the construction contractor shall re-vegetate all disturbance areas.

Measure 4: To prevent impacts to sensitive bat species (pallid bat and Townsend's big-eared bat).

- A qualified biologist shall conduct a day time and night time preconstruction bat survey to verify potential use of the bridge and culvert by bats, within two weeks prior to initiation of construction activities.
- If bats are observed roosting on the bridge or within the culvert, a qualified biologist will prepare a roosting bat protection plan, and appropriate exclusion measures (such as one-way doors, expandable foam, or steel wool) may be implemented to avoid potential mortality.
- The project plan does not include any impacts to trees. However, if any large trees will need to be removed or directly impacted by the construction activities, the potential of these trees to provide suitable roosting habitat should be assessed by a qualified biologist and a roosting bat protection plan should be implemented, if needed.

Measure 5: Prevention of impacts to special-status plants.

The two plant species with potential to occur within the study area are both most likely to occur within oak woodlands, which are classified by the CNPS as Cismontane Woodland. The onsite woodland habitats are limited and marginal, but it is possible that at least two species could occur in the study area, as discussed in **Section 4.2.4** above. While there are no planned impacts to oak woodlands within the study area, disturbance of this habitat could result in impacts to special-status plants. In the event that oak woodland habitats could be impacted by the project, the following measures are recommended:

- A qualified botanist shall survey all potentially impacted oak woodlands for special-status plants, with particular emphasis on Napa false indigo and Napa bluecurls. The ideal timeframe of the survey would be when both of these species are in bloom, in June.
- As Napa false indigo is a shrub species it can be identified at least to genus as long as it has leaves. Therefore, if any *Amorpha* species are present within the study area, they should be flagged and pointed out to project workers. However, if the project is carried out during winter, when this deciduous shrub would be difficult to recognize without leaves, any shrub

species resembling *Amorpha* species, as determined by a qualified botanist, should be flagged and pointed out to project workers.

- As Napa bluecurls is an annual species, it would only be impacted outside of its blooming cycle if there is significant disturbance to soils that support the plant. If the project is scheduled to occur during the blooming cycle of the species, from June through October, the pre-construction survey should target this species. If the project involves substantial soil disturbance outside of the blooming season, the disturbance area should be surveyed by a qualified botanist for special-status. To protect non-blooming annual species seedbanks, the topsoil (i.e., the top two inches of soil) should be removed and stockpiled prior to further excavation, then replaced in the same area from which it was removed following disturbance.
- In the event that impacts to special-status plants cannot be avoided, the following measures are recommended:

Impacted Special-status Perennial Plant Taxa (including Napa false indigo):

1. The individual or population can be dug up and relocated to appropriate habitat outside the work area.
2. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species that shall be planted in appropriate habitat outside the work area or in the work area following completion of work. The selected relocation site shall be within the same watershed as the impact area, and shall be approved by CDFW botanical staff.

Impacted Special-status Annual Plant Taxa (including Napa bluecurls):

1. Seeds of the annuals shall be collected from existing onsite populations or from the same watershed (to maintain local genetic stock) and distributed in appropriate habitat outside the work area (within the same watershed) or in the work area following completion of work.
2. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species (from seeds collected locally in the same watershed) that shall be planted in appropriate habitat outside the work area or in the work area following completion of work. It should be noted that seeds derived from plants in the same watershed as the impact area may be available from local nurseries, and local nurseries may also be able to propagate seeds from adults grown from collected seeds. In this case, seeds do not need to be collected from a specific impact area site.

Monitoring Plan

A monitoring plan shall be developed that details the following components. Conduct annual monitoring of seeded or replanted locations within the study area for a minimum of 3 years and up to 5 years, based on CDFW recommendation and monitoring results. The new population should match typical populations for the species as available from rare plant inventories (e.g., from CNDDB, USFWS data, or from local mitigation banks). Due to the variations in population from year to year as a result of weather fluctuations, average population data for annual taxa can be calculated from several years (at least three) of data collected from known populations in the region.

Measure 6: Prevention of impacts to waters and aquatic habitats during construction.

Based on habitat conditions observed in the study area as well as a review of the project plan, it is assumed that the project will result in improved stream habitat conditions. There are no planned impacts to vegetated wetland habitats (which are not present near the work area) or to riparian trees or shrubs. Exotic plant species will be removed from the creek restoration footprint, and habitat restoration will include placement of native and clean fill in the area vacated through removal of the NBA pipeline and concrete cap. However, in order to avoid any incidental impacts, the following measures shall be carried out:

- All workers shall be made aware of the importance of avoiding harmful impacts to native wetland and riparian vegetation.
- The City shall stabilize the disturbed soils and restore stream habitat and topography by installing imported, clean (weed free) gravel and small cobble.
- The banks of the stream shall be hydroseeded with a native seed mix and covered with jute netting to deter the spread of non-native species from locations upstream.
- In order to avoid incidental impacts, any vegetated wetland areas and all native riparian tree and shrub species adjacent to work areas shall be flagged with brightly colored pin flags and/or flagging tape prior to commencement of project activities.

Measure 7: Prevention of impacts to oak woodlands and individual oak trees.

The project plan does not require the removal of any woodlands or individual trees. However, in order to avoid incidental impacts to oak woodlands or individual oak trees, the following measure shall be carried out:

- All workers shall be made aware of the importance of avoiding harmful impacts to oak woodlands or individual oak trees.
- All native oak trees adjacent to work areas, including mature species, seedlings, and saplings, shall be flagged with brightly colored pin flags and/or flagging tape prior to commencement of project activities.

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APPENDIX A
REPRESENTATIVE PHOTOGRAPHS OF THE STUDY AREA (FROM NOVEMBER 2020)

Photo 1. Small wetland within Conn Creek
Southwest edge of the study area. Facing northeast

Photo 2. Conn Creek ordinary high water mark and riparian vegetation
Southwestern portion of the study area. Facing northeast

Photo 3. Stream drift deposits at ordinary high water mark in Conn Creek Southwestern portion of the study area. Facing northeast

Photo 4. View of Conn Creek from the bridge Facing northeast

Photo 5. Unvegetated portion of Conn Creek underneath the bridge Facing southwest

Photo 6. Oak woodland at top of Conn Creek stream bank Northeastern portion of the study area. Facing north

Photo 7. Wetland swale just west of the bridge
Facing east

Photo 8. Non-wetland swale and oak woodland west of the bridge
Facing west

Photo 9. Oak woodland at northwestern edge of the study area
Facing northwest

Photo 10. Road and adjacent oak woodland west of the bridge
Facing northwest

Photo 11. Roadside ruderal habitat and vineyard
Southeastern portion of the study area. Facing southeast

Photo 12. Road and adjacent vineyards
Eastern portion of the study area. Facing northwest

APPENDIX B
SPECIAL-STATUS ANIMALS AND PLANTS DOCUMENTED WITHIN THE PROJECT REGION

Table 1. Special-Status Animal Taxa Documented in the Vicinity of the Conn Creek Bridge Water Pipe Crossing Project, Napa County, California. Compiled by Vollmar Natural Lands Consulting, 2020.

Species highlighted in gray have potential to occur onsite.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Amphibians			
California giant salamander *Dicamptodon ensatus*	SSC	Permanent and semipermanent streams, often with shelter such as rocks, logs, or stones.	Not expected. Channel was completely dry at the time of the site visit; therefore, it provides insufficient habitat for this species.
Foothill yellow-legged frog *Rana boylii*	SSC (NW/North Clade)	Rocky streams in a variety of habitats.	Potential. Stream within the study area provides potential habitat. Species has been documented within the study area (CNDDB 2020).
California red-legged frog *Rana draytonii*	FT, SSC	Quiet pools of freshwater streams, and occasionally ponds.	Not expected. Although the stream within the study area could provide potential habitat, the nearest documented occurrence is over 10 miles away, and the species is likely no longer present within the Napa Valley.
Red-bellied newt *Taricha rivularis*	SSC	Mainly redwood forest, but also found within other conifer and hardwood woodland habitats. Spends dry season underground and migrates to rapid, permanent streams for breeding.	Not expected. Stream was dry at the time of the site visit indicating that it provides insufficient breeding habitat, and redwood forest not present within the study area.
Birds			
Tricolored Blackbird *Agelaius tricolor*	ST, SSC, USFWS: BCC	Forages in a variety of habitats including pastures, agricultural fields, rice fields, and feedlots; nests in freshwater marshes with tules or cattails, or in other dense thickets of willow, thistle, blackberry, or wild rose in close proximity to open water.	Low potential. Study area does not provide potential nesting habitat for this species, but open fields surrounding the study area could provide potential foraging habitat. Documented around Lake Hennessey, approximately 1.25 miles from study area (ebird.org)
Golden Eagle *Aquila chrysaetos*	FP, USFWS: BCC	Open and semi-open country with native vegetation, primarily in mountains, canyonlands, cliffs, and bluffs. Nest on cliffs and steep areas in grassland, chaparral, shrubland, and forest.	Low potential. Study area does not provide potential nesting habitat for this species, but open fields surrounding the study area could provide potential foraging habitat. Documented around Lake Hennessey, approximately 1.25 miles from study area (ebird.org).
Burrowing Owl *Athene cunicularia*	SSC, USFWS: BCC	Open, treeless areas with low, sparse vegetation in grasslands, deserts, pastures, agricultural fields, and more. Associated with mammal burrows, where they also nest.	Not expected. Study area does not provide suitable habitat for this species, and no mammal burrows or small mammals (e.g.. California ground squirrel [*Otospermophilus beecheyi*]) were observed during the field survey.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Swainson's Hawk *Buteo swainsoni*	ST, USFWS: BCC	Forages in open grasslands and prairies. Nests adjacent to riparian habitats.	Low potential. Swainson's Hawk could potentially nest in the riparian habitat surrounding the stream, or forage in the open fields surround the study area. Nearest documented occurrence is 2.3 miles away.
Black Swift *Cypseloides niger*	SSC, USFWS: BCC	Nest on cliff ledges behind or near waterfalls and sea caves. Forage over forests and open areas.	Not expected. Study area does not provide suitable nesting habitat for this species, and nearest documented occurrence is over 7 miles away.
White-tailed Kite *Elanus leucurus*	FP	Common in savannas, open woodlands, marshes, desert grasslands, partially cleared lands, and cultivated fields.	Potential. Species could be found in the open fields surrounding the study area. Nearest documented occurrence is 4.9 miles away.
American Peregrine Falcon *Falco peregrinus anatum*	FP, USFWS: BCC	Occur throughout California, mostly along shorelines and near water bodies. Breed mostly near water with vertical nesting sites such as cliffs, steep banks, and ledges.	Low potential. Study area does not provide potential nesting habitat for this species, but riparian habitat in study area could be an important non-breeding habitat. Known from Lake Hennessey, approximately 1.25 miles from the study area.
Bald Eagle *Haliaeetus leucocephalus*	SE, FP, USFWS: BCC	Nest in forested areas near a large body of water. Perch in tall, mature coniferous or deciduous trees.	Potential. Species could potentially nest in the riparian habitat within the study area. Study area is located near Lake Hennessey and in the vicinity of Lake Berryessa. Nearest documented occurrence is 1.6 mile away.
Yellow-breasted Chat *Icteria virens*	SSC	Found in valley foothill riparian habitat in coastal California and the Sierra Nevada foothills. Usually nests in dense shrubs along a stream or river.	Potential. Species could potentially nest in the riparian habitat within the study area. Species is known from the Napa River Ecological Reserve, approximately 5.5 miles from the study area.
Purple Martin *Progne subis*	SSC	Breed in mountain forests or Pacific lowlands, nesting in woodpecker holes in dead snags. Forage in a variety of open habitats.	Potential. Purple martin could potentially nest in the riparian habitat within the study area. Nearest documented occurrence is 2.4 miles away.
Yellow Warbler *Setophaga petechia*	SSC, USFWS: BCC	Breed in riparian woodlands from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada, as well as montane chaparral and open ponderosa pine and mixed confider habitats with substantial amounts of brush.	Potential. Species could potentially nest in the riparian habitat within the study area. Documented within study area in 2020 according to citizen bird tracking organization (ebird.org).
Northern Spotted Owl *Strix occidentalis caurina*	FT, ST	Dense blocks of mature, multi-layered forests of mixed conifer, redwood, and Douglas-fir habitat.	Not expected. Dense blocks of mature, multi-layered forest are not present within the study area.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Fish			
Pacific lamprey *Entosphenus tridentatus*	SSC	Spend about 1-3 years in the ocean and then migrate to freshwater to spawn. Spawn in gravel bottom streams.	Low potential. Conn Creek provides marginal potential habitat, but stream was dry at time of site visit. Known from the Napa River, approximately 5 miles downstream of study area.
Russian River tule perch *Hysterocarpus traskii pomo*	SSC	Clear, flowing water and abundant cover such as aquatic plants, submerged tree branches, overhanging plants, and large boulders. Congregate in deep pools during summer.	Not expected. Study area is outside of species' known range.
Western river lamprey *Lampetra ayresii*	SSC	Clean, gravelly riffles in permanent streams for spawning. Found in Sacramento and San Joaquin Delta, tributaries to the San Francisco Estuary, and tributaries to the Sacramento and San Joaquin Rivers.	Not expected. Stream was dry at the time of the site visit indicating that it provides insufficient habitat for this species.
Western brook lamprey *Lampetra richardsoni*	SSC	Clear, cold water with fine substrate (sand or fine gravel) near cover such as boulders, riparian vegetation, and submerged logs, in mostly undisturbed watersheds.	Not expected. Conn Creek is outside of the known range of this species, and is likely too urban and disturbed to provide potential habitat. Substrate is also likely too large (gravel and boulders, little sand).
Sacramento hitch *Lavinia exilicauda exilicauda*	SSC	Warm, lowland waters including clear streams, turbid sloughs, lakes, and reservoirs. Prefer shallow stream habitats.	Not expected. Study area is outside of species' known range.
Hardhead *Mylopharodon conocephalus*	SSC	Low to mid-elevation relatively undisturbed habitats of larger streams with clear, cool water.	Low potential. Conn Creek provides marginal potential habitat, but stream was dry at time of site visit. Species is known to be present but extremely rare within the Napa River, which is approximately 5 miles downstream of the study area (Moyle 2002).
Delta smelt *Hypomesus transpacificus*	FT, SE	Endemic to streams, rivers, estuaries in the upper reaches of the San Francisco Bay and Sacramento-San Joaquin Delta Estuary.	Not expected. Study area is outside of species' known range.
Steelhead - central California coast DPS *Oncorhynchus mykiss irideus pop. 8*	FT	Streams, rivers, lakes, estuaries, and ocean in the San Francisco Bay and North Bay.	Potential. Conn Creek is a tributary of the Napa River, in which steelhead have been documented. Nearest documented occurrence is 5.1 miles away.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Mammals			
Pallid bat *Antrozous pallidus*	SSC, WBWG:H	Forages in a variety of habitats. Roosts in rocky outcrops, buildings, and hollow trees.	Potential. Species could potentially nest in the riparian habitat within the study area. Nearest documented occurrence is 1.2 miles away.
Townsend's big-eared bat *Corynorhinus townsendii*	SSC, WBWG:H	Roosts in caves, cliffs, rock ledges, and man-made structures. Found in a wide variety of habitats, except subalpine and alpine habitats.	Potential. Species could potentially nest in the riparian habitat within the study area. Nearest documented occurrence is 4.8 miles away.
Mollusks and Crustaceans			
California freshwater shrimp *Syncaris pacifica*	FE, SE	Small, perennial coastal streams at low elevation.	Not expected. Stream was dry at the time of the site visit indicating that it provides insufficient habitat for this species.
Reptiles			
Green sea turtle *Chelonia mydas*	FT	Open ocean, return to beaches to breed.	Not expected. Open ocean and beaches are not present within the study area.
Northwestern pond turtle *Actinemys marmorata*	SSC	Permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, unlined irrigation canals, and reservoirs.	Potential. Species could potentially occur within Conn Creek. Nearest documented occurrence is 2.2 miles away.

[1]Status:

FT – Federal Threatened; FE – Federal Endangered; ST – State Threatened; SE – State Endangered; SSC – CDFW Species of Special Concern; FP – CDFW Fully Protected; USFWS: BCC – United States Fish and Wildlife Service: Birds of Conservation Concern; WBWG: Western Bat Working Group High ('H'), Medium ('M'), or Low ('L') Priority

Table 2. Special-status Vascular Plant Taxa Documented in the Vicinity of the Conn Creek Bridge Water Pipe Crossing Project, Napa County, California. Compiled by Vollmar Natural Lands Consulting, 2020.

Shaded entries=taxa with the highest potential to occur within the study area, based on the habitat and distribution of taxon.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Allium peninsulare var. *franciscanum* Franciscan onion (Alliaceae)	1B.2/-/-	Cismontane woodland, Valley and foothill grassland; Microhabitat: clay, volcanic, often serpentinite; 170-1,000 feet; (Apr)May-Jun	Not expected. No suitable habitat within the study area (no serpentinite present).
Alopecurus aequalis var. *sonomensis* Sonoma alopecurus (Poaceae)	1B.1/-/FE	Marshes and swamps (freshwater), Riparian scrub; Microhabitat: None; 15-1,200 feet; May-Jul	Not expected. Limited and marginal riparian habitat. Not known from the vicinity of the study area.
Amorpha californica var. *napensis* Napa false indigo (Fabaceae)	1B.2/-/-	Broadleafed upland forest (openings), Chaparral, Cismontane woodland; Microhabitat: None; 390-6,560 feet; Apr-Jul	Low potential. Limited and marginal cismontane woodland habitat.
Amsinckia lunaris bent-flowered fiddleneck (Boraginaceae)	1B.2/-/-	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland; Microhabitat: None; 5-1,640 feet; Mar-Jun	Not expected. No suitable habitat within the study area.
Antirrhinum virga twig-like snapdragon (Plantaginaceae)	4.3/CR/-	Chaparral, Lower montane coniferous forest; Microhabitat: rocky, openings, often serpentinite; 325-6,610 feet; Jun-Jul	Not expected. No suitable habitat within the study area.
Arctostaphylos bakeri ssp. *bakeri* Baker's manzanita (Ericaceae)	1B.1/-/-	Broadleafed upland forest, Chaparral; Microhabitat: often serpentinite; 245-985 feet; Feb-Apr	Not expected. No suitable habitat within the study area.
Arctostaphylos stanfordiana ssp. *decumbens* Rincon Ridge manzanita (Ericaceae)	1B.1/-/-	Chaparral (rhyolitic), Cismontane woodland; Microhabitat: None; 245-1,215 feet; Feb-Apr(May)	Not expected. No suitable habitat within the study area (no chaparral and no suitable cismontane woodland present). Species elevation range is above that of the study area.
Astragalus breweri Brewer's milk-vetch (Fabaceae)	4.2/CT/-	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland (open, often gravelly); Microhabitat: often serpentinite, volcanic; 295-2,395 feet; Apr-Jun	Not expected. Species elevation range is above that of the study area.
Astragalus claranus Clara Hunt's milk-vetch (Fabaceae)	1B.1/-/FE	Chaparral (openings), Cismontane woodland, Valley and foothill grassland; Microhabitat: serpentinite or volcanic, rocky, clay; 245-900 feet; Mar-May	Not expected. Species elevation range is above that of the study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Astragalus clevelandii Cleveland's milk-vetch (Fabaceae)	4.3/-/-	Chaparral, Cismontane woodland, Riparian forest; Microhabitat: serpentinite seeps; 655-4,920 feet; Jun-Sep	Not expected. Species elevation range is above that of the study area.
Astragalus tener var. *tener* alkali milk-vetch (Fabaceae)	1B.2/-/-	Playas, Valley and foothill grassland (adobe clay), Vernal pools; Microhabitat: alkaline; 0-195 feet; Mar-Jun	Not expected. No suitable habitat within the study area.
Balsamorhiza macrolepis big-scale balsamroot (Asteraceae)	1B.2/CE/-	Chaparral, Cismontane woodland, Valley and foothill grassland; Microhabitat: sometimes serpentinite; 145-5,100 feet; Mar-Jun	Not expected. Limited and marginal cismontane woodland habitat. Not known from the vicinity of the study area.
Blennosperma bakeri Sonoma sunshine (Asteraceae)	1B.1/-/FE	Valley and foothill grassland (mesic), Vernal pools; Microhabitat: None; 30-360 feet; Mar-May	Not expected. No suitable habitat within the study area.
Brodiaea leptandra narrow-anthered brodiaea (Themidaceae)	1B.2/-/-	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland; Microhabitat: volcanic; 360-3,000 feet; May-Jul	Not expected. Species elevation range is above that of the study area.
Calamagrostis ophitidis serpentine reed grass (Poaceae)	4.3/-/-	Chaparral (open, often north-facing slopes), Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland; Microhabitat: serpentinite, rocky; 295-3,495 feet; Apr-Jul	Not expected. No suitable habitat within the study area.
Calandrinia breweri Brewer's calandrinia (Montiaceae)	4.2/-/-	Chaparral, Coastal scrub; Microhabitat: sandy or loamy, disturbed sites and burns; 30-4,005 feet; (Jan)Mar-Jun	Not expected. No suitable habitat within the study area.
Calochortus uniflorus pink star-tulip (Liliaceae)	4.2/-/-	Coastal prairie, Coastal scrub, Meadows and seeps, North Coast coniferous forest; Microhabitat: None; 30-3,510 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Calycadenia micrantha small-flowered calycadenia (Asteraceae)	1B.2/-/-	Chaparral, Meadows and seeps (volcanic), Valley and foothill grassland; Microhabitat: Roadsides, rocky, talus, scree, sometimes serpentinite, sparsely vegetated areas; 15-4,920 feet; Jun-Sep	Not expected. No suitable habitat within the study area.
Calystegia collina ssp. *oxyphylla* Mt. Saint Helena morning-glory (Convolvulaceae)	4.2/-/-	Chaparral, Lower montane coniferous forest, Valley and foothill grassland; Microhabitat: serpentinite; 915-3,315 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Castilleja ambigua var. *ambigua* johnny-nip (Orobanchaceae)	4.2/-/-	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins; Microhabitat: None; 0-1,425 feet; Mar-Aug	Not expected. No suitable habitat within the study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Castilleja ambigua var. *meadii* Mead's owl's-clover (Orobanchaceae)	1B.1/-/-	Meadows and seeps, Vernal pools; Microhabitat: Gravelly, volcanic, clay; 1,475-1,560 feet; Apr-May	Not expected. No suitable habitat within the study area.
Ceanothus confusus Rincon Ridge ceanothus (Rhamnaceae)	1B.1/-/-	Closed-cone coniferous forest, Chaparral, Cismontane woodland; Microhabitat: volcanic or serpentinite; 245-3,595 feet; Feb-Jun	Not expected. Species elevation range is above that of the study area.
Ceanothus divergens Calistoga ceanothus (Rhamnaceae)	1B.2/-/-	Chaparral (serpentinite or volcanic, rocky); Microhabitat: None; 555-3,115 feet; Feb-Apr	Not expected. No suitable habitat within the study area.
Ceanothus gloriosus var. *exaltatus* glory brush (Rhamnaceae)	4.3/-/-	Chaparral; Microhabitat: None; 95-2,000 feet; Mar-Jun(Aug)	Not expected. No suitable habitat within the study area.
Ceanothus purpureus holly-leaved ceanothus (Rhamnaceae)	1B.2/-/-	Chaparral, Cismontane woodland; Microhabitat: volcanic, rocky; 390-2,100 feet; Feb-Jun	Not expected. Species elevation range is above that of the study area.
Ceanothus sonomensis Sonoma ceanothus (Rhamnaceae)	1B.2/-/-	Chaparral (sandy, serpentinite or volcanic); Microhabitat: None; 705-2,625 feet; Feb-Apr	Not expected. No suitable habitat within the study area.
Centromadia parryi ssp. *parryi* pappose tarplant (Asteraceae)	1B.2/CE/-	Chaparral, Coastal prairie, Meadows and seeps, Marshes and swamps (coastal salt), Valley and foothill grassland (vernally mesic); Microhabitat: often alkaline; 0-1,380 feet; May-Nov	Not expected. No suitable habitat within the study area.
Chorizanthe valida Sonoma spineflower (Polygonaceae)	1B.1/-/FE	Coastal prairie (sandy); Microhabitat: None; 30-1,000 feet; Jun-Aug	Not expected. No suitable habitat within the study area.
Clarkia breweri Brewer's clarkia (Onagraceae)	4.2/-/-	Chaparral, Cismontane woodland, Coastal scrub; Microhabitat: often serpentinite; 705-3,660 feet; Apr-Jun	Not expected. Species elevation range is above that of the study area.
Clarkia gracilis ssp. *tracyi* Tracy's clarkia (Onagraceae)	4.2/-/-	Chaparral (openings, usually serpentinite); Microhabitat: None; 210-2,135 feet; Apr-Jul	Not expected. No suitable habitat within the study area.
Collomia diversifolia serpentine collomia (Polemoniaceae)	4.3/-/-	Chaparral, Cismontane woodland; Microhabitat: serpentinite, rocky or gravelly; 655-1,970 feet; May-Jun	Not expected. Species elevation range is above that of the study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Cordylanthus tenuis ssp. *brunneus* serpentine bird's-beak (Orobanchaceae)	4.3/-/-	Closed-cone coniferous forest, Chaparral, Cismontane woodland; Microhabitat: usually serpentinite; 1,000-3,000 feet; Jul-Aug	Not expected. Species elevation range is above that of the study area.
Delphinium uliginosum swamp larkspur (Ranunculaceae)	4.2/-/-	Chaparral, Valley and foothill grassland; Microhabitat: serpentinite seeps; 1,115-2,000 feet; May-Jun	Not expected. No suitable habitat within the study area.
Downingia pusilla dwarf downingia (Campanulaceae)	2B.2/-/-	Valley and foothill grassland (mesic), Vernal pools; Microhabitat: None; 0-1,460 feet; Mar-May	Not expected. No suitable habitat within the study area.
Erigeron biolettii streamside daisy (Asteraceae)	3/-/-	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest; Microhabitat: rocky, mesic; 95-3,610 feet; Jun-Oct	Not expected. Limited and marginal cismontane woodland habitat. Not known from the vicinity of the study area.
Erigeron greenei Greene's narrow-leaved daisy (Asteraceae)	1B.2/CE/-	Chaparral (serpentinite or volcanic); Microhabitat: None; 260-3,295 feet; May-Sep	Not expected. No suitable habitat within the study area.
Eryngium constancei Loch Lomond button-celery (Apiaceae)	1B.1/-/FE	Vernal pools; Microhabitat: None; 1,505-2,805 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Eryngium jepsonii Jepson's coyote thistle (Apiaceae)	1B.2/-/-	Valley and foothill grassland, Vernal pools; Microhabitat: clay; 5-985 feet; Apr-Aug	Not expected. No suitable habitat within the study area.
Extriplex joaquinana San Joaquin spearscale (Chenopodiaceae)	1B.2/-/-	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland; Microhabitat: alkaline; 0-2,740 feet; Apr-Oct	Not expected. No suitable habitat within the study area.
Fritillaria liliacea fragrant fritillary (Liliaceae)	1B.2/-/-	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland; Microhabitat: Often serpentinite; 5-1,345 feet; Feb-Apr	Not expected. Limited and marginal cismontane woodland habitat. Not known from the vicinity of the study area.
Harmonia nutans nodding harmonia (Asteraceae)	4.3/-/-	Chaparral, Cismontane woodland; Microhabitat: rocky or gravelly, volcanic; 245-3,200 feet; Mar-May	Not expected. Species elevation range is above that of the study area.
Hemizonia congesta ssp. *congesta* congested-headed hayfield tarplant (Asteraceae)	1B.2/-/-	Valley and foothill grassland; Microhabitat: sometimes roadsides; 65-1,835 feet; Apr-Nov	Not expected. Disturbed, non-mesic roadside habitat. Not known from the vicinity of the study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Hesperolinon bicarpellatum two-carpellate western flax (Linaceae)	1B.2/-/-	Chaparral (serpentinite); Microhabitat: None; 195-3,295 feet; May-Jul	Not expected. No suitable habitat within the study area.
Hesperolinon sharsmithiae Sharsmith?s western flax (Linaceae)	1B.2/-/-	Chaparral; Microhabitat: serpentinite; 885-985 feet; May-Jul	Not expected. No suitable habitat within the study area.
Horkelia tenuiloba thin-lobed horkelia (Rosaceae)	1B.2/-/-	Broadleafed upland forest, Chaparral, Valley and foothill grassland; Microhabitat: mesic openings, sandy; 160-1,640 feet; May-Jul(Aug)	Not expected. No suitable habitat within the study area.
Iris longipetala coast iris (Iridaceae)	4.2/-/-	Coastal prairie, Lower montane coniferous forest, Meadows and seeps; Microhabitat: mesic; 0-1,970 feet; Mar-May	Not expected. No suitable habitat within the study area.
Juglans hindsii Northern California black walnut (Juglandaceae)	1B.1/CE/- (former status)	Riparian forest, Riparian woodland; Microhabitat: None; 0-1,445 feet; Apr-May	Species is present, but no longer considered to be rare by CNPS.
Lasthenia burkei Burke's goldfields (Asteraceae)	1B.1/-/FE	Meadows and seeps (mesic), Vernal pools; Microhabitat: None; 45-1,970 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Lasthenia conjugens Contra Costa goldfields (Asteraceae)	1B.1/-/FE	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools; Microhabitat: mesic; 0-1,540 feet; Mar-Jun	Not expected. No suitable habitat within the study area.
Lathyrus jepsonii var. *jepsonii* Delta tule pea (Fabaceae)	1B.2/-/-	Marshes and swamps (freshwater and brackish); Microhabitat: None; 0-15 feet; May-Jul(Aug-Sep)	Not expected. No suitable habitat within the study area.
Layia septentrionalis Colusa layia (Asteraceae)	1B.2/-/-	Chaparral, Cismontane woodland, Valley and foothill grassland; Microhabitat: sandy, serpentinite; 325-3,595 feet; Apr-May	Not expected. Species elevation range is above that of the study area.
Legenere limosa legenere (Campanulaceae)	1B.1/-/-	Vernal pools; Microhabitat: None; 0-2,885 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Leptosiphon acicularis bristly leptosiphon (Polemoniaceae)	4.2/-/-	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland; Microhabitat: None; 180-4,920 feet; Apr-Jul	Not expected. Limited and marginal cismontane woodland habitat. Not known from the vicinity of the study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Leptosiphon jepsonii Jepson's leptosiphon (Polemoniaceae)	1B.2/-/-	Chaparral, Cismontane woodland, Valley and foothill grassland; Microhabitat: usually volcanic; 325-1,640 feet; Mar-May	Not expected. Species elevation range is above that of the study area.
Leptosiphon latisectus broad-lobed leptosiphon (Polemoniaceae)	4.3/-/-	Broadleafed upland forest, Cismontane woodland; Microhabitat: None; 555-4,920 feet; Apr-Jun	Not expected. Species elevation range is above that of the study area.
Lessingia hololeuca woolly-headed lessingia (Asteraceae)	3/CR/-	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; Microhabitat: clay, serpentinite; 45-1,000 feet; Jun-Oct	Not expected. No suitable habitat within the study area.
Lilaeopsis masonii Mason's lilaeopsis (Apiaceae)	1B.1/-/-	Marshes and swamps (brackish or freshwater), Riparian scrub; Microhabitat: None; 0-35 feet; Apr-Nov	Not expected. Species elevation range is below that of the study area.
Lilium rubescens redwood lily (Liliaceae)	4.2/CE/-	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest; Microhabitat: Sometimes serpentinite, sometimes roadsides; 95-6,265 feet; Apr-Aug(Sep)	Not expected. No suitable habitat within the study area.
Limnanthes vinculans Sebastopol meadowfoam (Limnanthaceae)	1B.1/-/FE	Meadows and seeps, Valley and foothill grassland, Vernal pools; Microhabitat: vernally mesic; 45-1,000 feet; Apr-May	Not expected. No suitable habitat within the study area.
Lomatium repostum Napa lomatium (Apiaceae)	4.3/-/-	Chaparral, Cismontane woodland; Microhabitat: serpentinite; 295-2,725 feet; Mar-Jun	Not expected. Species elevation range is above that of the study area.
Lupinus sericatus Cobb Mountain lupine (Fabaceae)	1B.2/-/-	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest; Microhabitat: None; 900-5,005 feet; Mar-Jun	Not expected. Species elevation range is above that of the study area.
Micropus amphibolus Mt. Diablo cottonweed (Asteraceae)	3.2/-/-	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland; Microhabitat: rocky; 145-2,705 feet; Mar-May	Not expected. Limited and marginal cismontane woodland habitat. Not known from the vicinity of the study area.
Monardella viridis green monardella (Lamiaceae)	4.3/-/-	Broadleafed upland forest, Chaparral, Cismontane woodland; Microhabitat: None; 325-3,315 feet; Jun-Sep	Not expected. Species elevation range is above that of the study area.
Navarretia cotulifolia cotula navarretia (Polemoniaceae)	4.2/-/-	Chaparral, Cismontane woodland, Valley and foothill grassland; Microhabitat: adobe; 10-6,005 feet; May-Jun	Not expected. Limited and marginal cismontane woodland habitat. Not known from the vicinity of the study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Navarretia heterandra Tehama navarretia (Polemoniaceae)	4.3/-/-	Valley and foothill grassland (mesic), Vernal pools; Microhabitat: None; 95-3,315 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia (Polemoniaceae)	1B.1/CT/-	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools; Microhabitat: Mesic; 15-5,710 feet; Apr-Jul	Not expected. Limited and marginal cismontane woodland habitat. Not known from the vicinity of the study area.
Navarretia leucocephala ssp. *pauciflora* few-flowered navarretia (Polemoniaceae)	1B.1/CE/FE	Vernal pools (volcanic ash flow); Microhabitat: None; 1,310-2,805 feet; May-Jun	Not expected. No suitable habitat within the study area.
Navarretia leucocephala ssp. *plieantha* many-flowered navarretia (Polemoniaceae)	1B.2/-/FE	Vernal pools (volcanic ash flow); Microhabitat: None; 95-3,115 feet; May-Jun	Not expected. No suitable habitat within the study area.
Navarretia rosulata Marin County navarretia (Polemoniaceae)	1B.2/-/-	Closed-cone coniferous forest, Chaparral; Microhabitat: serpentinite, rocky; 655-2,085 feet; May-Jul	Not expected. No suitable habitat within the study area.
Penstemon newberryi var. *sonomensis* Sonoma beardtongue (Plantaginaceae)	1B.3/CT/-	Chaparral (rocky); Microhabitat: None; 2,295-4,495 feet; Apr-Aug	Not expected. No suitable habitat within the study area.
Plagiobothrys strictus Calistoga popcornflower (Boraginaceae)	1B.1/CE/FE	Meadows and seeps, Valley and foothill grassland, Vernal pools; Microhabitat: alkaline areas near thermal springs; 295-525 feet; Mar-Jun	Not expected. No suitable habitat within the study area.
Poa napensis Napa blue grass (Poaceae)	1B.1/-/FE	Meadows and seeps, Valley and foothill grassland; Microhabitat: alkaline, near thermal springs; 325-655 feet; May-Aug	Not expected. No suitable habitat within the study area.
Puccinellia simplex California alkali grass (Poaceae)	1B.2/-/-	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; Microhabitat: Alkaline, vernally mesic; sinks, flats, and lake margins; 5-3,050 feet; Mar-May	Not expected. No suitable habitat within the study area.
Ranunculus lobbii Lobb's aquatic buttercup (Ranunculaceae)	4.2/-/-	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools; Microhabitat: mesic; 45-1,540 feet; Feb-May	Not expected. Limited and marginal cismontane woodland habitat. Not known from the vicinity of the study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Sagittaria sanfordii Sanford's arrowhead (Alismataceae)	1B.2/-/-	Marshes and swamps (assorted shallow freshwater); Microhabitat: None; 0-2,135 feet; May-Oct(Nov)	Not expected. No suitable habitat within the study area.
Senecio clevelandii var. *clevelandii* Cleveland's ragwort (Asteraceae)	4.3/-/-	Chaparral (serpentinite seeps); Microhabitat: None; 1,195-2,955 feet; Jun-Jul	Not expected. No suitable habitat within the study area.
Sidalcea hickmanii ssp. *napensis* Napa checkerbloom (Malvaceae)	1B.1/-/-	Chaparral; Microhabitat: rhyolitic; 1,360-2,000 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Sidalcea oregana ssp. *hydrophila* marsh checkerbloom (Malvaceae)	1B.2/CE/-	Meadows and seeps, Riparian forest; Microhabitat: mesic; 3,605-7,545 feet; (Jun)Jul-Aug	Not expected. No suitable habitat within the study area.
Sidalcea oregana ssp. *valida* Kenwood Marsh checkerbloom (Malvaceae)	1B.1/-/FE	Marshes and swamps (freshwater); Microhabitat: None; 375-490 feet; Jun-Sep	Not expected. No suitable habitat within the study area.
Spergularia macrotheca var. *longistyla* long-styled sand-spurrey (Caryophyllaceae)	1B.2/-/-	Meadows and seeps, Marshes and swamps; Microhabitat: Alkaline; 0-835 feet; Feb-May(Jun)	Not expected. No suitable habitat within the study area.
Streptanthus hesperidis green jewelflower (Brassicaceae)	1B.2/-/-	Chaparral (openings), Cismontane woodland; Microhabitat: serpentinite, rocky; 425-2,495 feet; May-Jul	Not expected. No suitable habitat within the study area (no serpentinite).
Symphyotrichum lentum Suisun Marsh aster (Asteraceae)	1B.2/-/-	Marshes and swamps (brackish and freshwater); Microhabitat: None; 0-10 feet; (Apr)May-Nov	Not expected. No suitable habitat within the study area.
Toxicoscordion fontanum marsh zigadenus (Melanthiaceae)	4.2/-/-	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps; Microhabitat: vernally mesic, often serpentinite; 45-3,280 feet; Apr-Jul	Not expected potential. Limited and marginal cismontane woodland habitat. No serpentinite. Not known from the vicinity of the study area.
Trichostema ruygtii Napa bluecurls (Lamiaceae)	1B.2/-/-	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland, Vernal pools; Microhabitat: None; 95-2,230 feet; Jun-Oct	Low potential. Limited and marginal cismontane woodland habitat.
Trifolium amoenum two-fork clover (Fabaceae)	1B.1/-/FE	Coastal bluff scrub, Valley and foothill grassland (sometimes serpentinite); Microhabitat: None; 15-1,360 feet; Apr-Jun	Not expected. No suitable habitat within the study area.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Trifolium hydrophilum saline clover (Fabaceae)	1B.2/-/-	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools; Microhabitat: None; 0-985 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Triteleia lugens dark-mouthed triteleia (Themidaceae)	4.3/-/-	Broadleafed upland forest, Chaparral, Coastal scrub, Lower montane coniferous forest; Microhabitat: None; 325-3,280 feet; Apr-Jun	Not expected. No suitable habitat within the study area.
Viburnum ellipticum oval-leaved viburnum (Adoxaceae)	2B.3//-	Chaparral, Cismontane woodland, Lower montane coniferous forest; Microhabitat: None; 705-4,595 feet; May-Jun	Not expected. Species elevation range is above that of the study area.

Note: nomenclature corresponds to the CNPS (2020)

1. State or federal listing: F = Federal; C = California; E = endangered; T = threatened; R = rare
   CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere; CRPR List 1B = Plants rare, threatened or endangered in CA and elsewhere; CRPR 2B = Plants rare, threatened or endangered in California but more common elsewhere; CRPR 3 = More information is needed about plant; CRPR 4 = Plants of limited distribution, a watch list
   CRPR: '.1' = Seriously threatened in CA; '.2' = Fairly threatened in CA; '.3' = Not very threatened in CA
2. Underlined habitats = present within the project area. Elevation range within the study area is 174 to 225 feet.

APPENDIX C

USFWS INFORMATION, PLANNING, AND CONSULTATION SYSTEM SEARCH RESULTS

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Napa County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. 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.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS

Northern Spotted Owl Strix occidentalis caurina — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/1123

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Crustaceans

NAME	STATUS
California Freshwater Shrimp Syncaris pacifica No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7903	Endangered

Flowering Plants

NAME	STATUS
Clara Hunt's Milk-vetch Astragalus clarianus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3300	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE

BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
California Spotted Owl Strix occidentalis occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7266	Breeds Mar 10 to Jun 15
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20

Long-billed Curlew Numenius americanus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

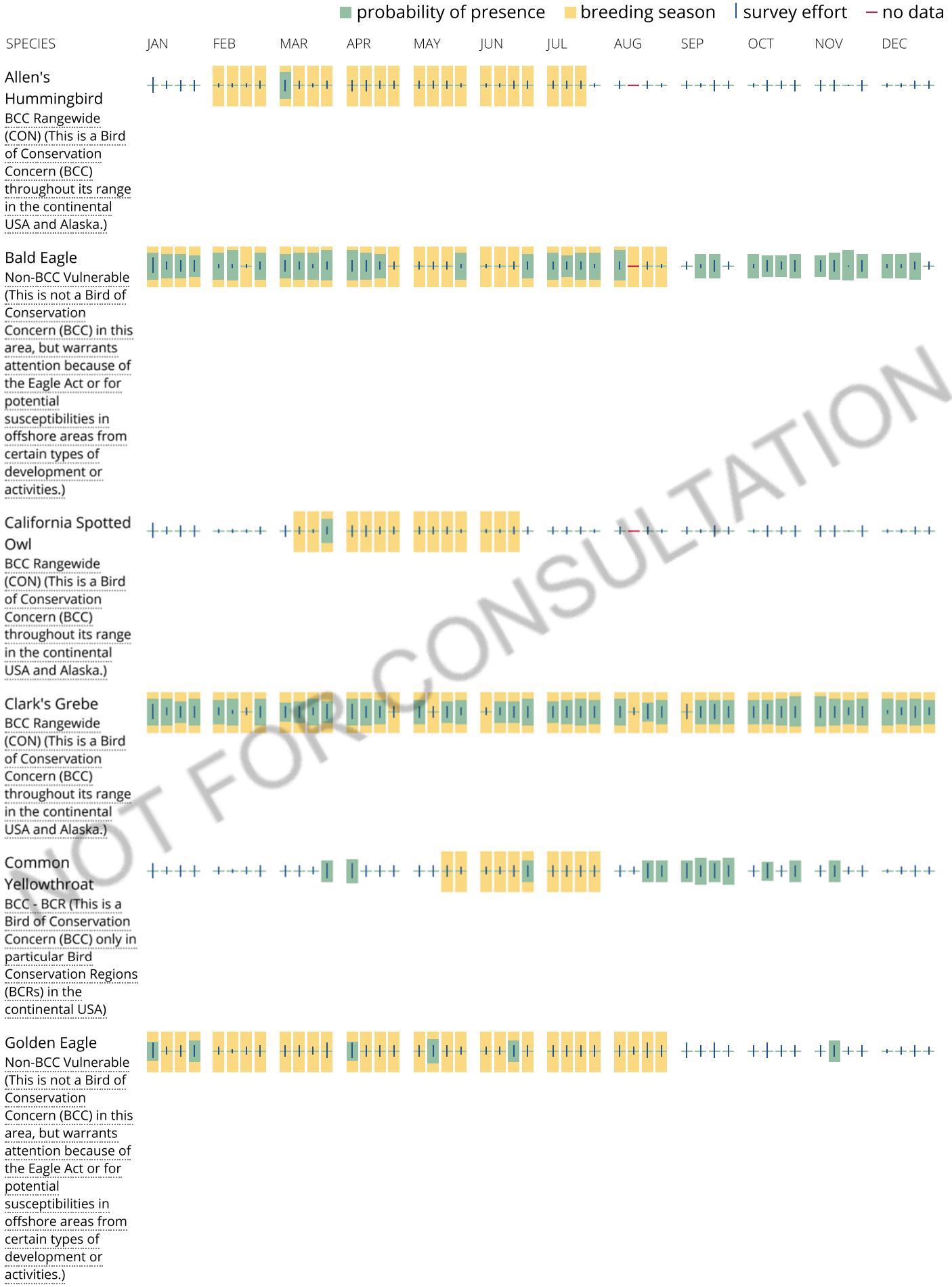
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

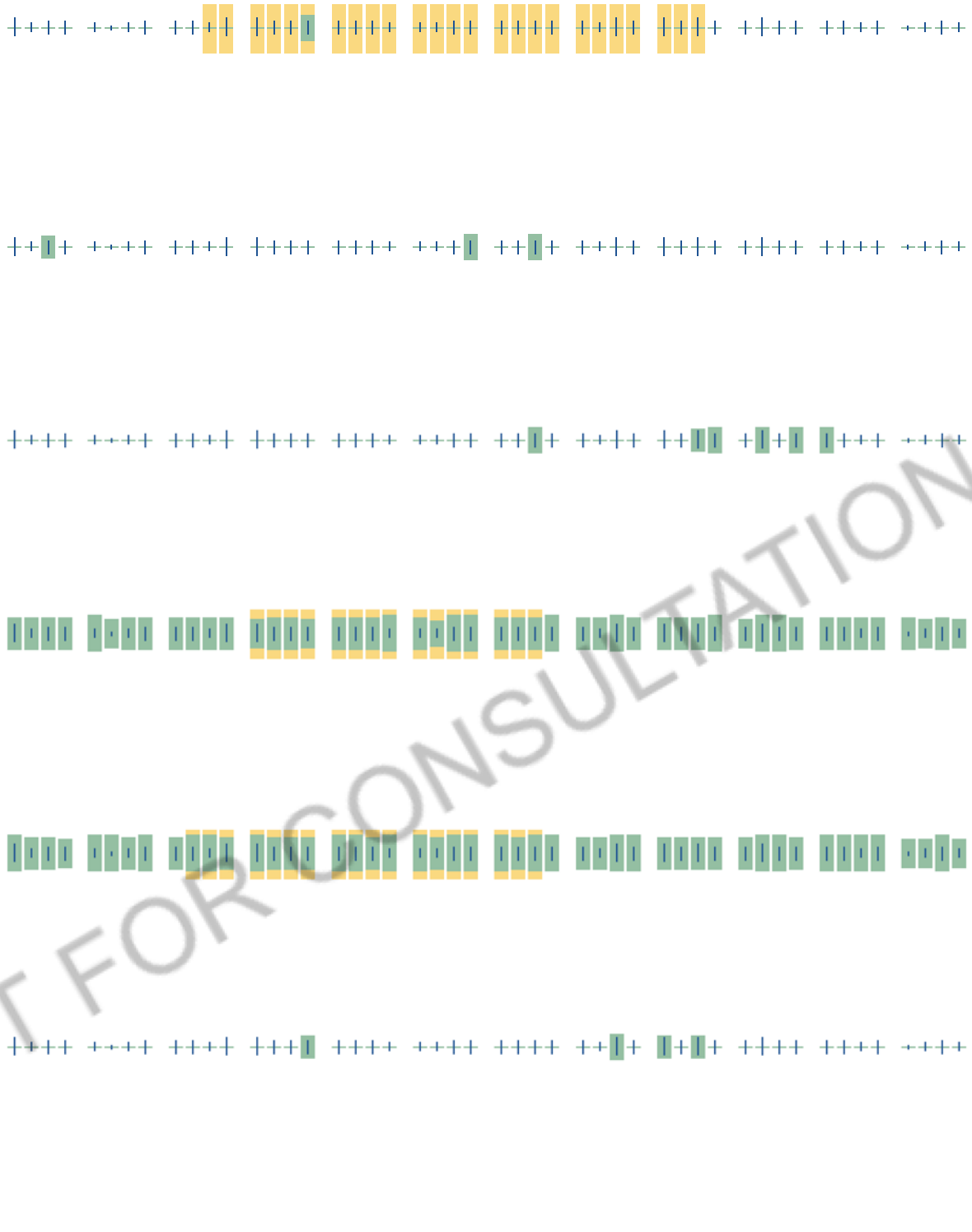
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

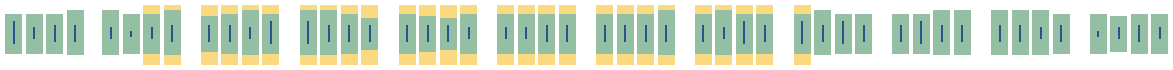
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

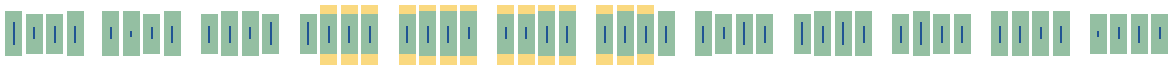




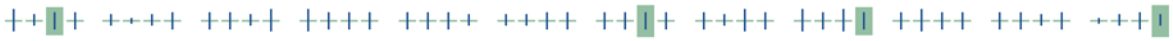
Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX E CULTURAL RESOURCES ASSESSMENT REPORT

CULTURAL RESOURCES ASSESSMENT REPORT IN SUPPORT OF THE CONN CREEK PIPELINE PROJECT CALISTOGA, NAPA COUNTY, CALIFORNIA

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Prepared for:
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San Francisco, CA

Technical Report No. 20-958

Redacted Report

Confidential cultural resources location information is redacted from this report. The legal authority to restrict cultural resources information is in Section 304 of the National Historic Preservation Act of 1966, as amended, and California Government Section Code 6254.10 exempts archaeological sites from the California Public Records Act requiring that public records be open to public inspection.

March 2, 2021

Keywords: CEQA, Section 106, Conn Creek, City of Calistoga, Federal Emergency Management Agency, Napa County, Water, Pipeline, North Bay Aqueduct, P-28-001005

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MANAGEMENT SUMMARY

The City of Calistoga (City) proposes the Conn Creek Bridge Water Pipe Crossing Project (Project) that will replace an underground segment of the North Bay Aqueduct (NBA) pipeline, constructed in 1983 paralleling Silverado Trail South and crossing Conn Creek near the intersection of Silverado Trail with CA State Route 128, in unincorporated Napa County, California. Grant funding for Project construction was awarded in 2018 under the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP). Panorama Environmental Inc., on behalf of Murraysmith, Inc., and the City, retained PaleoWest, LLC (PaleoWest) to conduct a cultural resources assessment of the approximately 0.5-mile (mi) long Project area of potential effects (APE) in compliance with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA). As the proponent of the Project and administrator of the FEMA grant, the City is the lead agency for the purposes of CEQA, while the California Department of Transportation and Napa County are responsible agencies resulting from the need for them to grant encroachment permits. Due to the grant funding from FEMA, the Project is subject to Section 106 of the NHPA with FEMA as lead federal agency.

This report documents the methods and results of the cultural resources assessment of the APE. This investigation included a cultural resources literature search, communication with the Native American Heritage Commission (NAHC) and interested Native American groups, a geoarchaeological sensitivity assessment, and an intensive pedestrian survey.

A records search of the California Historical Resources Information System at the Northwest Information Center (NWIC) for the Project (File No. 20-0629) indicated that one previously recorded cultural resource (P-28-001005) is within the Project APE and seven previously recorded sites are present within 0.5-mi of the Project (study area). Subsequent investigations concluded that P-28-001005 represented a recent redeposit rather than an archaeological site. The records search also showed that at least 35 previous studies have been conducted within 0.5-mi of the study area, 9 of which included fieldwork within the APE. Additionally, Caltrans conducted a series of investigations, including geoarchaeological testing, within the APE for the Conn Creek Bridge Replacement. Caltrans also determined Conn Creek Bridge not eligible for listing on the National Register of Historic Places and the California Register of Historical Resources.

The City will be conducting Assembly Bill 52 government-to-government consultation with California Native American tribes as part of the CEQA compliance. [redacted]

[redacted]

On November 20, 2020, PaleoWest staff conducted an intensive-level pedestrian survey of the 0.5-mi long Project APE using transects interval of 15 meters (m)/50 feet (ft). All areas of the APE were surveyed, except for the paved Silverado Trail roadway, built in the 1980s. Field staff noted non-cultural obsidian nodules and fragments within P-28-001005 but not within the APE.

To reduce potential impacts or adverse effects of the Project on significant cultural resources, PaleoWest provides a set of management recommendations including procedures for inadvertent discoveries and the discovery of human remains in sections below.

1.0 INTRODUCTION

The City (City) of Calistoga is proposing the Conn Creek Pipeline Project (Project) which includes replacement of an underground segment of the existing North Bay Aqueduct (NBA) pipeline that parallels Silverado Trail South and crosses Conn Creek in unincorporated Napa County, California. Panorama Environmental Inc., on behalf of Murraysmith, Inc., and the City, retained PaleoWest. LLC (PaleoWest) to conduct a cultural resources assessment of the approximately 0.5-mi long Project area of potential effects (APE) in compliance with the California Environmental Quality Act (CEQA). The City is the Project proponent and disbursing funds and is therefore the lead agency for the purposes of the CEQA. As encroachment permits are required from Napa County and the California Department of Transportation (Caltrans), they will act as CEQA responsible agencies. The Project is one of three projects identified in the City's grant application for Water Reliability Transmission Distribution Improvement projects. Grant funding was awarded in 2018 under FEMA's Hazard Mitigation Grant Program (HMGP).This federal funding results in the Project being considered an undertaking. Therefore, the Project is subject to the requirements of Section 106 of the National Historic Preservation Act (NHPA) .

1.1 REPORT ORGANIZATION

This report documents the results of a cultural resource investigation conducted for the proposed Project. Chapter 1 has introduced the management summary and description. Chapter 2 states the introduction for the Project. Chapter 3 describes the regulatory context for the Project. Chapter 4 describes the setting; specifically, the area history, ethnographic history, the Project APE history, as well as the prehistory of the generalized area of the Project location, buried site and geoarchaeological information. The results of the cultural resource literature and records search conducted at the Northwest Information Center (NWIC) and the Sacred Lands File (SLF) search, and a summary of the Native American communications is presented in Chapter 5. Survey methods and results are provided in Chapter 6. The management recommendations are provided in Chapter 7. This is followed by bibliographic references found in Chapter 8, and the report appendices.

1.2 PROJECT LOCATION

The Project is in central Napa County, California (Figure 1). The proposed Project location is along Silverado Trail where it crosses Conn Creek via the Conn Creek Bridge and within the Silverado Trail road shoulder, near its intersection with CA State Route (SR) 128. The Project is within the Napa County and California Department of Transportation (Caltrans) rights-of-way. Construction will require encroachment permits from Napa County and Caltrans, and each will be considered responsible agencies under CEQA.

The approximately 0.5-mi Project is located along Silverado Trail in unincorporated Napa County, northeast of the census designated place of Rutherford and southeast of St. Helena. It is partially in Township 7 North, Range 5 West, Section 3, Mount Diablo Base Meridian, and mostly within an unsectioned portion of the Rancho Caymus land grant. The area of the Project is depicted on the 2018 Rutherford, California 7.5-minute series United States Geological Survey (USGS) topographic quadrangle (Figure 2).

1.3 PROJECT DESCRIPTION

The Project would replace an underground segment of the existing NBA that crosses the Conn Creek floodway. Approximately 100 linear ft of the underground NBA pipeline are proposed to be relocated to an elevated position on the new Conn Creek Bridge, which Caltrans constructed in 2020. In addition, the Project includes replacement of up to 3,000 linear ft of 12-inch (in) underground pipeline with new 16-in underground pipeline in the same location on the south side of Silverado Trail.

The NBA is an underground pipeline that runs from Barker Slough in the Delta to Cordelia Forebay in western Fairfield and services Napa County. The purpose of the Project is to improve the resiliency of the City's critical water infrastructure, the NBA and local water pipelines, to natural hazards such as earthquakes, wildfires, floods, and other hazards.

A portion of the NBA pipeline crosses Conn Creek within a Special Flood Hazard Area Zone AE. Because of its location in Conn Creek, the pipe crossing has previously been exposed due to erosion and scour occurring in the creek bed. The City had to complete emergency repair to the crossing, including both the pipeline and concrete cap in 2006 after the pipeline crossing and casing experienced heavy erosion that exposed the water pipeline beneath the creek. Erosion and scour damage have been a reoccurring issue for the NBA pipeline at the Conn Creek crossing and it again needs replacement due to excessive damage and exposure of the concrete cap. In addition, the California Department of Fish and Wildlife (CDFW) has indicated that the existing pipe and concrete casing present an impediment to anadromous fish passage and, along with support from the National Marine Fisheries Service (NMFS), are supportive of removing the pipeline from the creek bottom. The Project consists of two main stages, the pipeline replacement and the creek restoration.

Pipeline Relocation

Approximately 100 linear ft of the NBA pipeline, constructed in 1983 as an addition to the original 1963 NBA system, would be relocated from the existing underground crossing through Conn Creek (Table 1-1) to an elevated position, suspended from the recently replaced Conn Creek Bridge. The relocated portion of the existing 12-in-diameter pipeline would be replaced with 16-in-diameter pipe. The concrete cap constructed to provide scour protection for the existing pipeline would be removed at the same time the pipeline is removed from the creek.

Table 1. Pipeline Relocation and Replacement

Pipeline Segment	Length of Pipeline (linear ft)
Conn Creek Crossing	250
East of Conn Creek (Down-Valley)	1850
West of Conn Creek (Up-Valley)	900 (or up to 1,200)
Total	3000

Conn Creek Restoration

The streambed and banks will require restoration after removal of the NBA pipeline and concrete cap. This removal would disturb approximately 30 ft by 160 ft of creek bed and bank. Creek restoration would include placement of native and imported clean fill in the area vacated through removal of the NBA pipeline and concrete cap. The City would stabilize the disturbed soils and restore creek habitat and topography by installing imported, clean gravel and small cobble. This restoration also includes removing non-native species, such as Himalayan blackberry and water iris, and the banks of the creek would be hydroseeded with a native seed mix and covered with jute netting to deter the spread of non-native species from locations upstream.

1.4 AREA OF POTENTIAL EFFECT

The APE for this undertaking includes all areas that may be affected, directly or indirectly, by proposed Project activities including ground-disturbance for the new pipeline, the installation of the new pipeline crossing on the bridge, and the removal of the existing pipeline. The horizontal extent of the APE measures approximately 3,000 ft (0.57 mi) along Silverado Trail and ranges between 60 ft at its narrowest to 95 ft wide at either end, with the section immediately southeast of the creek crossing being the widest at 210 ft. The APE is largely within the road prism, measuring approximately 40 ft across. To provide for flexibility in design, both sides of Silverado Trail were included in the APE (Figure 3). The depth of disturbance is anticipated to be no more than 3 ft, with a new pipeline installed and the existing pipeline removed.

1.5 PERSONNEL

Figure 1. Project vicinity map.

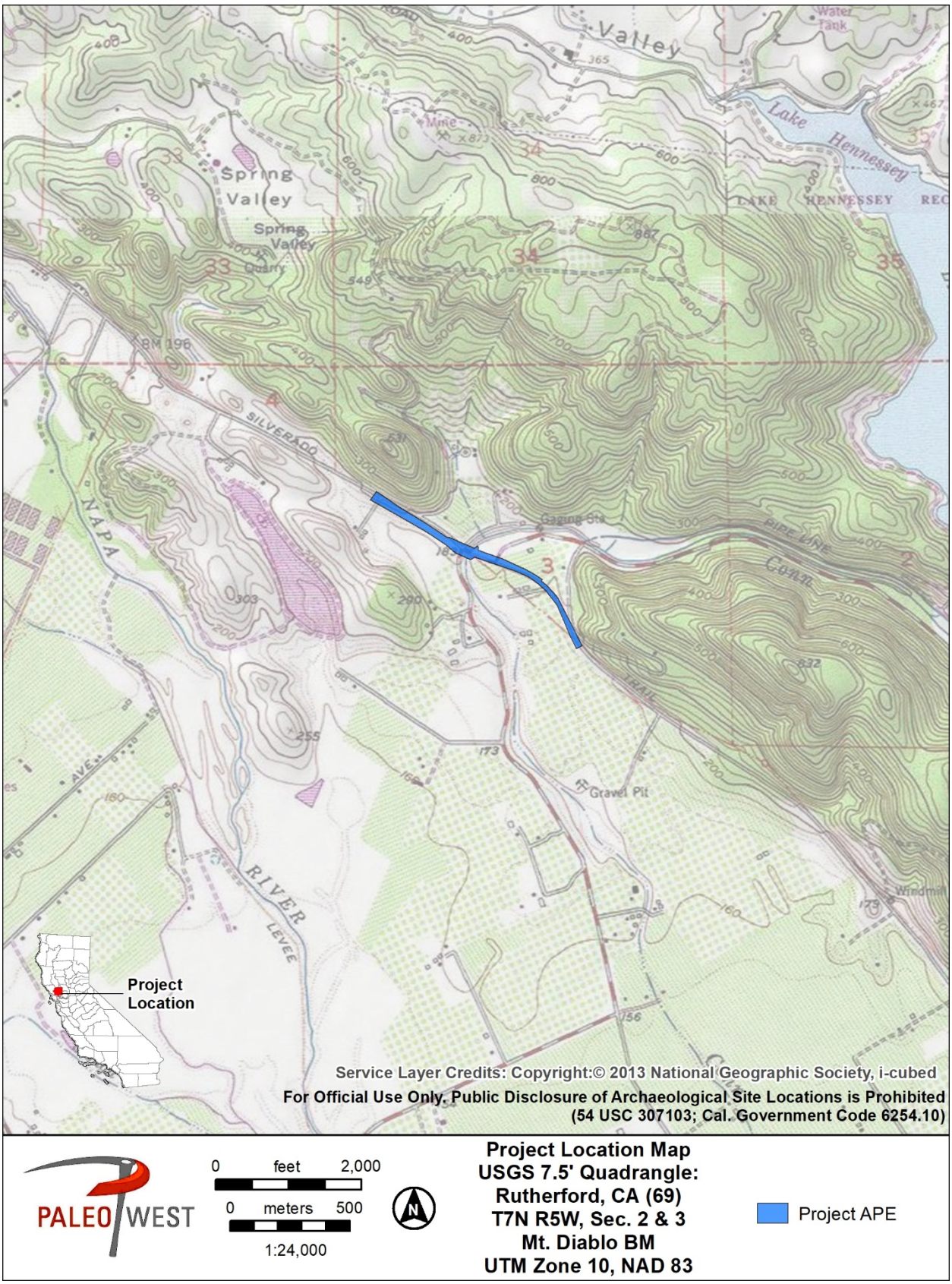

Figure 2. Project location map.

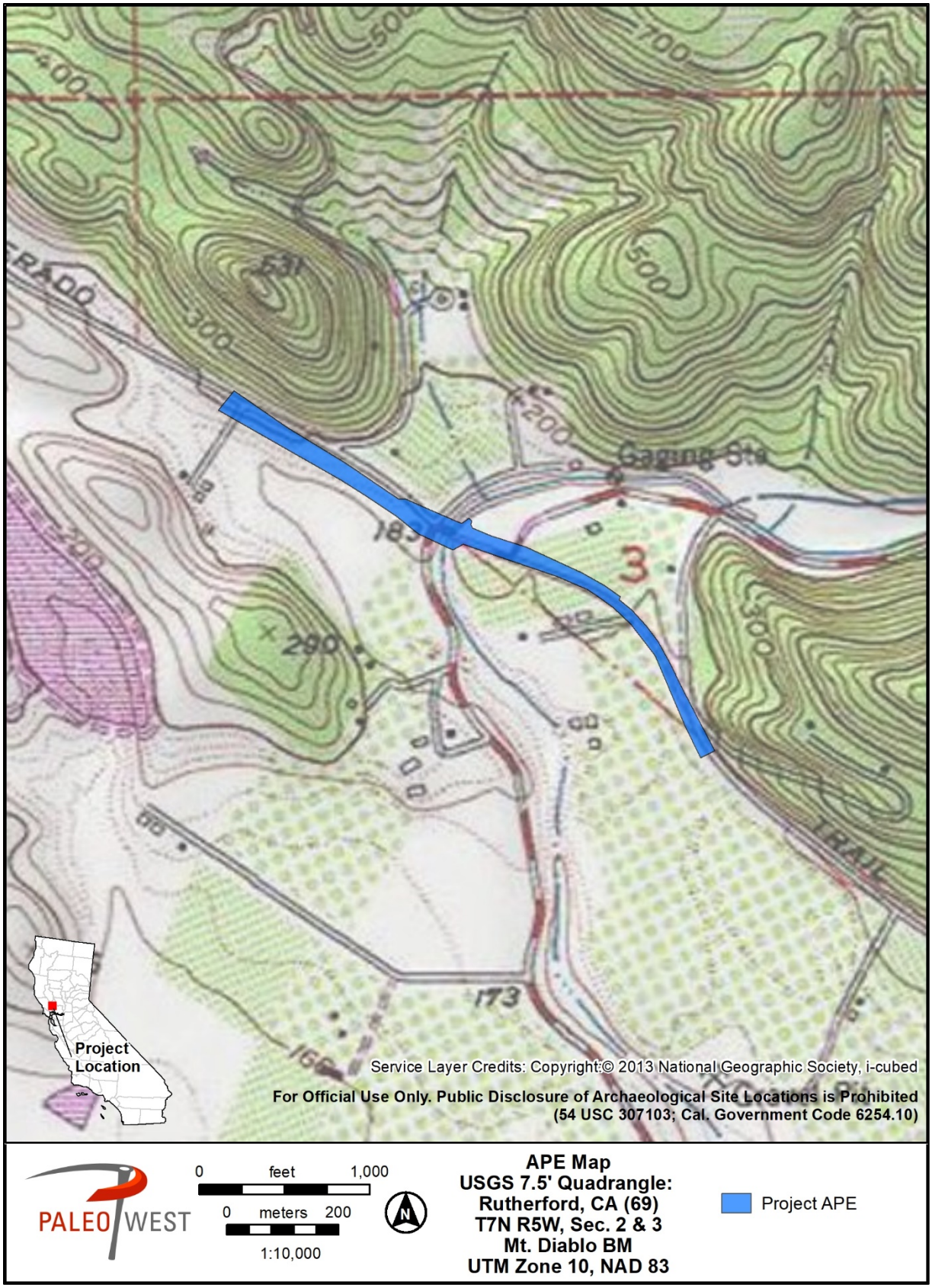

Figure 3. Project APE map.

2.0 REGULATORY CONTEXT

Numerous laws, ordinances, regulations, and standards on federal, state, and local levels seek to protect and manage cultural resources. For this Project, federal, state, and local laws and regulations were followed.

The primary Federal regulation governing cultural resources is Section 106 of the NHPA. California state regulations for cultural resources include CEQA, Health and Safety Code 7050.5 and Public Resources Code (PRC) Section 5097.

2.1 FEDERAL REGULATIONS

National Historic Preservation Act

National Historic Preservation Act of 1966 as Amended (54 USC 300101 et seq.) sets forth the responsibilities that federal agencies must meet regarding cultural resources, especially in regard to Section 106 and its implementing regulations in 36 CFR Part 800. Federal agencies must conduct the necessary studies and consultations to identify cultural resources that may be affected by an undertaking, evaluate cultural resources that may be affected to determine if they are eligible for the National Register of Historic Places (NRHP) (that is, whether identified resources constitute historic properties), and assess whether such historic properties would be adversely affected. Historic properties are resources that are listed on or eligible for listing on the NRHP (36 CFR 800.16[l][1]). A property may be listed in the NRHP if it meets criteria provided in the NRHP regulations (36 CFR 60.4). Typically, such properties must also be 50 years or older (36 CFR 60.4[d]).

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

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

Section 106 defines an adverse effect as an effect that alters, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP (36 CFR 800.5[a][1]). Consideration must be given to the property's location, design, setting, materials, workmanship, feeling, and association, to the extent that these qualities contribute to the integrity and significance of the resource. Adverse effects may be direct and reasonably foreseeable or may be more remote in time or distance (36 CFR 8010.5[a][1]

2.2 CALIFORNIA STATE REGULATIONS

California Environmental Quality Act

CEQA applies to projects that are being undertaken by or require approval from a state or local public agency and that will have the potential to directly or indirectly impact the environment. The City of Calistoga is administered grant funds for this Project and is responsible for this undertaking as a discretionary project. Therefore the City is the lead agency, while Caltrans and Napa County are issuing encroachment permits and will be responsible agencies (Public Resources Code Section ([PRC] 21069). Compliance with CEQA statutes and guidelines requires assessment of the project's impact on cultural resources (PRC 21082, 21083.2 and 21084 and California Code of Regulations 10564.5). The first step in the process is to identify cultural resources that may be impacted by the project and then determine whether the resources are "historically significant" resources.

CEQA defines historically significant resources as "resources listed or eligible for listing in the California Register of Historical Resources (CRHR)" (PRC 5024.1). A cultural resource may be considered historically significant if the resource is 45 years old or older, possesses integrity of location, design, setting, materials, workmanship, feeling, and association, and meets any of the following criteria for listing on the CRHR:

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; or
4. Has yielded, or may be likely to yield, information important in prehistory or history (PRC 5024.1).

Cultural resources are buildings, sites, humanly modified landscapes, traditional cultural properties, structures, or objects that may have historical, architectural, cultural, or scientific importance. CEQA states that if a project will have a significant impact on important cultural resources, deemed "historically significant," then project alternatives and mitigation measures must be considered.

Public Resources Code, Section 5097.9 et seq. (1982)

This regulation establishes that both public agencies and private entities using, occupying, or operating on state property under public permit, shall not interfere with the free expression or exercise of Native American religion and shall not cause severe or irreparable damage to Native American sacred sites. This section also created the NAHC, charged with identifying and cataloging places of special religious or social significance to Native Americans, identifying and cataloging known graves and cemeteries on private lands, and performing other duties regarding the preservation and accessibility of sacred sites and burials.

Public Resources Code, Section 5097.98.

This section discusses the procedures that need to be followed upon the discovery of Native American human remains. The NAHC, upon notification of the discovery of human remains is required to contact the county coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code and shall immediately notify those persons it believes to be most likely descended from the deceased Native American.

Assembly Bill 52

Signed into law in September 2014, California Assembly Bill 52 (AB 52) amended CEQA and other sections of the Public Resources Code (21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 5097.94). This created a new class of resources – tribal cultural resources (TCRs) – for consideration under CEQA . TCRs may include sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe that are listed or determined to be eligible for listing in the CRHR, included in a local register of historical resources, or a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant and eligible for listing on the CRHR. AB 52 requires that the lead CEQA agency consult with California Native American tribes that have requested consultation for projects that may affect tribal cultural resources. The lead CEQA agency shall begin consultation with participating Native American tribes prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Under AB 52, a project that has potential to cause a substantial adverse change to a tribal cultural resource constitutes a significant effect on the environment unless mitigation reduces such effects to a less than significant level.

Health and Safety Code 7050.5.

This code establishes that any person, who knowingly mutilates, disinters, wantonly disturbs, or willfully removes any human remains in or from any location without authority of law is guilty of a misdemeanor. It further defines procedures for the discovery and treatment of Native American human remains. This regulation states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

2.3 NAPA COUNTY REGULATIONS

Napa County General Plan

The Napa County General Plan contains historic and cultural resource regulations for projects occurring within Napa County in the Community Character Element. This section sets goals to identify and preserve cultural and historic resources (Goal CC-4) and to encourage the reuse of historic buildings through incentives (Goal CC-5). This general plan defines significant cultural resources as "sites that are listed in or eligible for listing in either the National Register of Historic Places or the California Register of Historic Resources" (Policy CC-17) and significant historic resources as "buildings, structures, districts, and cultural landscapes that are designated Napa County Landmarks or listed in or eligible for listing in either the National Register of Historic Places or the California Register of Historic Resources." (Policy CC-18). Policies CC-21 and CC-22 provide for the preservation of historic-era landscape elements, specifically rock walls along roadways and property lines and historic-era winery features such as tree rows and other landscape features.

Policy CC-23 protects significant cultural resources within the County. Projects that occur within potentially sensitive areas for "significant archaeological resources" are required to include an archival study. If warranted by the information from the study, survey or other work may be required for the purpose of the environmental review process. In areas without significant potential for archaeological or paleontological resources, all discretionary projects are required to include the following conditions:

- The Planning Department shall be notified immediately if any prehistoric, archaeologic, or palaeontologic artifact is uncovered during construction. All construction must stop and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action.
- All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed.

3.0 SETTING

This section of the report summarizes information regarding the physical and cultural setting of the APE and surrounding area, including the environmental prehistoric, ethnographic, and historic contexts. Several factors, including topography, available water sources, and biological resources, affect the nature and distribution of prehistoric, ethnographic, and historic-period human activities in an area. This background provides a context for understanding the nature of the historic and cultural resources that may be identified within the region.

3.1 ENVIRONMENTAL SETTING

The Project APE is in the Napa Valley, located on the northern end of San Francisco Bay. This valley extends through the North Coast Range from San Pablo Bay northwest to Mount Saint Helena, for approximately 30 mi. Napa Valley is quite narrow, never exceeding 4 mi across. While it appears relatively flat overall, rising only 345 ft over 30 mi, there is considerable topographic variation within the valley, with bedrock knolls, possibly the result of ancient mega landslides, creating microclimates and diverse habitats (Grossinger et al. 2012:5-6,22). This largely resulted from many overlapping river terraces, floodplains, and alluvial fans from the major tributaries of the Napa River, including Conn Creek, which bring sediment from the Mayacamas Mountains to the west and the Vaca Mountains to the east (Williams et al. 2012:22Each of these mountain ranges form part of the North Coast Range with average ridgeline elevations of about 2,000 ft amsl. The Mayacamas are primarily composed of uplifted marine sedimentary rock belonging to the Great Valley and Franciscan complexes, over 100 million years old, while the younger Vaca Mountains are composed of Sonoma Volcanics, less than 5 million years old, and include several extinct volcanoes. The volcanism in the Vacas resulted in the formation of the large swath of obsidian embedded in rhyolite and perlite at Glass Mountain, less than 5 mi northwest of Conn Creek. Residual volcanic activity is evident throughout the valley in numerous hot springs and geothermal vents (Alden 2012; Barber 2003). At the north end of the valley, Mount St Helena reaches over 4,200 ft amsl (Williams et al. 2012:22). Where the Napa River exits Napa Valley near American Canyon, it forms a large intertidal zone along the north side of San Pablo Bay, a part of the larger San Francisco Bay estuarine system.

Napa Valley's climate is Mediterranean, with cool, wet winters, and warm, dry summers, although the hotter regions to the east pull cooler ocean air into the valley, bringing cool nights and morning fog. Annual average rainfall ranges from 35 in in the northern valley to 25 in in the south. The Mayacmas to the west often get even more rain which flows into the Napa River, often causing floods, with over 20 floods recorded since 1850 (Grossinger et al. 2012:5).

The Project APE is located at the interface of two main vegetation communities, oak savanna and mixed hardwood forest, with smaller pockets of chaparral with the hardwood forest and riparian corridors along Conn Creek, the Napa River, and other drainages (Küchler 1977:Map; Grossinger et al. 2012:21-23). These are not absolute categories, and plant species from one may be represented in another, while some, like western poison oak (*Toxicodendron diversilobum*), are ubiquitous across all four (Hickman 1993:136).

On the valley bottom the main floral community is the oak savanna. This consists of individual or isolated groves of valley oaks (*Quercus lobata*) surrounded by California prairie with grasses,

herbaceous perennials, and occasional shrubs (Grossinger 2012:22-23, 32-33; Hickman 1993:661-662; Küchler 1977:22-23). Some of the perennials were referred to historically as "Indian potatoes" and include wild onions (*Allium falcifolium* and *amplectans*), brodiaeas (*Brodiaea corona*, *B. laxa*, *B. lpuchella*, and *B. lpeduncuaris*), adobe lily (*Fritillaria pluriflora*), and mariposa lilies (*Calocortus luteus*, *C. pulchellus*, and *C. tolmiei*) (Hickman 1993:1194-1196, 1186-1188). Bowltube iris (*Iris macrosiphon*) and soap plants (*Chlorogalum pomeridianum*) were used ethnographically for cordage fibers (Hickman 1993:1154, 1190). While many of the current grasses are invasive Mediterranean species such as wild oats (*Nassella* spp.) and brome grasses (*Bromus* spp.), some native grasses are still present, including California buckwheat (*Eriogonum* spp.), used by Native Californians for its seeds (Hickman 1993:872, 1239, 1274; Küchler 1977:23).

Mixed hardwood forest dominates the elevated terraces and hillsides on the edges of the valley. This forest is made up of medium-sized broad-leafed evergreen trees and a smaller number of deciduous trees and conifers. The primary trees in the area are coast live oaks (*O. agrifolia*) and madrone (*Arbutus menziesii*), filled in with toyon (*Heteromeles arbutifolia*), California buckeye (*Aesculus californica*), and occasional gray pine (*Pinus sabiniana*) (Küchler 1977:925; Schoenherr 2017:224-226). Within these forest there are also pockets of understory chaparral, including California coffeeberry (*Rhamnus californica*), poison oak, and various species of buckthorn and buckbrush (*Ceanothus* spp.) (Küchler 1977:925; Munz and Keck 1959:17).

Along the many streams and seasonal watercourses, especially within oak savannas, are riparian corridors (Grossinger 2012: 22-23; Küchler 1977:Map). The dominant vegetation of this community are willows (*Salix* spp.) and cottonwoods (*Populus fremontii*) (Hickman 1993:990; Küchler 1977:20). In more level elevations meadows can be present. Many of the same perennials from the oak savannas can be found in the understory here, as well as stream orchids (*Epipactis gigantea*) and California grapes (*Vitis californica*) (Hickman 1993:1098, 1214;).

The Napa River is known for its diversity of native fish species, including Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), river lamprey (*Lampetra ayresii*), Pacific lamprey (*Entosphenus tridentatus*), hardhead (*Mylopharadon conocephalus*), hitch (*Lavinia exilicauda*), Sacramento splittail (*Pogonichthys macrolepidotus*), and tule perch, among others. Coho salmon (*O. kisutch*) were formerly present in the river but appear to have been extirpated (Williams et al. 2012:22, 26). The river and surrounding marshland terrain were fertile habitats for wildlife, such as tule elk (*Cervus canadensis nannodes*), river otter (*Lontra canadensis*), mink (*Neovison vison*), beaver (*Castor canadensis*), and raccoon (*Procyon lotor*). Huge flocks of waterfowl migrating along the Pacific Flyway, including ducks (Anatinae), brant geese (*Branta bernicla*), and Canada geese (*B. canadensis*) are present with the resident aquatic birds, such as ibis (*Plegadis chihi*), egrets (*Egretta spp.*), herons (*Ardea Herodias*, *Nycticorax nycticorax*, *Butorides virescens*), and cormorants (*Phalacrocorax penicillatus*), in the winter months. In the past, on the surrounding dry plains lived ground squirrels (*Otospermophilus beecheyi*), bush rabbits (*Sylvilagus bachmani*), and great herds of pronghorn (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*). Additionally, numerous predators such as coyotes (*Canis latrans*), wolves (*Canis lupus*), grizzly bears (*Ursus arctos*), bobcats (*Lynx rufus*), and mountain lions (*Puma concolor*) ranged widely throughout this area (Schoenherr 2017; WICC 2018).

3.2 GEOMORPHOLOGICAL CONTEXT

Landform and Geology

The Napa Valley is a river watershed defined by Mt. St. Helena to the north, the Mayacama Mountains to the west, Howell Mountain, Atlas Peak, and Mt. George to the east, and the Napa-Sonoma Marsh to the south. Napa Valley occupies an aligned and structurally controlled depression of the northern Coast Ranges physiographic province. The valley is underlain by unconsolidated marine and continental sediments and volcanic rocks of Pliocene and Pleistocene age and filled with more recent alluvium. The alluvial fill consists of interbedded deposits of unconsolidated gravel, sand, silt, and clay. These deposits underlie the floodplains and channels of the Napa River and its tributaries, younger alluvial fans and plains graded to these streams, and tidal marshes (Kunkel and Upson 1960; Meyer and Rosenthal 2007). The Project vicinity has been extensively modified for agriculture, as a result of flood control measures, and transportation.

Napa Valley was created by seismic movement creating a fault basin that filled with loose sand, gravel, and volcanic debris (Alt and Hyndman 2000). The Napa River runs through the center of the watershed on the valley floor and drains numerous tributaries along a 55-mi run from the riverhead of Mt. St. Helena to the San Pablo Bay. Conn and Milliken Creeks are the largest tributaries of the Napa River. The central alluvial plains consist mainly of alluvial fans that slope from the sides of the valleys and meet at axial drainages. Valleys are narrow at the north and generally broaden southward where they merge with extensive flat tidal marshlands near San Pablo Bay. Bordering the plains are elevated terraces that that rise as much as 300 to 400 ft above the surrounding plains and abut the adjacent foothills and mountains. The foothills and mountains surrounding the valley rise abruptly to elevations of 1,000 to 4,000 ft amsl.

The Rutherford Geologic Map (Clahan et al. 2005) depicts the valley bottom consisting of alluvial deposits (Qhay) that include fluvial sediment deposited on modern flood plains, and stream terrace deposits (Qhty, Qht) that consists of moderately to well sorted clayey sand and sandy clay with gravel. Stream terraces were deposited as point bar and overbank deposits along the Napa River and Conn Creek. Alluvial fan deposits (Qhf) include moderately to poorly sorted sand, gravel, silt, and clay that were deposited by streams emanating from mountain drainages onto alluvial valleys. Undivided alluvium (Qha) includes alluvium deposited on fans, terraces, or in basins and is composed of sand, gravel, silt, and clay that are poorly sorted. Valley streams are incised into alluvial deposits and terrace deposits, and in some places stream banks are flanked by natural fan levees (a low linear ridge consisting of fan sediments and oriented downstream) that prevent water from entering the streams allowing it to pool on the basin floor. Fan levee deposits (Qhl) are characterized by fine, but variable, grain size composed of sand, silt, and silty clay. Modern stream channels deposits (Qhc) underlying the stream course are set into alluvial fans and fan terraces and consist of loose alluvial sand, gravel, and silt. Conn Creek is flanked by volcanic deposits, including Serpentine (sp) and Andesite flow breccia of the Stags Leap formation (Tsvasl). Landslide deposits (Qls) date to the Holocene and Pleistocene and include debris flows and block slides and abut the modern stream channel of Conn Creek.

Conn Creek follows is a meandering river with a single, highly sinuous channel. Meandering rivers are characterized by normal streamflow that is produced by the downslope movement of the water from higher elevations. Currently, downslope flow in Conn Creek is limited by

Conn Dam. During periods of excessive rainfall, rivers and creeks such as Conn Creek and Napa River have period of overbank flooding, while normal streamflow of the creek contributes to the erosion of the channel banks, impacting the type and stability of soils in the Project APE.

Depositional Processes

The Project APE is underlain by alluvium deposited on fans and terraces (Qha), stream terrace deposits (Qht), and modern stream channel deposits (Qhc). These sediments tend can range from moderate to high energy as they are deposited during flood events or regular fluvial processes. The presence of sand and gravel in these deposits provides further evidence of a higher energy depositional environment. Stream channels are typically high energy.

Hydrology

The Napa River watershed extends in a northwesterly direction approximately 45 mi from San Pablo Bay to the hills north of Calistoga and includes the central valley floor and eastern and western mountains to either side of the valley floor. Valley floor elevations range from 400 ft amsl to sea level near San Pablo Bay. The valley is approximately five miles wide in the south and narrows northward to just one mile wide in northern Napa Valley. The Napa River is the largest in Napa County and drains the watershed into the San Pablo Bay. The lowest reaches of the Napa River and its tributaries in the lower Napa Valley are tidally influenced (Napa County BDR 2005). The Napa Valley is prone to flooding, and since residents began keeping records of flood events, 21 major floods have been recorded from 1862 the present day (Napa County Public Browser2020). Conn Creek is an entrenched, meandering, riffle/pool channel on a low gradient with a high width/depth ration and gravel and cobble dominant substrate and lacks perennial flow. The construction and operation of Conn Dam in 1948 has significantly altered the downstream reaches of the creek, as has adjacent land use and flood control measures.

Soils

Soils in the area formed on in alluvium deposited on floodplains and alluvial fans. Mapped soils in the Project APE include Alfisols and Entisols. Alfisols are moderately leached soils that have relatively high native fertility, usually formed under forest, and hand have a subsurface horizon in which clays have accumulated. Most of the project vicinity contains Entisols, which are soils of recent origin that developed in unconsolidated parent material. Usually, they have no genetic horizons except an A horizon (Soil Survey Staff 2014). In general, soils on floodplains and alluvial fans are young with weakly developed soil morphology that formed in deposits dating to the Late Holocene. Further up the alluvial fan and some distance from streams, the alluvium is older, perhaps dating to the Middle Holocene (as much as a few thousand years).

All the mapped soils in the Project APE are well drained, and groundwater depth can be as little as 10-15 ft in some places. The Pleasanton series typically have grayish brown, slightly acid or neutral, gravelly fine sandy loam A horizons; brown, neutral, gravelly sandy clay loam B horizons, and gravelly fine sandy loam C horizons. Pleasanton soils are associated with Alfisoil soil order and have alluvium parent materials. The Yolo series forms on alluvial fans and flood plains. In the upper strata consist of loam or silt loam to silt clay loam textures with slightly acid to neutral pH. Lower strata have silt loam or silty clay loam textures. These soils are very deep and well drained. Yolo soils are associated with Entisol soil order and have alluvium parent materials. The Cortina series also forms on alluvia fans and floodplains and

consist of very gravelly loam. These soils formed in gravelly alluvium from mixed rock sources. Riverwash is also mapped within the Project APE within the immediate vicinity of Conn Creek. These areas exhibit no soil development because it is associated with active stream channels. It consists of very recent depositions of gravel, sand, and silt alluvium (Soil Survey Staff 2020).

Previous Geotechnical Studies

Two cores and two shovel tests were placed within the APE near the bridge by the Anthropological Studies Center (Praetzellis 2015). The coring reached depths of 20 and 24 ft. The results indicate the site is underlain by stream channel deposits. Results of the cores indicate the subsurface consists of a series of layers of variable thickness and texture that are often discontinuous. The first 4 ft of each core consisted of artificial fill associated with the construction of the road. Strata underlying this artificial fill in Core CC-1 included loose sandy silt with subangular pebbles and smaller patches of sandy clay down to 17 ft below ground surface (bgs). Underlying this is a layer of red-brown sandy clay to 20 ft bgs. These units appear to be natural stream channel deposits. Between 13 and 15 ft bgs, there was a stratum of containing pockets of grey oxidized sediments, suggesting the deposits are periodically inundated with water. These strata are marked by abrupt contacts suggesting a series of erosional events. Below the artificial fill layer, Core CC-2 recovered coarse sand with subangular pebbles and gravels that appear to be a natural stream channel deposit. Below this stratum, beginning around 14 ft bgs are deposits of coarse clay sand matrix with large subangular pebbles, suggesting that the relict creek bed had been reached. These strata are marked by abrupt contacts suggesting a series of erosional events. No cultural materials or buried A-horizon soils were observed in the core samples.

Buried Site Sensitivity

Geologic and soils data, combined with the results of previous geotechnical coring, indicate that the APE has a low sensitivity for buried archaeological sites. The geological maps show alluvial deposits, fluvial terrace deposits, and stream channel deposits in the vicinity and this was confirmed in geotechnical cores (). These coarse sediments were primarily deposited by stream flow and during flooding events that resulted in sedimentation and, in some cases, erosion. The depositional processes identified through analysis of the geological data and geotechnical coring indicate that the area is characterized by a moderate to high energy depositional environment. High energy environments are unlikely to preserve buried archaeological sites.

Extensive flooding and fluvial deposition regularly inundated the Project vicinity, as is seen in both cores and from the historical records. These records show the valley has experienced 21 major flooding events in the past 150 years. Additionally, the lack of strata representing formerly stable land surfaces (paleosols) and the relatively young age of soils in the Project vicinity indicate the area lacked the long-term stability to preserve archaeological sites. Review of existing soils data shows that most soils in the area consist of entisols, young soils that form on alluvium and floodplains. These soils have a weakly developed soil morphology, indicating a low potential for buried archaeological deposits. The abrupt contact between strata observed in Cores CC-1 and CC-2 also point to a lack of stability and a series of erosional events.

No buried cultural resources were identified within the two core samples or two shovel tests previously conducted at the site (Praetzellis 2015). Review of extant geological and soils data indicate that deposits in the study area are relatively young – likely late Holocene – stream

channels, fluvial terraces, and alluvium with low sensitivity for buried prehistoric resources. Coarse sediments identified in the core samples suggest the underlying deposits consist of stream channel deposits that periodically flooded, leading to erosion of the existing surface. This depositional environment is unlikely to yield intact archaeological deposits due to the high energy and frequent erosion due to flooding.

3.3 CULTURAL SETTING

Precontact Context

The earliest evidence of human occupation in the vicinity of the APE goes back least 6,000 years. Sites in the area show affinities to prehistoric cultures to the northwest in Mendocino County, to the northeast in Lake County, and to the south in the San Francisco Bay Area. [redacted].

Fredrickson (1973; 1974) developed the most commonly used chronological framework for the interpretation prehistoric inhabitation of the North Coast Ranges, including Napa Valley. He sought to combine the Central California Taxonomic System, developed by Richard Beardsley and incorporating earlier work by J. Lillard and W. Purves, with the system that Gordon Willey and Philip Phillips developed for much of North America (Beardsley 1948; Fredrickson 1974:42-49; Lillard and Purves 1936; Moratto 1984; Willey and Phillips 1957). To do so, Fredrickson used sociopolitical complexity, trade networks, population, and the introduction and variations of artifact types to create a framework using some of Willey and Phillips' periods but adapting them to the cultural characteristics observed in California. This framework divides the precontact past from approximately 13,500 to 200 years before the present (B.P.) into three major periods: the Paleoindian Period (13,500-10,000 years B.P.); the Archaic Period—consisting of the Lower Archaic (10,000-7000 years B.P.), Middle Archaic (7000-2500 years B.P.), and Upper Archaic (2500-1500 years B.P.)—and the Emergent Period (1500-200 years B.P.) (Fredrickson 1974:42-49; White, Fredrickson, and Rosenthal 2002:42-44). This scheme, with minor revisions (Fredrickson 1994; Hildebrandt 2007), remains the dominant framework for prehistoric archaeological research in the region.

Fredrickson, working with James Bennyhoff (1994), also introduced a complementary taxonomic framework that is less concerned with periods of time and more with material culture similarities. This system is described in terms of archaeological patterns. These patterns can be placed approximately within the chronological Paleo-Archaic-Emergent framework, but the exact dates differ in regard to the area. A pattern is a general mode of life or basic adaptation shared by several different cultures within a geographic region that can be characterized archaeologically by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. The regional expressions of these patterns are referred to in this model as "aspects," while discrete periods of time noted within patterns are "phases" (Fredrickson 1973:118; Bennyhoff and Fredrickson 1994:20-21). It appears that only two basic patterns are pertinent to the Napa Valley, the Berkeley and Augustine, while others, such as the Post and the Borax Lake have not been identified in the area (Bennyhoff 1994; Fredrickson 1984:522-523; Hildebrandt 2007; Martin and Meyer 2005:23).

The earliest documented period of human occupation in California is the Paleoindian period (ca. 13,500-10,000 years B.P.), corresponding to the end of the last Ice Age (Erlandson et al. 2007:60). This was a time of unstable climate with rising sea levels, and broad-scale environmental changes (West et al. 2007:15-23). In the North Coast Ranges, the Post Pattern is characteristic of this period, evident in the absence of wide-stem and fluted projectile points as well as chipped stone crescents in Napa Valley (Hildebrandt 2007:86-87; Martin and Meyer 2005:23).

Table 2. Summary of Fredrickson's (1973, 1974) Cultural Classification

Period and Time Range	Technology, Subsistence	Exchange	Organization
Paleoindian 10000–6000 BC Wet and cool; lakeside habitation	Post Pattern. Foraging: large projectile points associated with dart and atlatl; mobile groups change habitat to find resources	Ad hoc between individuals	Extended family; little emphasis on wealth
Lower Archaic 6000–3000 BC Drying of pluvial lakes, habitations move to rivers, streams	Borax Lake Pattern. Foraging: millingstones indicate use of plant food; dart and atlatl show hunting important; use of local materials	Ad hoc between individuals	Extended family; little emphasis on wealth
Middle Archaic 3000–500 BC Climatic amelioration; local specializations of marine, upland, riverine environments	Berkeley Pattern. Foraging: mortars and pestles suggest acorn economy; dart and atlatl persist; hunting remains important; tool kits diversify	If changes occur, do not see in archaeological record	Extended family, sedentism begins; growth of population and expansion into diverse niches
Upper Archaic 500 BC–AD 800 Cooler climate	Berkeley Pattern. Foraging, but also some collecting; mortars, pestles; dart and atlatl	More complex: regular exchange between groups; ad hoc continues	Sociopolitical complexity; status distinctions imply wealth; group-oriented religious orgs.; no firm territories
Lower Emergent AD 800–1500	Augustine Pattern. Collecting dominates, some foraging; small projectile points imply use of bow and arrow; mortars and pestles persist	Regularized exchanges between groups; more materials in network; ad hoc continues	Status distinctions more pronounced; established territories
Upper Emergent AD 1500–1800	Augustine Pattern. Collecting dominates, some foraging; bow and arrow; mortars, pestles; local specialization of production	Clam disk beads suggest money; local specialization; exchange materials move farther distances; ad hoc continues	Ethnographically-attested social organization appears to have developed by this time.

The subsequent Archaic period is divided into the Lower, Middle, and Upper Archaic. The Lower Archaic (10,000-7,000 years B.P.) is linked to climatic changes associated with an altithermal, a period of rising temperatures and diminishing precipitation (West et al. 2007; Hildebrandt 2007:89-90). Similarly, the main pattern identified during this period, the Borax Lake Pattern, is not well represented in the Napa area. Meighan (1953) identified the local aspect of the Borax Lake Pattern, the Hultman aspect, at CA-NAP-131, [redacted] This remains the only site in the Napa Valley to be identified with the Borax Lake Pattern. Characteristic artifacts of this pattern include wide-stemmed projectile points with square bases, ovoid flake tools, and large, thin bladelet flakes, as well as the appearance of millingstones (Baumhoff and Orlins 1979; White 2002:549). At the end of the Lower Archaic, a new material culture tradition begins to appear in the region, the Berkeley Pattern (Hildebrandt 2007:90)

The first evidence of people using the Berkeley Pattern, represented locally by the Houx aspect, appears in the Lower Archaic (7,000-5,000 BC). Excelsior and wide-stemmed projectile points are a marker of the Houx aspect (Baumhoff and Orlins 1979). Willits Side Notched points may also date to this period, with some evidence indicating they predate the Excelsior points (Justice 2002). Integral to these stone tool technologies were obsidian quarries, the closes of which being Napa Valley Glass Mountain, [redacted] Additional important technologies included, bowl mortars and pestles, appearing in the record around 6,000 BP, as mobile pre-cursors to the eminent intensification of acorn in California. Other artifacts include *Olivella* and *Macoma* shell beads, charmstones, serrated flake tools, and a highly developed sets of bone tools, including awls, serrated scapula saws and hairpins (White et al. 2002). Through the Middle Archaic the Houx aspect is represented by three local phases: Bale, Rutherford, and Kolb (Bennyhoff 1994:52-53).

By 2500 BP, towards the beginning of the Upper Archaic period, cultural pattern traits from the Central Valley and San Francisco Bay area enter the area. The Houx Aspect phases during the Late Archaic period are the River Glen Phase, defined at CA-NAP-261 and the Yount Phase, defined at CA-NAP-1 (Bennyhoff 1994:52-53). Houx Contracting Stem points are characteristic of these phases, overlapping with, and sometimes confused with, Excelsior points (Justice 2002). At the end of this period, the first small side-notched points appear

While some sites still contain Yount Phase artifacts into the Lower Emergent (1200 BP), this period also exhibit the local appearance of Augustine Pattern traits, which emerged sometime around prior to 1500 BP in the Central Valley. Within the Napa Valley, the local St. Helena Aspect of the Augustine Pattern is divided into four phases: Bridge, Oakville, Davis, and Lyman (Bennyhoff 1994:52-53). The appearance of the Augustine Pattern likely signals the arrival of Patwin-speaking people in the southern part of the valley, likely displacing the Wappo-speaking people north. As this period progressed, there was an increase in social complexity towards the settlement pattern observed during the contact period: a system of large central villages housing the social, political, and ceremonial leaders surrounded by associated hamlets and specialized activity areas (Hildebrandt 2007:95).

The St. Helena Aspect is characterized by artifact assemblages that contain *Haliotis* pendants with scored decoration along the edges, thin rectangular *Olivella* beads, a variety of bone tools, and steatite ear spools, collared stone pipes, and ring beads (Fredrickson 1974). The projectile points tend to be small and serrated, with straight or expanding stems. These were attached to smaller wooden or cane shafts and represent the replacement of the atlatl around 1,400 B.P. by the bow (Justice 2002). Obsidian from Napa Glass Mountain was widely traded in the form of large flakes without any additional shaping (Milliken et al. 2007: 117). By the later phases of the St. Helena Aspect, the North Bay Area appears to have been a locus of innovation. Technologies emerging from this time included hopper mortars, antler toggle harpoons, clamshell disk beads, and magnesite tubes radiating from this area. Additionally, painted stone tablets and bird-bone ear tubes appear in regionally specific site assemblages. These diverse innovations support the growing body of evidence that by this period Native Californians were greatly involved in the careful management of their environment in order to make it more productive (Fredrickson 1974:48; Lightfoot and Parrish 2009:20-28).

Ethnography And Ethnohistory

The Project APE is within Wappo ethnographic territory. Primary sources on Wappo include the ethnographic accounts of Driver (1936) and Kroeber (1932). The Wappo speak a language that is part of the Yuki language group, but they are geographically removed from speakers of other languages within that group by a 40-mi swath of Pomo territory. There were two Wappo dialects, with a smaller group along the south edge of Clear Lake and a larger group who occupied a territory from just above the modern cities of Napa and Sonoma in the south to Cloverdale and Middletown in the north (Sawyer 1978). The name "Wappo" itself may have been derived from the Spanish word *guapo* and is not the name that members of the Wappo ethnolinguistic group used to refer to themselves. In 1836, 8,000 Native Americans were reported in the Napa Valley including one group of Miwok-speakers and four groups of Wappo-speakers. By 1855, George Yount estimated no more than 500 Wappo remained in the valley and by 1810, only 73 people reported themselves as Wappo.

The Wappo lived in permanent and semi-permanent settlements, often located along a creek or other water source. Village communities were the main sociopolitical unit, believed to average around 100 individuals (Driver 1936). The last documented Wappo village consisted of 11 oval houses located on the east side of a creek. These houses were made of grass thatch covering a framework of bent wood poles, with each house having a door and a smoke hole (Sawyer 1978, Driver 1936). Usually more than one family occupied the house, with one individual in charge as the house head. The position of chief was either elected or appointed and could be either male or female. The chief's main functions were to oversee relations with other villages, the functioning of the village itself, dances and ceremonial activities, and the transmission of information. The position was held until death and the title was not necessarily inherited. Heizer (1953) described Wappo social structure as organized into a small bilateral group of kin, with the largest unit as the tribelet or village community. There was no large-scale unification of the Wappo ethnolinguistic group into a larger tribal entity.

Wappo subsistence patterns included the gathering of plant foods, hunting of big and small game, and fishing. The acorn was an important food resource, and was supplemented by a variety of roots, bulbs, grasses, and nuts. Acorns were sourced from a variety of oak trees. Gathering tracts were owned by groups of relatives while hunting territory belonged to the whole tribe (Driver 1936). Sawyer (1978) also describes private ownership of such resources among the Wappo as an unfavorable concept as it would imply ownership at the expense of another. Each man possessed a pipe and the smoking of wild tobacco would often occur within the sweathouse (Heizer 1953). Large game (deer, elk, and antelope) would be driven along a brush fence and clubbed or shot with a bow and arrow. Driver (1936) described the process in which the hunter would approach wearing a deer-head and mimick the sounds and movements of deer until they were close enough to strike. The animal would be cut up and divided among the hunters on the spot. Small game animals (birds, squirrels, rabbits) were caught in similar fashion to larger game, with the exception of birds. Birds were caught via bent-sapling traps or with nets using methods similar to the Pomo. Fish were caught using a variety of technologies including harpoons or baskets and nets tied to a dam. The Wappo also fished with weirs and used willow and hazel shoots to make latticework in dams (Lightfoot & Parrish 2009).

The Wappo manufactured a variety of utilitarian and ceremonial/luxury items, including baskets, stone tools, clothing, and shell beads. Clothing was minimal, as men would often go without clothing in warm weather while women wore double aprons made of buckskin and capes were

sometimes worn in winter. Ornamental clothing included woodpecker scalp belts, clamshell beads, magnesite cylinders, and wooden or bone ear plugs (Heizer 1953). Stone tools would be made from obsidian, chert, and sometimes basalt lithic materials. Known for dancing and weaving the Wappo styles are evident of cross-cultural exchanges with other regional groups like the Pomo. Wappo baskets were coiled clockwise, and twining would be diagonal and latticed. Decoration would consist of black and red roots, beads, and feathers. These baskets were an important object to individuals as they would be burned and buried with the deceased who owned them. Things that were used jointly, however, were considered common property of the collective (Sawyer 1978).

The Wappo, like other indigenous groups of the North Coast Ranges, used clamshell disc beads as a medium of exchange. Beads played an important role in trade networks as such there was an annual trip to Bodega Bay for clamshells for manufacture into disc beads, as well as a permanent settlement on the Southern Edge of Clear Lake. These manufacturing and trading forays allowed the Wappo to get access to extra-local resources as they traded for sinew-backed bows from the north, clam and abalone shells from the coast, and tule mats from Lake County (Sawyer 1978).

Warfare was not common and was generally minor in scope. One of the main conflicts recorded by ethnographers was the Wappo-Pomo war. The Wappo attacked the Alexander Valley Pomo, who had taken a supply of acorns. The aggression was short lived as the Pomo sought peace, which was immediately granted by the Wappo. During war weapons, clothing, and eagle wings would be taken as trophies and the dead would be burned on the battlefield. Although the Wappo and Pomo derive from different linguistic families, they shared many customs, showing long history of contact between the groups.

Many of the Wappo religious or ritual beliefs are unknown with the exceptions of those shared with the Pomo, although they were believed to have connections with Kuksu beliefs. Mortuary practices focused on cremation where after someone died, their body would be washed and dressed, lie in repose for a single day, and thencarried to a pyre. The person's personal effects would be burned or buried with the body (Sawyer 1978). The ashes of the individual would often be buried in a hole beneath the pyre location and their house would often be burned as well (Heizer 1953).

History

Development of the land which makes up modern day Napa County includes a period when the region was controlled by the Spanish (1792 to 1821), followed by a period of Mexican rule (1822 to 1848).Fom 1848 to present, the region was dominated by American politics. The first recorded European explorers in the upper Napa Valley were Don Francisco Castro and Franciscan Friar Jose Altimira, who traveled through the area in 1823 in search of a site for a new mission before eventually deciding on present-day Sonoma (Sullivan 2008). Relatively little development occurred in the area of modern-day Napa until 1823 when the newly formed Mexican government established Sonoma Mission (Mission San Francisco de Solano) was constructed to thwart further Russian settlement inland from Fort Ross. This was the only mission founded in California after Mexican independence. Operational aspects of the California mission system resulted in disastrous consequences for the indigenous peoples throughout Northern California.

After Mexican independence from Spain in 1821, the government subdivided much of the region into large ranchos, which provided land for Mexicans and white settlers who were willing to become Mexican citizens. Land grants in Napa Valley went to George C. Yount and Edward Turner Bale, who participated in cattle ranching, which became the economic mainstay in the region during the Late Mexican and Early American periods (Wohlgemuth et al. 2012:12).

After California achieved statehood in 1850, the state was divided in 27 counties with Napa being one of the original counties (there are 58 counties today). Development of Napa Valley increased due to several factors, including the Gold Rush and agriculture. The Gold Rush brought thousands of people to California. While Napa County was not active in gold mining, the agricultural industries profited through the sale of goods to emigrants. Between 1858-1859, a small silver rush drew more people into the valley, but silver resources were minimal in the area (Wallace et al. 1881). Instead, mercury ores of quicksilver and cinnabar were discovered in the Mayacamas mountain range in 1860, though agriculture would remain the dominant economy in the valley.

The first wine grapes were planted in Napa Valley in 1838 by Yount, grafted from the Mission grapes in Sonoma. Little effort went into the improvement of viticulture in the region until the mid-1850s, when Agoston Harazthy introduced zinfandels and other European varietals. Starting in the 1860s, winemaking in Napa Valley flourished. Wine production in the 19th century reached its height with 17 million gallons of wine produced in 1888 before yields declined due to grape vine parasites, economic depressions in 1873 and 1893, and wine overproduction. Orchards took agricultural dominance in the region, including prunes, plums, cherries, pears, peaches, apricots, nectarines, apples, figs, almonds, and walnuts (Hensley 1905). Due to Prohibition in the 1920s, it was not until after World War II that viticulture returned to prominence in the region, largely as a result of construction on large federal and state water projects, including the NBA which supplies water to Napa County(a pipeline located in the Project APE) (Verardo and Verardo 1986 in Wohlgemuth et al. 2012).

California's Water Policy and Infrastructure

The basis for California's complex water policy traces its roots to an 1853 California court case, Eddy V. Simpson, which pitted one water claimant against another. This case and the ever-increasing demand for water created tension around water use. Population increases brought by California's Gold Rush strainedthe state's water supply. As placer mining prospects expired, many turned to other professions, increasing the number of farms and urban populations. Driven by California's rich agricultural land especially within the Sacramento and San Joaquin Valleys and areas along the coast, farmers used the plentiful rivers and streams ideal for irrigation. Mining companies first employed ditches for their operations; by the latter half of the nineteenth century power companies saw the allure of using these ditches for hydroelectric power generation. In 1878, contention over water led to creation of the office of the State Engineer (Hess 1917; Lavender 1976: 114; Harding1960:79-80).

Creation of the office of the State Engineer resulted in an 1880 survey of irrigable lands in California. The subsequent report formed the basis for the Wright Act of 1887, which called for the creation of independent irrigation districts to operate as their own municipalities. At the time of the report, there were 292,885 irrigated acres in California, extending between San Bernardino and Los Angeles Counties to the San Joaquin and Sacramento valleys, and the Sierra Nevada Foothills. Following passage of the Wright Act, irrigation districts rapidly

developed, with four forming in the same year as the Wright Act's passage. New irrigation district approvals failed to consider current state water laws causing widespread confusion as newly formed districts claimed river and stream rights in the name of agriculture, backed by the power of eminent domain. The original Wright Act caused so many problems that in 1897 it was revised and reimplemented. By the close of the nineteenth century, California had over one million acres of irrigated land and that number continued to increase (Harding 1960: 80-81; Adams 1929: 8-9; McLaughlin 1926: 14; Adams 1916: 6-9).

The amendment of the Wright Act did not solve California's water rights issues. At the beginning of the twentieth century continued negotiations between the state, irrigation districts, and riparian rights advocates aimed to solve issues created by the Wright Act. Despite high-level discussions of water policy, the amount of irrigated land in California had doubled by 1902 and continued climbing. During this period of rapid growth, the California legislature created a standardized approach and process for handling water rights issues. This led to passage of the California Water Commission Act in 1914, which required any appropriation or water purchase to go through the new State Division of Water Rights. The process included a state application and permits, validating ownership and acquisition of the water rights. Irrigation districts operating as of 1914 and any individual claiming riparian ownership had to go through the new process to have their water rights validated. Irrigation district formation continued through the early twentieth century but faced new competition from a growing number of power companies securing water rights for hydroelectric purposes. In 1916, the state held an official conference on state water issues and determined California water was best utilized for irrigation and hydroelectric power generation (Adams 1929: 9-10; Zander 1926: 11-12; Adams 1916: 7-9).

In 1919, United States Geological Survey Chief Geographer Colonel Robert Bradford contacted William Stephens, then governor of California about a water storage system. The system called for a series of storage reservoirs along the Sacramento River with canals connecting the Sacramento Valley with the San Joaquin Valley. This idea laid the groundwork for surveys carried out by the state engineer from 1920 through 1932. The surveys served as the basis for a regional water plan to construct a series of dams for water storage and canals, aqueducts, and pipelines to transport water from the wet northern portion of the Central Valley to the arid southern portion. One large component of this state funded system was Shasta Dam initially proposed in 1930 and authorized by the state legislature in 1933. However, the State of California was unable to finance it alone. The state legislature applied for Emergency Relief Act funds with the Public Works Administration (PWA). This funding secured creation of the Central Valley Project (CVP). Authorized in 1935, the state of California intended to manage the system however heavy federal investment turned ownership to the Bureau of Reclamation. The Army Corps of Engineering began construction of the CVP in 1936 (Stene 2017; USBR 2007: 4, 6, 8; Autobee 1994: 4, 7-8; Caltrans 2014: 11; Secker, ed. 1971: 6).

Several dams were involved in the plans for the CVP, with the initial system under the Rivers and Harbors Act of 1937 starting at Shasta Dam and moving south through the Central Valley to Keswick Dam, the Delta Cross-Channel, the Contra-Costa Canal, the Delta-Mendota Canal, the Friant Dam, and then finally the Madera Canal and the Friant-Kern Canal. Construction on Friant Dam began in 1949. Orders from the War Production Board halted construction in early 1942, but the Bureau of Reclamation continued against orders, and the dam was completed as the fourth largest concrete dam in the United States in November 1942. Construction began on the canal system for Friant Dam in 1945, starting with irrigation crossings and drainage inlets. Friant

Dam stored water from the San Joaquin River and diverted it into two canals, the Madera and Friant-Kern Canals, for service to the central and southern San Joaquin Valley (USBR 2007: 31-32, 34, 36, 54, 60, 62). While construction was well underway prior to the second World War, access to water became even more urgent in the post-war era because of the population increase in California. The existing CVP could not accommodate the new demands, so additional water storage was made in the form of the American River Act in 1949, which added the Folsom and Nimbus Dams to the system in the 1950s (USBR 2007: 31-32, 34, 36, 54, 60, 62).

Concurrently, state water officials were investigating similar water issues that had been identified by federal agencies with the CVP. Studies in the 1920s showed the irrigated agriculture could not keep pace farmers demands, resulting in overuse of groundwater pumping which depleted underground aquifers and increased salination of the Delta. The increase in salt water threatened the delicate Delta ecosystem but also effected all the farmers who relied on Delta water, including those in Napa County. State Engineer Edward Hyatt studied the issues for a decade, before presenting his findings to the State Legislature in 1931, the plan emulated many tenants found in the CVP, increasing irrigation and stemming flooding (JRP 2004, 2-6).

The economic depression followed by World War II stalled planning and implantation of the State Water Project. Additionally, in the years following the end of World War II, California experienced an economic and population boom. Residential suburbs and bedroom communities expanded rapidly, most notably in the Bay Area and Los Angeles. Additionally, large, industrialized agriculture required and ever-increasing supply of water (DWR 2006, 13). The newly established Division of Water Resources initiated a series of studies between 1951 and 1957 to detail and outline a new interconnected water system, culminating in 1957 with the Department of Water Resources *Bulletin No. 3, the California Water Plan*, the plan provided a framework for development of adequate infrastructure to meet the needs to the state, well into the future. The plan identified and interconnected system of 370 reservoirs with canals, aqueducts, and pumps to move the water statewide (DWR 1957; JRP 2004, 2-12). The lynchpin of the system, which would provide flood control, irrigation, drinking water, and would decrease the salinity of the Delta, was Oroville Dam in Butte County, work began in 1957.

While work began in Butte County, the other segments of the State Water Project were hotly contested. For residents of the Delta and San Francisco Bay Area including Napa County, they wanted assurances from the state that their waterways would be protected while future ensuring new infrastructure would allow for sufficient water supply for urban, industrial, and agricultural needs. Additionally, residents wanted to ensure water quality would be maintained for fish and wildlife (DWR 2006; 16). Ultimately, in 1960 funding was secured and work, in earnest, began on the system, which is divided into five divisions: Oroville, Delta, San Joaquin, San Luis, and Southern (DWR 2020). In 1967, a huge milestone was achieved, Oroville Dam, which impounds the largest and arguably the most important reservoir in the State Water Project was completed. Additionally, a year later, to the southwest, a smaller component of the State Water Project with the Delta Division had been completed as well, Phase I of the NBA. However, supply of water to the City of Calistoga was not completed until 1982, when a water pipeline conncected the city with the NBA. Today the SWP consists of 20 reservoirs, 17 pumping plants, 8 pumping and hydroelectric plants, and 660 miles of canals, aqueducts, tunnels and siphons (DWR 2006, 26).

History of the Project APE and Vicinity

The Project APE is within the historic boundary of Rancho Caymus, which originally totaled 11,887 acres extending from present day Yountville to the center of the Napa Valley. General Mariano Vallejo awarded the land grant to George C. Yount on February 23, 1836. Yount, born in 1794 in North Carolina, came to California as part of the Wolfskill trapping party in 1827. He settled in San Rafael and worked odd jobs for the Sonoma Mission and for General Vallejo, ranging from building repair to fighting the local tribes (Sullivan 1994). In addition to becoming a Mexican citizen, those applying for land grants also had to be baptized, so in 1835 Yount was baptized as "Jorge Conception.".

In the early years of his residence in Napa Valley, Yount used his land for horse, cattle and sheep grazing. He built a log cabin in the style of a blockhouse in 1836 and in 1838 he planted the first grape vines in the region, but little effort was made to improve or expand upon viticulture in the area until the mid-1850s. Instead, wheat dominated agriculture in the area until the 1860s (Verardo and Verardo 1986). Early settlers quickly established ranches and basic crops of grains in the region upon arriving in the 1850s, but the temperate climate and soil quality created perfect growing conditions for a wide variety of crops. Farmers would experiment with crop types throughout the 19th century, turning the Russian River and Napa Valleys into epicenters for fruit production, as well as hops and grapes. By the 1870s, Napa County had become and established center for grape production and increasingly known for its viticulture industry over the following century (County of Napa 2006; Davis 1905).

Yount's granddaughter, Elizabeth, married Thomas Rutherford in 1864. As a wedding gift she received 1,040 acres of Rancho Caymus from her grandfather. The parcel is visible in the 1867 and 1895 historic maps, south of the Project APE. By 1868 the Napa Valley Railroad extended through the area and a stop was added on their land called Rutherford Station. The railroad was purchased by California Pacific in 1869 and later Southern Pacific in 1885. By 1895 maps show Rutherford Station simply as Rutherford. Inhabitants of Rutherford grew grapes and produced wine, helping to establish the region as the center of viticulture in Napa Valley. Today there are 48 Rutherford wineries accounting for roughly 10 percent of Napa's wineries. In addition to viticulture there were a large number of fruit orchards, specifically plums and peaches. Other crops included hay and grains, and much of the land remained in use as pastureland for dairy cows. By 1900 the Napa Valley was well established as an agricultural center with ample water, through irrigation, and temperate climate (*The Napa Register* 1895),

the Project includes a segment of road, today called Silverado Trail, but historically known as the East Side Road (*The St. Helena Star* 1921). The road in its entirety extends from a Y intersection northwest of Napa, north, to an intersection with California State Route 29, just east of downtown Calistoga. The road parallels the Napa River along the east side. East side Road was established in 1852 as a secondary road to the main Napa Valley Road (what is now St. Helena Highway/California State Route 128) when that road was rendered impassable by flood waters. The road was constructed and improved upon in segments. The first segment, constructed between 1852 to 1881, extended from Napa to approximately the current Project APE, where the road crosses Conn Creek. In 1882, the road was extended all the way to Calistoga (The St. Helena Star 1882). By the late 1800s it served as a wagon route from the mines at the valley's north end to San Pablo Bay docks to the south. The name "Silverado

Trail" is the result of a 1921 naming contest, to reflect the history of the valley. Today, several wineries are along this route and it remains a major connector from Napa to Calistoga. Running parallel to CA Route 29, it is a scenic alternative route through the valley.

Historic maps of Napa County from 1876 and 1895 depict multiple parcels in the vicinity of the Project APE. One of the original landowners was Henry H. Harris, who had purchased 100 acres from the George C. Yount estate in 1870. Harris was born in Missouri in 1838 and he traveled with family to California in 1853. He married Lurinda Stice in 1860, whose family notably also owned parcels of land in the Project APE by 1895. Harris was involved in the community, elected as Supervisor in 1875 and serving as Road Master (Wallace et al. 1881). He became the County Sheriff in 1886 at the same time as he was building a wine cellar completed the next year. The wine cellar became known as the H.H. Harris Winery and was leased by other vintners in the following years until Prohibition (Peninou 2004). Today land use around the Project APE is focused on viticulture, accounting for some of the many vineyards and wineries in the Rutherford region.

4.0 CULTURAL RESOURCES INVENTORY

Prior to fieldwork, PaleoWest conducted background research and literature review of the APE and a 0.5-mi buffer study area. These efforts included a review of archaeological, ethnographic, historical, and environmental literature, a records search of the California Historical Resource Information System (CHRIS) at the NWIC, a review of Caltrans cultural resources investigations for the Conn Creek Bridge replacement, and research into the area using historical maps and additional sources.

4.1 CHRIS RECORDS INVENTORY

On behalf of PaleoWest, the staff of the NWIC at Sonoma State University conducted a records search (File No. 20-0629) of the CHRIS, delivering this data on September 28, 2020. The record search included a review of all cultural resource survey, excavation reports, and the recorded archaeological sites within the study area, as well as any other documentation for these areas.

Previously Conducted Cultural Resources Investigations

The NWIC records search results included a total of 35 previously conducted cultural resources investigations conducted within the APE and study area. Of these, 22 coincided with the APE, but only 9 of these involved fieldwork within the APE, with the others either being desktop or regional studies. All nine projects included intensive surface survey, while one also involved monitoring (Table 2). None of these projects conclusively identified any prehistoric or historic-era archaeological sites or built environment resources within the APE, [redacted]

(See Appendix A for full list of previous investigations)

Table 3. Previous Investigations Conducted within the APE

Report No.	Author(s)	Year	Title	Company/Agency	Fieldwork
S-000435	Janis K. Offermann and David A. Fredrickson	1977	An Archaeological Survey Northeast of Rutherford, California for the City of St. Helena Proposed Reclamation Project.	The Anthropology Laboratory, Sonoma State College	Yes
S-000848	David A. Fredrickson	1976	A Summary of Knowledge Vol. III, Chapter 7: Historical & Archaeological Resources	The Anthropology Laboratory, Sonoma State College	No
S-001588	William Roop	1979	Archaeological reconnaissance of .3 acre proposed site of a new winery structure (ARS 79-35) (letter report).	Archaeological Resource Service	Yes
S-001589	Katherine Flynn	1979	Archaeological reconnaissance of proposed Conn Creek Winery facility, APN 30-120-32, near Silverado Trail at Hwy 128 (ARS 79-34)	Archaeological Resource Service	Yes
S-002458	Neil Ramiller, Suzanne Ramiller, Suzanne B. Stewart, Roger Werner	1982	Prehistoric Archaeology for the Northwest Region, California Archaeological Sites Survey	Anthropological Studies Center	No

Report No.	Author(s)	Year	Title	Company/Agency	Fieldwork
S-002551	Stephen A. Dietz	1981	Cultural Resource Survey Report of the Calistoga Pipeline Archaeological Reconnaissance, Napa County, California	Archaeological Consulting and Research Services, Inc.	Yes
S-007888	David Allen Fredrickson	1973	Early Cultures of the North Coast Ranges, California.	University of California, Davis	No
S-008226	E. Breck Parkman	1986	Status of Archaeological Resources in the Northern Region	California Department of Parks & Recreation	No
S-009462	Teresa Ann Miller	1977	Identification and Recording of Prehistoric Petroglyphs in Marin and Related Bay Area Counties	San Francisco State University	No
S-009795	Thomas Lynn Jackson	1986	Late Prehistoric Obsidian Exchange in Central California	Stanford University	No
S-012169	Roger H. Werner	1990	Huneeus Project, Rutherford, Napa County	Archaeological Services, Inc	Yes
S-012390	Patricia Ryan Farrell and Roger H. Werner	1990	Cultural Resource Mitigation of the Round Hills Cellars Wastewater Management System Improvements, in St. Helena	Archaeological Services, Inc	Yes
S-012492	George Phebus, Jr.	1990	Archaeological Investigations in the San Pablo - Suisun Region of Central California	–	No
S-018217	Glenn Gmoser	1996	Caltrans District 04 Phase 2 Seismic Bridge Retrofit Program, Status Report	California Department of Transportation	No
S-019105	Michael Smith, Laurence H. Shoup, and Suzanne Baker	1997	Archaeological Survey Report, Silverado Trail Bike Lane Expansion Project, Napa County, California (Caltrans Project No. 5921)	Archaeological/Historical Consultants	Yes
S-029165	Vicki Beard	2004	A Cultural Resources Survey for the Usibelli Trust Water Right Application Near St. Helena, Napa County, California	Tom Origer & Associates	Yes
S-030204	Donna L. Gillette	2003	The Distribution and Antiquity of the California Pecked Curvilinear Nucleated (PCN) Rock Art Tradition.	University of California, Berkeley	No
S-032596	Randall Milliken, Jerome King, and Patricia Mikkelsen	2006	Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area	Consulting in the Past; Far Western Anthropological Research Group, Inc.	No
S-033511	L..Leach-Palm, P. Mikkelsen, J. King, P. Brandy, L. Hartman, and B. Larson	2007	CALTRANS District 4 Rural Conventional Highways in Alameda, Marin, Napa, San Mateo, Santa Clara, and Sonoma Counties	Far Western Anthropological Research Group, Inc.; JRP Historical Consulting	No
S-033600	Jack Meyer and Jeff Rosenthal	2007	Geoarchaeological Overview of the Nine Bay Area Counties	Far Western Anthropological Research Group, Inc.	No
S-044314	Joanne Grant	2013	Cultural Resources Constraints Report: Fulton-Pueblo 115 kV, 30769771	ICF International Inc.	No
S-046009	David Brunzell and Kara Brunzell	2014	Cultural Resources Assessment, Dwyer Road Pump Station Project, City of Napa, CA	BCR Consulting LLC	Yes

Previously Identified Cultural Resources

The records search revealed that one resource has been previously recorded within the Project APE, [redacted] and another seven within the 0.5-mi records search buffer area. [redacted] consists of a redeposit of natural obsidian from Glass Mountain to the northwest and does not represent prehistoric era human activities. [redacted]

Primary Number/ Trinomial	Resource Name/ Description	Age	Date (Recorder, Organization)
P-28-000141 CA-NAP-149	Obsidian debitage concentration	Prehistoric	1951 (K. E., Sacramento State College)
P-28-000142 CA-NAP-150	Obsidian lithic production area	Prehistoric;	1951 (C.N.G. Sacramento State College)
P-28-000256 CA-NAP-349 (a and b)	Weaver Petroglyphs/CA-NAP-349a is one locus of 3 boulders with petroglyphs ; CA-NAP-349b is second locus situated 500-600 m upstream with midden and lithics.	Prehistoric	1973 (Yolande Beard) 1976 (Yolande Beard) 1981 (K. Flynn, S. Ramiller, Archaeological Resource Service) 1990 (P. Farrell, C. Johnson; Archaeological Services, Inc)
P-28-000275 CA-NAP-371	Usibelli Vineyard Site, habitation site, midden with a dense obsidian concentration, ground stone, and fire-affected rock	Prehistoric	1976 (Yolande Beard) 2004 (Nelson Thompson Tom Origer & Associates) 2005 (R.Douglass Tom Origer & Assoc., FWARG)
P-28-000440 CA-NAP-577	Obsidian lithic concentration.	Prehistoric	1979 (K. Flynn, R. Melander ARS)
P-28-000433 CA-NAP-550	Habitation site, midden and obsidian concentration.	Prehistoric	1979 (K. Flynn, W. Roop Archaeological Resource Service) 2006 (J. Burns, B. Rich, K. Rich Roscoe and Associates)
P-28-001005	Conn Creek Bridge Obsidian Redeposit, redeposited natural, unmodified obsidian fragments.	recent	1999 (Todd Jaffke: Caltrans) 2005 (R. Douglass, Tom Origer & Associates, FWARG)
P-28-001647 CA-NAP-1115	Chafen Site, low density obsidian lithic concentration	Prehistoric	2012 (L. Del Bondio, Tom Origer & Associates)

[redacted]

that the soil containing the obsidian was imported from near the Glass Mountain obsidian source (3 mi northwest) as artificial roadbed fill. [redacted] The investigations agreed with previous conclusions that P-28-001005 represents redeposited obsidian fragments and nodules that have been mixed and imported from elsewhere as roadbed fill for the previous alignment of SR 128 (Praetzellis 2014). Caltrans archaeologists determined P-28-001005 as not a cultural resource and not eligible to either the NRHP or CRHR (Hartman 2016).

The cultural resources within the 0.5-mi buffer study area are prehistoric sites, consisting of obsidian lithic concentrations, midden deposits, and petroglyph boulders. [redacted]).

[redacted]

[redacted]

[redacted]

4.2 ADDITIONAL PREVIOUS CULTURAL RESOURCE IDENTIFICATION EFFORTS

In addition to the study reports obtained from the NWIC during the records search, the City also requested that Caltrans District 4 provide PaleoWest with the results of their 2014 to 2015 studies in preparation for replacing Conn Creek Bridge. [redacted] responded with an Archaeological Survey Report (ASR), a Historic Properties Survey Report (HPSR), an Extended Phase I (XPI) Report, and a Supplemental HPSR. This effort included a pedestrian survey, a presence/absence coring and augering subsurface investigation, and a historic property survey (Praetzellis 2014; Reichardt 2015). The coring and augering took place in the APE for the current Project, with one core immediately west of Conn Creek Road and south of Silverado Trail and another north of Silverado Trail within the wider right-of-way for the bridge. The auger units were placed south of the bridge on the east bank and north of Silverado Trail approximately 50 ft east of the bridge. These efforts determined that no cultural resources were present in the area immediately around the Conn Creek Bridge. This investigation also confirmed that P-28-001005 is a non-archaeological redeposit of obsidian with no subsurface component. Additionally, Caltrans determined that the Conn Creek Bridge was not eligible for listing on the NRHP or CRHR. Ultimately, Caltrans made a determination of no historic properties affected by the bridge replacement activities.

4.3 ADDITIONAL SOURCES

In addition to the records search, PaleoWest completed a review of the historical topographic maps and aerials that depict the Project APE (NETR Online 1948,1968, 1982). The *diseños* and survey plat of the Rancho Caymus landgrant do not show any development in the region of the APE, although there is a small notation on the survey plat that says there is a road to Chiles Valley through Conn Valley (Thompson 1857). The official Napa County map from 1876 (Lyman and Throckmorton 1876) does not show any buildings in or around the APE and depicts a different alignment of Sage Canyon Road (SR 128) slightly east of its current alignment and that it crosses Conn Creek to the south of the APE. This shows the portion of the APE east of Conn Creek within property belonging to W. Dimming, while the western portion is likely within W. Kenny's property and Garner & McIntyre's property. The 1895 Punnet Brothers county map shows Sage Canyon Road crossing Conn Creek in a southerly direction slightly southeast of the APE, and a new road heading east-northeast from this point, a predecessor to Silverado Trail

(Buckman 1895). This also shows that Dimming (or his estate) continued to own the property surrounding the APE east of the creek, while west of the creek R.E. Wood owned the property on the north side and J.M. Mayfield owned the property on the south side.

By 1902, the 1902 United States Geologic Survey (USGS) Napa 30-minute quadrangle map shows a predecessor of Silverado Trail approaching from the southeast but turning north to join Sage Canyon Road east of the APE. The current Conn Creek Road south of the APE continues to the northwest along the approximate route of Silverado Trail after joining with Sage Canyon Road at its north-south crossing of the creek. This map also shows several buildings in the area to the north east along Sage Canyon Road and to the south along Conn Creek Road, but nothing in the APE (USGS 1983). A 1940 Bureau of Reclamation aerial photograph shows two buildings, likely barns shortly south of the APE and another building nearer the creek, in an orchard east of Conn Creek, while SR 128 curves towards the creek and crosses it diagonally slightly south of the current bridge, with Silverado Trail curving to the north from the southwest end of the APE. The more detailed 15-minute series Sonoma, CA USGS quadrangle from 1942 and 7.5-minute series Rutherford, CA quadrangle from 1951 show this alignment of Silverado Trail and SR 128 and the 1951 map shows also shows a building at the current location of the Conn Creek Winery south of the APE (USGS 1983). A Cartwright Aerial Surveys photograph from 1965 shows the alignments of the roads and bridge to be in the same location as today and the first vineyards planted along the edges of the APE, although the eastern extend is still surrounded by orchards. The bridge in this photograph and Silverado Trail in general appear to be narrower than the current alignment . The 1969 Rutherford 7.5-minute quadrangle also shows the current alignment of SR 128 and Silverado Trail, including a bridge that matches the current bridge alignment, although the Caltrans Bridge Inventory states that the Conn Creek Bridge was constructed in 1973 (CALTRANS 2015). By the mid-1980s, the large existing Conn Creek Winery complex is present, with the surrounding area very similar to today .

4.4 NATIVE AMERICAN COORDINATION

The City will conduct AB 52 consultation with California Native American Tribes. [redacted]

5.0 FIELD INVESTIGATION

5.1 FIELD METHODS

On November 20, 2020, PaleoWest archaeologist [redacted] conducted and intensive pedestrian survey of the Project APE. The survey was conducted using transect intervals of not more than 15 m (50 ft) and included both sides of Silverado Trail. [redacted] avoided areas with steep slopes and realigned the transect within the APE. Any cuts or areas of disturbed soil were investigated for signs of buried deposits and [redacted] conducted periodic boot scrapes to expose soils where obscured by vegetation or leaf litter. The survey areas were recorded with digital photographs for use in the report. Photographs included general views of the topography and vegetation density, and other relevant images. A photo log was maintained to include, at a minimum, photo number, date, orientation, photo description, and comments.

Field staff examined 100 percent of all exposed ground surface within the Project APE for the presence of historic-era or prehistoric site indicators. Historic-era site indicators include, but are not limited to, foundations, fence lines, ditches, standing buildings, objects or structures such as sheds, or concentrations of materials at least 45 years in age, such as domestic refuse (glass bottles, ceramics, toys, buttons or leather shoes), or refuse from other pursuits such as agriculture (e.g., metal tanks, farm machinery parts, horse shoes) or structural materials (e.g., nails, glass window panes, corrugated metal, wood posts or planks, metal pipes and fittings, etc.). Prehistoric site indicators include, but are not limited to, areas of darker soil with concentrations of ash, charcoal, bits of animal bone (burned or unburned), shell, flaked stone, ground stone, or even human bone.

Field staff also investigated the APE for the presence of any historic-era built environment resources. The most obvious of these are historic-era buildings, but also include structures such as bridges, dams, mines, pipelines, and irrigation systems, and objects such as monuments, trail markers, billboards, and decorative landscape elements. Although the existing Conn Creek Bridge was constructed in 1973 and is within the 45-year recordation window, Caltrans has previously determined that this bridge is not eligible for listing on the NRHP and CRHR.

5.2 FIELD RESULTS

Ground visibility varies along the Project APE due to landscaping, viticulture, and erosion control measures. Overall ground visibility was approximately 50 percent, with some areas as little as 5 percent visibility. The soil in the APE mostly consisted of a compacted dark brown loam with few other constituents. The area to the northeast of the bridge has been recently graded (Figure 5). Much of the road shoulder showed signs of surface disturbance by vehicles and areas had been graded and graveled. Vineyards border the Project APE on either side of Silverado Trail and are frequently fenced off from the main road (Figure 6). The vineyard areas adjacent to the APE show signs of disking for planting. Silverado Trail is an active, high-speed road with several blind curves. Extra caution was taken due to the danger of the roadway (Figure 7).

The survey was conducted in 15 m/50 ft transects on either side of Silverado Trail where possible. There was modern road refuse present throughout the Project APE. Although the

boundaries of P-28-001005 extends into the Project APE, staff did not note any of the non-cultural obsidian that makes up P-28-001005 in the APE. [redacted] PaleoWest staff did not observe any archaeological materials or potential site constituents within the APE.

Of the built environment resources in the APE, Silverado Trail is a modern incarnation of a historic age road alignment. Its design reflects a modern roadway constructed in the early 1980s. Additionally the water pipeline which is being replaced and relocated as part of this project, draws its water from the NBA, which is of historic age, however the pipeline itself dates to the 1980s and was not recorded as a resource.

Figure 5. Conn Creek Bridge.

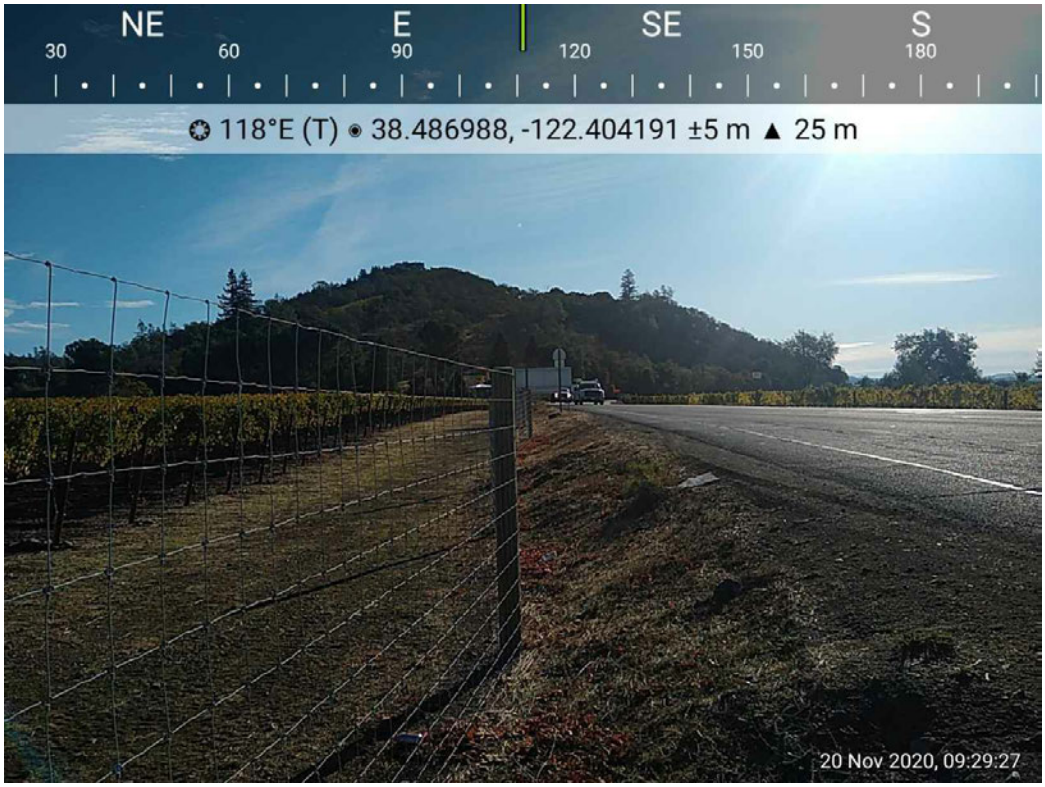

Figure 6. Survey Overview.

Figure 7. Southern portion of survey area, road conditions.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

Background research, previous geotechnical testing, geoarchaeological assessment, and the field survey did not reveal the presence of any archaeological resources or built environment resources within the Project APE. One resource has been previously recorded in the APE [redacted] but past investigations have concluded that this is a redeposit of natural obsidian and no associated archaeological deposits were noted during the survey.

[redacted]

6.2 RECOMMENDATIONS

As this investigation did not identify any historic properties within the APE, PaleoWest recommends a finding of *No Historic Properties Affected* for the Project pursuant to 36 CFR 800.4(d)(1). As no historical resources under CEQA were identified during this investigation, PaleoWest recommends that the Project should not result in a substantial adverse change to historical resources.

It is always possible that unexpected finds may occur during project construction. In the event that previously unidentified cultural resources are unearthed during construction activities, construction work should cease within 50 ft of the find and directed away from the discovery until a Secretary of the Interior qualified archaeologist assesses the significance of the resource. The archaeologist, in consultation with the City and FEMA, should make the necessary plans for treatment of the find(s) if the resource is eligible for listing on the NRHP or the CRHR.

Following the requirements of HSC 7050 and PRC 5097.94, if human remains are encountered (or suspected) during any project-related activity, the following steps should be followed:

a. Stop all work within 100 ft;
b. Immediately contact a qualified archaeologist to assess whether the find represents human remains;
c. If remains are confirmed as human, notify the Napa County Coroner;
d. Secure location, but do not touch or remove remains and associated artifacts;
e. Do not remove associated spoils or pick through them. Record the location and keep notes of all calls and events; and
f. Treat the find as confidential and do not publicly disclose the location.

If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of such identification. The Most Likely Descendant should work with the property owner, a qualified archaeologist, and any interested agencies to develop a program for re-interment or other disposition of the human remains and any associated artifacts. No additional work should take place within the immediate vicinity of the find until the Most Likely Descendent and a qualified archaeologist give approval.

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Appendix A. Previous Cultural Resource Studies Outside APE

Table. Previous Investigations Conducted within 0.5 miles of the APE

Report No.	Author(s)	Year	Title	Company/Agency
S-000004	David A. Fredrickson	1967	Appraisal of the Archaeological Resources of the Napa River (Trancas Road to Edgerly Island) and Three Potential Reservoir Areas in the Napa River Basin	–
S-002038	David A. Fredrickson	1967	Archaeological Study, Auberge Du Soleil, Napa County ARS 80-14. (letter report)	Archaeological Resource Service
S-002729	William Roop	1980	Archaeological survey of proposed Evans Winery, 1680 Silverado Trail (BAR No 8043) (letter report).	Archaeological Resource Service
S-008717	Katherine Flynn	1981	Archaeological inspection of area proposed for new Round Hill Winery, Napa Co. Use Permit U #198-384 (letter report)	Archaeological Resource Service
S-012845	Katherine Flynn	1986	Archaeological evaluation of the division of the Lands of Christine Werle,1466 Silverado Trail	Archaeological Resource Service
S-013733	Katherine Flynn	1990	Archaeological Survey Report, Application 29037 & 29038, Domaine Mumm c/o Napa Valley Vineyard Engineering, Napa County	CA State Water Resources Control Board Division of Water Rights
S-021443	William Soule	1987	Cultural Resource Reconnaissance of 32+/- Acres Near Rutherford, Napa County, California (APN 030-300-032)	Archaeological Services Inc.
S-024625	Jay M. Flaherty	1998	Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California, Rutherford Hill Winery THP1-00-211 Nap (California Department of Forestry)	Gerard Davis Forestry
S-032975	Gerard Davis	2000	Cultural Resources Investigation of The Heitz Wine Cellars and Beringer-Gamble Ranch Invasive Plant Removal and Riparian Enhancement Projects, Napa County, California	Roscoe and Associates Cultural Resources Consulting
S-034332	J. Burns, E. Whiteman, and W. Rich	2006	A Cultural Resources Survey of Portions of the Property at 40 Auberge Road (APN 030-300-005), St. Helena, Napa County, California	Tom Origer & Associates
S-038962	S. Ledebuhr and T. Origer	2007	A Cultural Resources Study for the Chafen Erosion Control Plan at 2686 Silverado Trail S., St. Helena, Napa County, California	Tom Origer & Associates
S-045376	V. Hagensieker and J. Loyd	2012	Reconnaissance of 4+/- Acres Near Rutherford	Archaeological Services, Inc.
S-021260	Jay Flaherty	2013	Rock Fences of Napa County: A Pilot Study	Archaeological Resource Service

APPENDIX F MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Monitoring and Reporting Program

Introduction

The City of Calistoga (City) is the lead agency implementing the California Environmental Quality Act (CEQA) environmental document for the Water Reliability Transmission and Distribution Improvement - Conn Creek Water Line Project (project). The City prepared an Initial Study/Mitigation Negative Declaration (IS/MND) to identify and evaluate potential environmental impacts associated with the project. Mitigation measures are defined in the IS/MND to reduce potentially significant impacts of project construction and operation. All measures designated as mitigation measures reduce potential impacts to the associated resource to less than significant levels.

Approval of the project will require implementation and monitoring of all the mitigation measures identified in the IS/MND. CEQA Section 15097(a) requires that:

> "… In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program."

CEQA Section 15097(c) defines monitoring and reporting responsibilities of the lead agency.

> "(c) The public agency may choose whether its program will monitor mitigation, report on mitigation, or both. "Reporting" generally consists of a written compliance review that is presented to the decision making body or authorized staff person. A report may be required at various stages during project implementation or upon completion of the mitigation measure. "Monitoring" is generally an ongoing or periodic process of project oversight. There is often no clear distinction between monitoring and reporting and the program best suited to ensuring compliance in any given instance will usually involve elements of both. The choice of program may be guided by the following:
>
> > (1) Reporting is suited to projects which have readily measurable or quantitative mitigation measures or which already involve regular review. For example, a report may be required upon issuance of final occupancy to a project whose mitigation measures were confirmed by building inspection.

(2) Monitoring is suited to projects with complex mitigation measures, such as wetlands restoration or archeological protection, which may exceed the expertise of the local agency to oversee, are expected to be implemented over a period of time, or require careful implementation to assure compliance.

(3) Reporting and monitoring are suited to all but the most simple projects. Monitoring ensures that project compliance is checked on a regular basis during and, if necessary after, implementation. Reporting ensures that the approving agency is informed of compliance with mitigation requirements."

This MMRP is meant to facilitate implementation and monitoring of the mitigation measures to ensure that measures are executed. This process protects against the risk of non-compliance.

The purpose of the MMRP is to:

- Summarize the mitigation required for the project
- Comply with requirements of CEQA and the CEQA Guidelines
- Clearly define parties responsible for implementing and monitoring the mitigation measures
- Provide a plan for how to organize the measures into a format that can be readily implemented by the City and monitored

MMRP Components

The MMRP provides a summary of all mitigation measures that will be implemented for the project. The mitigation measures are organized into three tables based on the timeframe for implementation:

- Table F-1: Mitigation Measures – Prior to Construction
- Table F-2: Mitigation Measures – During Construction
- Table F-3: Mitigation Measures – After Construction

Mitigation measures could be applicable during one or more implementation phase. Each mitigation measure is accompanied with identification of:

- Application Locations – locations where the mitigation measures will be implemented.
- Monitoring/Reporting Action – the monitoring and/or reporting actions to be undertaken to ensure the measure is implemented.
- Responsible and Involved Parties – the party or parties that will undertake the measure and will monitor the measure to ensure it is implemented in accordance with this MMRP

The responsible and involved parties will utilize the MMRP to identify actions that must take place to implement each mitigation measures, the time of those actions and the parties responsible for implementing and monitoring the actions.

Table F-1 Mitigation Measures – Prior to Construction

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
Biological Resources			
MM BIO-1: Special-status Plants Within one year prior to construction, a qualified botanist shall survey all potentially impacted project areas for special-status plants during the blooming season (roughly June through October), with particular emphasis on oak woodlands where Napa false indigo and Napa bluecurls may occur. All special-status plants observed within project impact areas shall be flagged in the field, photographed, and the Global Positioning System coordinates shall be recorded. Special-status plants shall be avoided during construction. In the event that impacts to special-status plants cannot be avoided, the following measures are required for the Napa false indigo and Napa bluecurls. **Napa False Indigo** As Napa false indigo is a shrub species, it can be identified at least to genus as long as it has leaves; therefore, if any amorpha species are present within the BSA, they shall be flagged and construction personnel shall be informed of their locations to ensure avoidance. Individual species or a population shall be dug up and relocated to suitable habitat outside the work area, prior to construction. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species that shall be planted in suitable habitat outside the work area or in the work area following completion of work. The selected relocation site(s) shall be within the same watershed as the impact area, and shall be approved by CDFW botanical staff. **Napa Bluecurls** If Napa bluecurls are identified during pre-construction surveys and the project involves substantial soil disturbance outside of the blooming season (June-October), the topsoil (i.e., the top two inches of soil) shall be removed from project impact areas and stockpiled prior to further excavation and replaced in the same area from which it was removed following disturbance.	All work areas	• Within one year prior to construction, a qualified botanist shall survey all work areas for special-status plants during the blooming season. • Flag all observed special-status plants • Photograph and record the coordinates of all observed special-status plants • If a Napa false indigo is found, relocate the specimen to outside the project zone to a location in the same watershed approved by CDFW staff. • If Napa bluecurls are found in areas sustaining soil disturbance outside the blooming season, the topsoil must be removed before disturbance and replaced afterwards	• The City • Qualified botanist • CDFW botanical staff

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
If disturbance occurs during the blooming season, seeds of the annuals shall be collected from existing onsite populations or from the same watershed (to maintain local genetic stock) and distributed in suitable habitat outside the work area (within the same watershed) or in the work area following completion of work. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species (from seeds collected locally in the same watershed) that shall be planted in suitable habitat outside the work area or in the work area following completion of work. Seeds derived from plants in the same watershed as the impact area may be available from local nurseries, and local nurseries may also be able to propagate seeds from adults grown from collected seeds. In this case, seeds do not need to be collected from a specific impact area site. **Monitoring Plan** A monitoring plan that requires a qualified biologist to conduct annual monitoring of seeded or replanted locations within the BSA shall be developed. Monitoring shall occur for a minimum of 3 years and up to 5 years, based on CDFW recommendation and monitoring results. The new population shall match typical populations for the species as available from rare plant inventories (e.g., from CNDDB, USFWS data, or from local mitigation banks). Due to the variations in population from year to year as a result of weather fluctuations, average population data for annual taxa can be calculated from several years (at least three) of data collected from known populations in the region.			
MM BIO-2: Worker Environmental Awareness Training Prior to construction, all contractor construction personnel shall attend an environmental training program provided by the City of Calistoga's biological contractor/qualified biologist. For site supervisors, foremen, and project managers, training shall require up to 1 day to complete. Non-supervisory contractor personnel are required to attend training for up to 30 minutes. The training shall discuss all sensitive habitats and sensitive species that may occur within the project work limits, including all the species listed above in Table 4.4 2. The training shall include the responsibilities of contractor's construction personnel, applicable mitigation measures, and notification requirements. The	All work areas	• All construction personnel shall attend an environmental training program prior to construction.	• The City • All contractor personnel

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
training shall also address other measures that protect biological resources, such as limiting all vehicle speeds to fifteen (15) miles per hour or less at the construction site and any adjacent unpaved roads during construction and post construction. The following information shall also be provided during the training: • Specific information regarding the special-status species potentially present and their habitat needs • Information regarding special-status species occurrences in the project area • An explanation of the status of each listed species and their protection under state and federal laws • A list of measures implemented to reduce effects to the species during construction and implementation Fact sheets conveying this information and an educational brochure containing color photographs of all special-status species potentially present shall be prepared for distribution to all construction personnel. Construction personnel shall be instructed to halt construction activities and contact the designated biologist if a wildlife species is observed in an area where it could be harmed by construction activities. A list of employees who attend the training sessions shall be maintained by the City of Calistoga and made available to USFWS, NOAA Fisheries, and/or CDFW upon request.			
MM BIO-3: Amphibians and Reptiles No more than 24 hours prior to the date of initial ground disturbance, a preconstruction survey for foothill yellow-legged frog (FYLF) and northwestern pond turtle (NPT) shall be conducted by a qualified biologist at the project site. The survey shall consist of walking the BSA limits of Conn Creek and at least 400 feet beyond in order to ascertain the possible presence of FYLF and NPT. The biologist shall investigate all potential areas that could be used by the species for feeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as those of California ground squirrels or pocket gophers. If any special-status amphibians or reptiles are found, the biologist shall follow the procedures specified below.	All work areas	• Conduct preconstruction survey no more than 24 hours before the date of beginning ground disturbance activities. • Install exclusion fencing around work areas and access routes.	• The City • Qualified biologist • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
• Temporary exclusion fencing shall be installed around the limits of work areas and access routes to ensure special-status amphibians and reptiles cannot enter the work area. Installation of exclusion fencing shall occur under the supervision of a designated biologist and immediately following a clearance survey of the area. The exclusion fencing shall have a minimum aboveground height of 30 inches, and the bottom of the fence shall be keyed in at least 4 inches deep and backfilled with soil to prevent wildlife from passing under the fencing. • Initial ground-disturbing activities shall be avoided between November 1 and March 31 to avoid the time period when amphibians and reptiles are most likely to be moving through the project area. • To the maximum extent practicable, no construction activities shall occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a designated biologist shall inspect the project area and all equipment/materials for the presence of FYLF or NPT. • Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the project site because amphibians and reptiles can become entangled and trapped in them. Any such material found on-site shall be immediately removed by the construction personnel. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer, or other synthetic materials shall not be used. • Uneaten human food and other refuse attracts crows, ravens, coyotes, raccoons, and other predators of FYLF, NPT, and other wildlife. A litter control program shall be instituted at the project site. All workers shall ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed garbage containers. The garbage containers shall be removed from the project site at the end of each working day. If a FYLF or NPT is encountered during project activities, all work within the vicinity of the species shall be halted until the biologist determines the species is not at risk or the species moves out of the project vicinity. The biologist shall determine if relocating the individual is appropriate (e.g., if the species is at risk of injury). If the biologist determines relocation is necessary, the biologist shall			

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
be given sufficient time to move the animal from the work site before any work resumes. If the biologist determines relocation is not necessary, the biologist shall monitor the species until it leaves the project vicinity.			
MM BIO-4: Swainson's Hawk Protocol Survey A Swainson's hawk nesting survey shall be implemented to avoid impacts to nesting Swainson's hawk from project activities conducted during the Swainson's hawk nesting period (March to October). The survey shall follow the protocol defined in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee, 2000). • Surveys shall be conducted for at least two survey periods (defined in the protocol) immediately prior to project initiation. • Surveys shall be conducted within a 0.5-mile radius around all project activities. • If active nesting is identified within the 0.5-mile radius, the City shall consult with CDFW regarding potential take of the species and shall obtain an Incidental Take Permit, if necessary.	All work areas	• Conduct surveys at least two survey periods prior to project initiation • Consult with CDFW regarding potential take of the species if active nests are discovered	• The City • Qualified biologist • CDFW
MM BIO-5: Nesting Bird Avoidance Measures **Discourage Nesting on Conn Creek Bridge** To discourage bird nesting on the existing bridge during construction, existing inactive bird nests on Conn Creek Bridge shall be removed prior to the nesting season (October to February) and a nest deterrent shall be installed on the existing bridge to prevent establishment of new nests. Techniques to prevent nest establishment include: – Exclusion Device: Install bird netting from the bridge prior to the start of nesting season (i.e., before February 1). Netting shall be in place from early February until the end or project construction. Netting shall be monitored for integrity and effectiveness until the project is completed. – Nest Removal: Starting before the nesting season (i.e., prior to February 1), the City or its contractor shall visit the site weekly and remove partially	All work areas, and in riparian vegetation around the active site.	• Remove inactive nests between October and February and install nest deterrents. • Conduct surveys within 7 days before the start of construction.	• The City • Qualified biologist • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
completed nests on the bridge using either hand tools or high-pressure water. Disturbance or removal of active nests (i.e., nests containing eggs or young) shall not be conducted without the appropriate authorization(s) from the USFWS and/or CDFW. **Avoidance of Active Nests** Nesting birds and their nests shall be protected during construction by use of the following measures: – Removal of riparian vegetation and trimming shall occur outside the bird nesting season (February 1 to August 30), to the extent feasible. – A qualified wildlife biologist shall conduct pre-construction nesting surveys: – within 3 days prior to the start of underground pipeline installation activities; – within 3 days prior to the start of construction activities within Conn Creek; and – after any construction breaks of 14 days or more. Surveys shall be performed for the project site and suitable habitat within 250 feet of the project site in order to locate any active passerine (perching bird) nests and within 500 feet of the project site to locate any active raptor (birds of prey) nests. If active nests are located during the pre-construction bird nesting surveys, the wildlife biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination: • If construction is not likely to affect the active nest, it may proceed without restriction; however, a biologist shall regularly monitor the nest to confirm there is no adverse effect and may revise their determination at any time during the nesting season. In this case, the following measure would apply: – If construction may affect the active nest, the biologist shall establish a no-disturbance buffer. Typically, these buffer distances are between 100 feet and 250 feet for passerines and between 300 feet and 500 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity (e.g., if the project site is adjacent to a road or community development) or if an obstruction, such as a tree or building, obscures line-			

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
of-sight between the nest and construction. For bird species that are regulated as federal and/or State sensitive species (i.e., fully protected, endangered, threatened, species of special concern), a City representative, supported by the wildlife biologist, shall confer with the USFWS and/or CDFW regarding modifying nest buffers and allowable construction within the buffer. • To be evaluated on a case-by-case basis, birds that begin nesting within the project site and survey buffers amid construction activities shall be assumed to be habituated to construction-related or similar noise and disturbance levels and minimum work exclusion zones of 25 feet shall be established around active nests in these cases.			
MM BIO-6: Roosting Special-status Bat Protection A qualified biologist shall conduct a pre-construction survey for special-status bats in advance of tree trimming to characterize potential bat habitat and identify active roost sites. Should potential roosting habitat or active bat roosts be found in trees to be disturbed, the following measures shall be implemented: • Trimming of trees and disturbance to bridge structures shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15, outside of bat maternity roosting season (approximately April 15 to August 15), and outside of months of winter torpor (approximately October 15 to February 28), to the extent feasible. • If trimming of trees and disturbance to bridge structures during the periods when bats are active is not feasible and bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where these activities are planned, a no-disturbance buffer, as determined by a qualified biologist, shall be established around these roost sites until they are determined to be no longer in use as maternity or hibernation roosts. • Buffer distances may be adjusted around roosts depending on the level of surrounding ambient activity (i.e., if the project site is adjacent to a road) and if an obstruction, such as a building structure, is within line-of-sight between the roost and construction. If pallid bat or any other State-sensitive species is	All work areas	• Conduct surveys prior to any tree trimming activities	• The City • Qualified biologist

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
detected, a City representative, supported by the wildlife biologist, shall confer with CDFW regarding modifying roost buffers and allowable construction within the buffer, and modifying construction around maternity and hibernation roosts. • The qualified biologist shall be present during tree trimming if bat roosts are present. Trees with roosts shall be disturbed only when no rain is occurring or is forecast to occur within the next 3 days and when daytime temperatures are at least 50°F. Branches and limbs not containing cavities or fissures in which bats could roost shall be cut only using chainsaws. Branches or limbs containing roost sites shall be trimmed the following day, under the supervision of the qualified biologist, also using chainsaws. • Bat roosts that become established during project construction shall be presumed to be unaffected, and no buffer would be necessary.			
Cultural Resources			
MM CUL-1: Previously Unidentified Cultural Resources **Cultural Resources Training** A professional archeologist shall provide cultural resources training to all employees and contractors prior to any ground-disturbing activities, including grading, saw-cutting, or excavation. The training shall address appropriate work practices necessary to effectively implement the mitigation measures for historical resources, archaeological resources, tribal cultural resources, and human remains. The training shall train construction personnel on the potential for exposing subsurface resources, recognizing basic signs of a potential resource, understanding required procedures if a potential resource is identified (including reporting the resource to a qualified archaeologist or cultural resources specialist), and understanding all procedures required under Health and Safety Code § 7050.5 and PRC §§ 5097.94, 5097.98, and 5097.99 for the discovery of human remains. Workers shall be specifically instructed to: • Leave all potential cultural resources (i.e., historical resource, archaeological resource, tribal cultural resource, or human remains) where they are found.	All work areas	• Train employees and contractors to recognize basic signs of a potential resource and implement the mitigation measures	• The City • Qualified cultural resource specialist/archaeologist • All construction personnel

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
• Avoid all vehicle access within the boundary of an environmentally sensitive area. The training shall take place during the worker environmental awareness training required in MM BIO-2. **Procedures for Resource Discovery** In the event that a previously unidentified cultural resource is discovered during project implementation, all work within 100 feet of the discovery shall be halted. The resource shall be located, identified, and recorded in the updated California Department of Parks and Recreation 523 form detailing current conditions. Data regarding archaeological resources shall be shared with Native American tribes identified by the Native American Heritage Commission (NAHC) to be traditionally and culturally affiliated with the geographic area. A qualified cultural resource specialist/archaeologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts shall occur, the resource shall be documented on California State Department of Parks and Recreation cultural resource record forms and no further effort shall be required. If work must commence in the sensitive area, a 100-foot radius surrounding each known cultural resource site shall be flagged by a qualified cultural resource specialist/archaeologist and designated as an environmentally sensitive area. Alternatively, the cultural resource specialist/archaeologist shall evaluate the resource and determine whether it is: • Eligible for the CRHR (and a historical resource for purposes of CEQA); • A unique archaeological resource as defined by CEQA; or • A potential tribal cultural resource (all archaeological resources could be a tribal cultural resource). If the cultural resources specialist/archaeologist determines that the resource could be a tribal cultural resource, he or she shall, within 48 hours of the discovery, notify each Native American tribe identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the site of the discovery. A tribal monitor shall inspect the resource to determine whether it constitutes a tribal cultural resource. If the resource is determined not to be a			

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
unique archaeological resource, an historical resource, or a potential tribal cultural resource, work may commence in the area. If the resource meets the criteria for a historical resource, unique archaeological resource, and/or tribal cultural resource, work shall remain halted and the cultural resources specialist/archaeologist shall consult with the City staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). The responding tribes shall be given an opportunity to participate in determining the appropriate mitigation methods for tribal cultural resources in consultation with the City. Avoidance of the area, or avoidance of impacts on the resource, is the preferred method of mitigation for impacts on cultural resources and shall be required unless there are other equally effective methods and avoidance is not feasible. Work may commence upon completion of evaluation, collection, recordation, and analysis, as approved by the qualified cultural resource specialist/archaeologist and tribal monitor, for tribal cultural resources.			
Transportation			
MM TRAN-1: Traffic Control Plan To ensure that construction of the project does not adversely interfere with local traffic safety and circulation, a Traffic Control Plan (TCP) shall be prepared for the project. The TCP shall be subject to review and approval by the City of Calistoga, Napa County, and Caltrans (District 4), and shall include, but not be limited to the following elements: • The contractor shall provide flaggers as needed to temporarily hold traffic to safely stage equipment in advance of and/or during construction. • The contractor shall coordinate with the Napa County Police Department to ensure that construction activities, including temporary closure of the eastbound lane on Conn Creek Bridge, as well as the movement, staging, and storage of materials in and near the proposed staging areas do not interfere with law enforcement activities, emergency response, or evacuation procedures.	All work areas	• Prepare TCP	• The City • Caltrans • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
• The contractor shall install advance warning signs to alert bicyclists and Silverado Trail users of the work zone and temporary detours. Advance warning signs may include reflective signs, cones, or barricades. Signage should state the anticipated duration for construction, and reflect that the work is scheduled to occur between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday. • Signage shall be installed at both ends of the Silverado Trail segment affected by project construction, directing pedestrians and bicyclists to detours facilities. • Work shall be confined to the immediate project site and performed in a manner that would be least disruptive to the public. • The contractor shall ensure the public has access to businesses and private driveways along Silverado Trail at all times			
Tribal Cultural Resources			
MM TCR-2: Tribal Cultural Resource Sensitivity Training All on-site personnel of the project shall receive adequate tribal cultural resource sensitivity training prepared and administered by the project Tribal Cultural Monitor or his or her authorized designee prior to initiation of ground disturbance activities on the project. The training must address the potential for encountering previously unidentified tribal cultural resources and procedures if a potential tribal cultural resource is identified. The City shall provide the consulting Tribes an opportunity to review and comment on the tribal cultural resource sensitivity training before the training is administered to the crew. The tribal cultural resource sensitivity training will be administered during the cultural resource training described in MM CUL-1.	All work areas	• Provide tribal cultural resource sensitivity training to on-site personnel prior to initiation of ground disturbance activities • Coordinate with the consulting Tribes and incorporate the tribal cultural resource sensitivity training into the cultural resource training described in MM CUL-1.	• The City • Consulting Tribes • Qualified cultural resource specialist/archaeologist • All on-site personnel
Utilities and Service Systems			
MM UTIL-1: Public Notification of Utility Service Interruption Prior to construction in which a utility distribution service interruption is known to be unavoidable, the City shall notify members of the public affected by the	All work areas	• Notify affected members of the public at least 10 calendar days prior to the interruption	• The City

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
planned outage at least 10 calendar days prior to the impending interruption for residential and commercial outages.			

Table F-2 Mitigation Measures – During Construction

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
Air Quality			
MM AIR-1: Implement Dust Control Measures The following dust control measures shall be implemented during construction of the project. • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day when track-out is evident. The use of dry power sweeping is prohibited. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • Construction equipment shall be properly maintained by a certified mechanic. • Post a publicly visible sign with the telephone number and person to contact at the City of Calistoga regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations	All work areas	• Water twice per day • Cover haul trucks • Remove mud and dirt track-out with wet power vacuum street sweepers • Minimize idling times • Maintain construction equipment • Post sign with contact information for dust complaints	• The City • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
Biological Resources			
MM BIO-1: Special-status Plants Within one year prior to construction, a qualified botanist shall survey all potentially impacted project areas for special-status plants during the blooming season (roughly June through October), with particular emphasis on oak woodlands where Napa false indigo and Napa bluecurls may occur. All special-status plants observed within project impact areas shall be flagged in the field, photographed, and the Global Positioning System coordinates shall be recorded. Special-status plants shall be avoided during construction. In the event that impacts to special-status plants cannot be avoided, the following measures are required for the Napa false indigo and Napa bluecurls. **Napa False Indigo** As Napa false indigo is a shrub species, it can be identified at least to genus as long as it has leaves; therefore, if any amorpha species are present within the BSA, they shall be flagged and construction personnel shall be informed of their locations to ensure avoidance. Individual species or a population shall be dug up and relocated to suitable habitat outside the work area, prior to construction. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species that shall be planted in suitable habitat outside the work area or in the work area following completion of work. The selected relocation site(s) shall be within the same watershed as the impact area, and shall be approved by CDFW botanical staff. **Napa Bluecurls** If Napa bluecurls are identified during pre-construction surveys and the project involves substantial soil disturbance outside of the blooming season (June-October), the topsoil (i.e., the top two inches of soil) shall be removed from project impact areas and stockpiled prior to further excavation and replaced in the same area from which it was removed following disturbance. If disturbance occurs during the blooming season, seeds of the annuals shall be collected from existing onsite populations or from the same watershed (to	All work areas	• Collect and plant the seeds of any occurrences in areas outside the disturbance location in the same watershed	• The City • Qualified botanist • CDFW botanical staff

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
maintain local genetic stock) and distributed in suitable habitat outside the work area (within the same watershed) or in the work area following completion of work. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species (from seeds collected locally in the same watershed) that shall be planted in suitable habitat outside the work area or in the work area following completion of work. Seeds derived from plants in the same watershed as the impact area may be available from local nurseries, and local nurseries may also be able to propagate seeds from adults grown from collected seeds. In this case, seeds do not need to be collected from a specific impact area site. **Monitoring Plan** A monitoring plan that requires a qualified biologist to conduct annual monitoring of seeded or replanted locations within the BSA shall be developed. Monitoring shall occur for a minimum of 3 years and up to 5 years, based on CDFW recommendation and monitoring results. The new population shall match typical populations for the species as available from rare plant inventories (e.g., from CNDDB, USFWS data, or from local mitigation banks). Due to the variations in population from year to year as a result of weather fluctuations, average population data for annual taxa can be calculated from several years (at least three) of data collected from known populations in the region.			
MM BIO-3: Amphibians and Reptiles No more than 24 hours prior to the date of initial ground disturbance, a preconstruction survey for foothill yellow-legged frog (FYLF) and northwestern pond turtle (NPT) shall be conducted by a qualified biologist at the project site. The survey shall consist of walking the BSA limits of Conn Creek and at least 400 feet beyond in order to ascertain the possible presence of FYLF and NPT. The biologist shall investigate all potential areas that could be used by the species for feeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as those of California ground squirrels or pocket gophers. If any special-status amphibians or reptiles are found, the biologist shall follow the procedures specified below.	All work areas	• Cease activities during rain events or within 24 hours following a rain event • Inspect the project area and all equipment and materials for FYLF or NPT prior to resuming activity • If any species are found during activities, all work in the vicinity of the species shall halt until a designated	• Designated biologist • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
• Temporary exclusion fencing shall be installed around the limits of work areas and access routes to ensure special-status amphibians and reptiles cannot enter the work area. Installation of exclusion fencing shall occur under the supervision of a designated biologist and immediately following a clearance survey of the area. The exclusion fencing shall have a minimum aboveground height of 30 inches, and the bottom of the fence shall be keyed in at least 4 inches deep and backfilled with soil to prevent wildlife from passing under the fencing. • Initial ground-disturbing activities shall be avoided between November 1 and March 31 to avoid the time period when amphibians and reptiles are most likely to be moving through the project area. • To the maximum extent practicable, no construction activities shall occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a designated biologist shall inspect the project area and all equipment/materials for the presence of FYLF or NPT. • Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the project site because amphibians and reptiles can become entangled and trapped in them. Any such material found on-site shall be immediately removed by the construction personnel. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer, or other synthetic materials shall not be used. • Uneaten human food and other refuse attracts crows, ravens, coyotes, raccoons, and other predators of FYLF, NPT, and other wildlife. A litter control program shall be instituted at the project site. All workers shall ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed garbage containers. The garbage containers shall be removed from the project site at the end of each working day. If a FYLF or NPT is encountered during project activities, all work within the vicinity of the species shall be halted until the biologist determines the species is not at risk or the species moves out of the project vicinity. The biologist shall determine if relocating the individual is appropriate (e.g., if the species is at risk of injury). If the biologist determines relocation is necessary, the biologist shall		biologist gives permission to proceed	

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
be given sufficient time to move the animal from the work site before any work resumes. If the biologist determines relocation is not necessary, the biologist shall monitor the species until it leaves the project vicinity.			
MM BIO-5: Nesting Bird Avoidance Measures **Discourage Nesting on Conn Creek Bridge** To discourage bird nesting on the existing bridge during construction, existing inactive bird nests on Conn Creek Bridge shall be removed prior to the nesting season (October to February) and a nest deterrent shall be installed on the existing bridge to prevent establishment of new nests. Techniques to prevent nest establishment include: • Exclusion Device: Install bird netting from the bridge prior to the start of nesting season (i.e., before February 1). Netting shall be in place from early February until the end or project construction. Netting shall be monitored for integrity and effectiveness until the project is completed. • Nest Removal: Starting before the nesting season (i.e., prior to February 1), the City or its contractor shall visit the site weekly and remove partially completed nests on the bridge using either hand tools or high-pressure water. Disturbance or removal of active nests (i.e., nests containing eggs or young) shall not be conducted without the appropriate authorization(s) from the USFWS and/or CDFW. **Avoidance of Active Nests** Nesting birds and their nests shall be protected during construction by use of the following measures: • Removal of riparian vegetation and trimming shall occur outside the bird nesting season (February 1 to August 30), to the extent feasible. • A qualified wildlife biologist shall conduct pre-construction nesting surveys: – within 3 days prior to the start of underground pipeline installation activities; – within 3 days prior to the start of construction activities within Conn Creek; and – after any construction breaks of 14 days or more.	All work areas, and in riparian vegetation around the active site.	• Nesting deterrents shall remain in place for the duration of the project • Activity after breaks lasting more than 14 days may only resume after a survey is conducted	• The City • Qualified biologist • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
Surveys shall be performed for the project site and suitable habitat within 250 feet of the project site in order to locate any active passerine (perching bird) nests and within 500 feet of the project site to locate any active raptor (birds of prey) nests. If active nests are located during the pre-construction bird nesting surveys, the wildlife biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination: • If construction is not likely to affect the active nest, it may proceed without restriction; however, a biologist shall regularly monitor the nest to confirm there is no adverse effect and may revise their determination at any time during the nesting season. In this case, the following measure would apply: – If construction may affect the active nest, the biologist shall establish a no-disturbance buffer. Typically, these buffer distances are between 100 feet and 250 feet for passerines and between 300 feet and 500 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity (e.g., if the project site is adjacent to a road or community development) or if an obstruction, such as a tree or building, obscures line-of-sight between the nest and construction. For bird species that are regulated as federal and/or State sensitive species (i.e., fully protected, endangered, threatened, species of special concern), a City representative, supported by the wildlife biologist, shall confer with the USFWS and/or CDFW regarding modifying nest buffers and allowable construction within the buffer. • To be evaluated on a case-by-case basis, birds that begin nesting within the project site and survey buffers amid construction activities shall be assumed to be habituated to construction-related or similar noise and disturbance levels and minimum work exclusion zones of 25 feet shall be established around active nests in these cases.			
MM BIO-6: Roosting Special-status Bat Protection A qualified biologist shall conduct a pre-construction survey for special-status bats in advance of tree trimming to characterize potential bat habitat and	All work areas	• No disturbance buffers shall be determined if work must occur during	• The City • Qualified biologist • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
identify active roost sites. Should potential roosting habitat or active bat roosts be found in trees to be disturbed, the following measures shall be implemented: • Trimming of trees and disturbance to bridge structures shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15, outside of bat maternity roosting season (approximately April 15 to August 15), and outside of months of winter torpor (approximately October 15 to February 28), to the extent feasible. • If trimming of trees and disturbance to bridge structures during the periods when bats are active is not feasible and bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where these activities are planned, a no-disturbance buffer, as determined by a qualified biologist, shall be established around these roost sites until they are determined to be no longer in use as maternity or hibernation roosts. • Buffer distances may be adjusted around roosts depending on the level of surrounding ambient activity (i.e., if the project site is adjacent to a road) and if an obstruction, such as a building structure, is within line-of-sight between the roost and construction. If pallid bat or any other State-sensitive species is detected, a City representative, supported by the wildlife biologist, shall confer with CDFW regarding modifying roost buffers and allowable construction within the buffer, and modifying construction around maternity and hibernation roosts. • The qualified biologist shall be present during tree trimming if bat roosts are present. Trees with roosts shall be disturbed only when no rain is occurring or is forecast to occur within the next 3 days and when daytime temperatures are at least 50°F. Branches and limbs not containing cavities or fissures in which bats could roost shall be cut only using chainsaws. Branches or limbs containing roost sites shall be trimmed the following day, under the supervision of the qualified biologist, also using chainsaws. • Bat roosts that become established during project construction shall be presumed to be unaffected, and no buffer would be necessary.		unrecommended time periods • Qualified biologist monitors tree trimming if bat roosts are present	

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
Cultural Resources			
MM CUL-1: Previously Unidentified Cultural Resources **Cultural Resources Training** A professional archeologist shall provide cultural resources training to all employees and contractors prior to any ground-disturbing activities, including grading, saw-cutting, or excavation. The training shall address appropriate work practices necessary to effectively implement the mitigation measures for historical resources, archaeological resources, tribal cultural resources, and human remains. The training shall train construction personnel on the potential for exposing subsurface resources, recognizing basic signs of a potential resource, understanding required procedures if a potential resource is identified (including reporting the resource to a qualified archaeologist or cultural resources specialist), and understanding all procedures required under Health and Safety Code § 7050.5 and PRC §§ 5097.94, 5097.98, and 5097.99 for the discovery of human remains. Workers shall be specifically instructed to: • Leave all potential cultural resources (i.e., historical resource, archaeological resource, tribal cultural resource, or human remains) where they are found. • Avoid all vehicle access within the boundary of an environmentally sensitive area. The training shall take place during the worker environmental awareness training required in MM BIO-2. **Procedures for Resource Discovery** In the event that a previously unidentified cultural resource is discovered during project implementation, all work within 100 feet of the discovery shall be halted. The resource shall be located, identified, and recorded in the updated California Department of Parks and Recreation 523 form detailing current conditions. Data regarding archaeological resources shall be shared with Native American tribes identified by the Native American Heritage Commission (NAHC) to be traditionally and culturally affiliated with the geographic area. A qualified cultural resource specialist/archaeologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be	All work areas	• Cease activity if a cultural resource is uncovered • Avoid resource if possible • Evaluate and determine whether the resource is eligible, unique, or could be a tribal cultural resource • If the resource could be a tribal cultural resource, notify the Native American tribe identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the site • If the resource is not eligible, unique, and/or a tribal cultural resource, work may resume • If the resource is eligible, unique, and/or a tribal cultural resource, work remains halted and a method selected to ensure that adverse change to the resource does not occur • Preserve in place, if possible, or if not possible to preserve in place, and as deemed appropriate by the qualified cultural resource specialist/archaeologist and	• The City • NAHC • Qualified cultural resource specialist/archaeologist • Tribal monitor • All construction personnel

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
avoided and no further impacts shall occur, the resource shall be documented on California State Department of Parks and Recreation cultural resource record forms and no further effort shall be required. If work must commence in the sensitive area, a 100-foot radius surrounding each known cultural resource site shall be flagged by a qualified cultural resource specialist/archaeologist and designated as an environmentally sensitive area. Alternatively, the cultural resource specialist/archaeologist shall evaluate the resource and determine whether it is: • Eligible for the CRHR (and a historical resource for purposes of CEQA); • A unique archaeological resource as defined by CEQA; or • A potential tribal cultural resource (all archaeological resources could be a tribal cultural resource). If the cultural resources specialist/archaeologist determines that the resource could be a tribal cultural resource, he or she shall, within 48 hours of the discovery, notify each Native American tribe identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the site of the discovery. A tribal monitor shall inspect the resource to determine whether it constitutes a tribal cultural resource. If the resource is determined not to be a unique archaeological resource, an historical resource, or a potential tribal cultural resource, work may commence in the area. If the resource meets the criteria for a historical resource, unique archaeological resource, and/or tribal cultural resource, work shall remain halted and the cultural resources specialist/archaeologist shall consult with the City staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). The responding tribes shall be given an opportunity to participate in determining the appropriate mitigation methods for tribal cultural resources in consultation with the City. Avoidance of the area, or avoidance of impacts on the resource, is the preferred method of mitigation for impacts on cultural resources and shall be required unless there are other equally effective methods and avoidance is not feasible. Work may commence upon completion of evaluation, collection, recordation,		tribal monitor for tribal cultural resources, recover and record cultural materials. Once recovered and recorded, the activity can commence in this area	

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
and analysis, as approved by the qualified cultural resource specialist/archaeologist and tribal monitor, for tribal cultural resources.			
MM CUL-2: Discovery of Human Remains If human remains and associated or unassociated funerary objects are exposed during implementation of the project, work within 100 feet of the discovery shall be halted and the find protected from further disturbance. The Napa County Coroner shall be notified immediately and, in the event of the determination that the human remains are Native American remains, notification of the Native American Heritage Commission shall be undertaken to obtain a most likely descendant (MLD) (PRC § 5097.98) for treatment recommendations. The City and the MLD shall make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Section 15064.5[d]). The agreement shall take into consideration the appropriate removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. Any findings shall be submitted in a report to the MLD and filed with the Central California Information Center (CCIC).	All work areas	• Cease activity if human remains are uncovered • Appoint an MLD • Protect human remains until a decision is reached • If avoidance is not possible, the Napa County Coroner, a professional archaeologist, and an MLD shall be consulted and human remains and associated or unassociated funerary objects shall be removed from the location and relocated to selected location in accordance with the decision reached. Once remains are moved, then the activity can resume in this area	• The City • Napa County Coroner • MLD • Contractor
Hazards and Hazardous Materials			
MM HAZ-1: Fire Safety Procedures The City and/or its contractor shall implement the following fire prevention procedures to reduce the potential risk of fire ignitions during construction: • The City and/or its contractors shall check in daily by phone for the National Weather Service daily fire hazard rating for the area. On days when the fire hazard rating is "Very High" or "Critical," use of two-stroke power tools, such as chainsaws and weed whips, shall be prohibited at the project site. • No work shall occur on red flag days declared by Napa County.	All work areas	• Check National Weather Service daily fire hazard rating • No work on red flag days • Use of spark arrestors • Fire suppression equipment is available	• The City • Contractor • All construction personnel

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
• Earthmoving and portable equipment with internal combustion engines shall be equipped with a spark arrestor to reduce the potential for igniting a wildland fire. • Appropriate fire suppression equipment shall be maintained and available at the construction site. • Flammable materials shall be removed to a distance of 10 feet from any equipment that is either operating, a significant heat source, or which could produce a spark, fire, or flame. • Construction personnel shall be trained in fire safe work practices (e.g., smoking in enclosed spaces or parking in designated parking locations), use of fire suppression equipment, and procedures to follow in the event of a fire, including use of emergency radios provided by the City.		• Move flammable materials from heat source • Train construction personnel in fire safe work practices	
Transportation			
MM TRAN-1: Traffic Control Plan To ensure that construction of the project does not adversely interfere with local traffic safety and circulation, a Traffic Control Plan (TCP) shall be prepared for the project. The TCP shall be subject to review and approval by the City of Calistoga, Napa County, and Caltrans (District 4), and shall include, but not be limited to the following elements: • The contractor shall provide flaggers as needed to temporarily hold traffic to safely stage equipment in advance of and/or during construction. • The contractor shall coordinate with the Napa County Police Department to ensure that construction activities, including temporary closure of the eastbound lane on Conn Creek Bridge, as well as the movement, staging, and storage of materials in and near the proposed staging areas do not interfere with law enforcement activities, emergency response, or evacuation procedures. • The contractor shall install advance warning signs to alert bicyclists and Silverado Trail users of the work zone and temporary detours. Advance warning signs may include reflective signs, cones, or barricades. Signage should state the anticipated duration for construction, and reflect that the	All work areas	• Implement TCP	• The City • Caltrans • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
work is scheduled to occur between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday. • Signage shall be installed at both ends of the Silverado Trail segment affected by project construction, directing pedestrians and bicyclists to detours facilities. • Work shall be confined to the immediate project site and performed in a manner that would be least disruptive to the public. • The contractor shall ensure the public has access to businesses and private driveways along Silverado Trail at all times			
Tribal Cultural Resources			
MM TCR-1: Tribal Monitoring During the construction phase and prior to initial ground disturbance, the City or its contractor shall retain a project Tribal Cultural Monitor familiar with tribal resources of the Middletown Rancheria of Pomo Indians of California and Mishewal Wappo Indians of Alexander Valley (hereafter "consulting Tribes"). Ground disturbing activities occurring in conjunction with the project (including, debris removal, rescrapes, erosion control [mulching, waddles, hydroseeding, etc.], pot-holing or auguring, boring, grading, trenching, foundation work and other excavations or other ground disturbance involving the moving of dirt or rocks with heavy equipment or hand tools within the project area) shall be monitored on a full-time basis by the Tribal Cultural Monitor. A Qualified Tribal Cultural Monitor(s) shall be defined as an individual(s) who has experience with identification, collection and treatment of tribal cultural resources of value to the Tribes traditionally and culturally affiliated with the project area. The duration of tribal cultural monitoring is expected to include all project construction phases and to conclude upon completion of construction. If the consulting Tribes determine that full-time monitoring is no longer warranted, tribal monitoring may be reduced to periodic spot-checking or cease entirely. Tribal monitoring would be reinstated in the event of any new or unforeseen ground disturbances or discoveries.	All work areas	• Monitor ground disturbing activities on a full-time basis	• The City • Qualified tribal monitor(s) • Contractor

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
MM TCR-3: Tribal Cultural Resources Discovery and Treatment Procedures The project tribal monitor may halt ground disturbance activities in the immediate area of discovery when known or suspected tribal cultural resources are identified until further evaluation can be made in determining their significance and appropriate treatment or disposition. There must be at minimum one tribal monitor for every separate area of ground disturbance activity that is at least 30 meters or 100 feet apart unless otherwise agreed upon in writing between the consulting Tribes and the City. Depending on the scope and schedule of ground disturbance activities of the project (e.g., discoveries of cultural resources or simultaneous activities in multiple locations that requires multiple tribal monitors, etc.) additional tribal monitors may be required on-site. If additional tribal monitors are needed, the consulting Tribes shall be provided with a minimum of three (3) business days advance notice unless otherwise agreed upon between the Tribes and the City. The on-site tribal monitoring shall end when the ground disturbance activities are completed, or if/when the consulting Tribes determine the site has a low potential for tribal cultural resources. All potential cultural resources unearthed by project activities shall be evaluated by the project Tribal Cultural Monitor. The consulting Tribes shall be provided the opportunity to inspect and determine the nature of the resource and the best course of action for avoidance, protection and/or treatment of tribal cultural resources to the extent permitted by law. If the resource is determined to be a tribal cultural resource of value to the consulting Tribes, the City shall coordinate with the Tribe to establish appropriate treatment and disposition of the resources with appropriate dignity which may include reburial or preservation of resources. The City must facilitate and ensure that the determination of treatment and disposition by the Tribes is followed to the extent permitted by law. No laboratory studies, scientific analysis, curation, or video recording are permitted for tribal cultural resources without the prior written consent of the consulting Tribes. If any unanticipated discoveries are encountered that may have significance as an archeological resource as well as a tribal cultural resource, the treatment of the discovery (including recording methods, laboratory studies, scientific analysis, and/or curation) will be	All work areas	• Provide the Tribes an opportunity to inspect any unearthed cultural resources and establish appropriate treatment and disposition of the resources • Determination of treatment and disposition by the Tribes shall be followed to the extent permitted by law • No laboratory studies, scientific analysis, curation, or video recording are permitted for tribal cultural resources without the prior written consent of the Tribes	• The City • Consulting Tribes • Tribal monitor(s) • Qualified cultural resource specialist/archaeologist

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
determined by the City in consultation with consulting Tribes, qualified archaeologist, and any other agencies with authority over the project.			

Table F-3 Mitigation Measures – After Construction

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
Biological Resources			
MM BIO-1: Special-status Plants Within one year prior to construction, a qualified botanist shall survey all potentially impacted project areas for special-status plants during the blooming season (roughly June through October), with particular emphasis on oak woodlands where Napa false indigo and Napa bluecurls may occur. All special-status plants observed within project impact areas shall be flagged in the field, photographed, and the Global Positioning System coordinates shall be recorded. Special-status plants shall be avoided during construction. In the event that impacts to special-status plants cannot be avoided, the following measures are required for the Napa false indigo and Napa bluecurls. **Napa False Indigo** As Napa false indigo is a shrub species, it can be identified at least to genus as long as it has leaves; therefore, if any amorpha species are present within the BSA, they shall be flagged and construction personnel shall be informed of their locations to ensure avoidance. Individual species or a population shall be dug up and relocated to suitable habitat outside the work area, prior to construction. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species that shall be planted in suitable habitat outside the work area or in the work area following completion of work. The selected relocation site(s) shall be within the same watershed as the impact area, and shall be approved by CDFW botanical staff.	All replanting and reseeding areas	• Implement Monitoring Plan in all locations of replanting or reseeding (if necessary)	• The City • Qualified biologist

Mitigation Measures	Applicable Locations	Monitoring/Reporting Action	Responsible and Involved Parties
Napa Bluecurls If Napa bluecurls are identified during pre-construction surveys and the project involves substantial soil disturbance outside of the blooming season (June-October), the topsoil (i.e., the top two inches of soil) shall be removed from project impact areas and stockpiled prior to further excavation and replaced in the same area from which it was removed following disturbance. If disturbance occurs during the blooming season, seeds of the annuals shall be collected from existing onsite populations or from the same watershed (to maintain local genetic stock) and distributed in suitable habitat outside the work area (within the same watershed) or in the work area following completion of work. Alternatively, a nursery with experience growing special-status plants can be employed to grow seedlings of the species (from seeds collected locally in the same watershed) that shall be planted in suitable habitat outside the work area or in the work area following completion of work. Seeds derived from plants in the same watershed as the impact area may be available from local nurseries, and local nurseries may also be able to propagate seeds from adults grown from collected seeds. In this case, seeds do not need to be collected from a specific impact area site. **Monitoring Plan** A monitoring plan that requires a qualified biologist to conduct annual monitoring of seeded or replanted locations within the BSA shall be developed. Monitoring shall occur for a minimum of 3 years and up to 5 years, based on CDFW recommendation and monitoring results. The new population shall match typical populations for the species as available from rare plant inventories (e.g., from CNDDB, USFWS data, or from local mitigation banks). Due to the variations in population from year to year as a result of weather fluctuations, average population data for annual taxa can be calculated from several years (at least three) of data collected from known populations in the region.			