Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project

FINAL INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

State Clearinghouse Number 2018052042

June 2018

Lead Agency:

Calaveras County Water District
120 Toma Court
San Andreas, California 95249

Prepared by:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2525 Warren Drive
Rocklin, CA 95677

Notice of Determination

Appendix D

To:

☐ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: CALAVERAS
Address: 891 MOUNTAIN RANCH ROAD, SAN ANDREAS, CA 95249

From:
Public Agency: Calaveras County Water District
Address: P.O. BOX 846, SAN ANDREAS, CA 95249
Contact: Charles Palmer, District Engineer
Phone: (209) 754-3174 / charlesp@ccwd.org

Lead Agency (if different from above): (SAME AS ABOVE)
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): SCH# 2018052042

Project Title: EBBETTS PASS REACH 1 WATER TRANSMISSION PIPELINE IMPROVEMENTS PROJECT

Project Applicant: CALAVERAS COUNTY WATER DISTRICT

Project Location (include county): STATE ROUTE 4, BETWEEN MURHPYS AND AVERY (CALAVERAS CO.)

Project Description:
The Calaveras County Water District is proposing approx 24,500 lf of new water pipeline, hydrants, blow-off valves, and main line valves to replace existing facilities constructed in 1965. Except for a +/-1,080 ft long section of pipeline near the Hunter Dam Rd., the existing Ebbetts Pass Reach 1 pipeline is located within Caltrans SR-4 ROW. The alignment is from approx. PM 32.3 (West of Forest Meadow) to PM 37.0 (near Hunter Dam Rd, just west of Avery, CA). The replacement pipeline will also be placed within the SR 4 ROW and constructed as close as practical to the existing pipeline, which is primarily located past edge of pavement within the south shoulder.

This is to advise that the CALAVERAS COUNTY WATER DISTRICT (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on JUNE 27, 2018 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
CALAVERAS COUNTY WATER DISTRICT, 120 TOMA COURT, SAN ANDREAS, CA 95249

Signature (Public Agency): _____ Title: Dave Eggerton, General I

Date: 6/27/18 Date Received for filing at OPR: _____

(ENDORSED)
FILED
County of Calaveras
Rebecca Turner
County Clerk-Recorder
05-2018-020
06/28/2018
F Beth Cole
bcole, Deputy Clerk

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

State of California - Department of Fish and Wildlife

2018 ENVIRONMENTAL FILING FEE CASH RECEIPT

DFW 753.5a (Rev. 10/31/17) Previously DFG 753.5a

RECEIPT NUMBER: 05-2018-020

STATE CLEARINGHOUSE NUMBER *(If applicable)*: 2018052042

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.

LEAD AGENCY	LEADAGENCY EMAIL	DATE
CALAVERAS COUNTY WATER DISTRICT	charlesp@ccwd.org	06/28/2018

COUNTY/STATE AGENCY OF FILING	DOCUMENT NUMBER
CALAVERAS	

PROJECT TITLE: EBBETS PASS REACH 1 WATER TRANSMISSION PIPELINE IMPROVEMENTS PROJECT

PROJECT APPLICANT NAME	PROJECT APPLICANT EMAIL	PHONE NUMBER
CALAVERAS COUNTY WATER DISTRICT	charlesp@ccwd.org	(209) 754-3174

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
PO BOX 846	SAN ANDREAS	CA	95249

PROJECT APPLICANT *(Check appropriate box)*

☐ Local Public Agency ☐ School District ☒ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$3,168.00	$	
☒ Mitigated/Negative Declaration (MND)(ND)	$2,280.75	$	$2,280.75
☐ Certified Regulatory Program document (CRP)	$1,077.00	$	

☐ Exempt from fee

- ☐ Notice of Exemption (attach)
- ☐ CDFW No Effect Determination (attach)

☐ Fee previously paid (attach copy of previously issued Environmental Filing Fee Cash Receipt (DFW 753.5a))

☐ Water Right Application or Petition Fee (State Water Resources Control Board only)	$850.00	$	
☒ County documentary handling fee		$	$50.00
☐ Other		$	

PAYMENT METHOD:

☐ Cash ☐ Credit ☒ Check ☐ Other **TOTAL RECEIVED** $ $2,330.75

SIGNATURE	AGENCY OF FILING PRINTED NAME AND TITLE
X Beth Cole	Beth Cole, Deputy County Clerk-Recorder

ORIGINAL - PROJECT APPLICANT | COPY - CDFW/ASB | COPY - LEAD AGENCY | COPY - COUNTY CLERK | DFW 753.5a (Rev. 20151215)

Rebecca Turner
Calaveras County
County Clerk-Recorder
891 Mountain Ranch Road
San Andreas, CA 95249
(209) 754-6372
http://calaverasgov.us

Receipt: 18-5570

Product	Name	Extended
FISH	FISH AND WILDLIFE FILING	$2,330.75
	# Pages	1
	Document #	05-2018-020
	Document Info:	CALAVERAS COUNTY WATER DISTRICT
	Filing Type	ND
	No F & W Fee	false
	File Endorsed Label	3
Total		$2,330.75
Tender (Check)		$2,330.75
Paid By	CALAVERAS COUNTY WATER DISTRICT	
Check #	129979	

THANK YOU. PLEASE KEEP FOR REFERENCE

6/28/18 9:59 AM bcole

RESOLUTION NO. 2018- 26

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

ADOPTING A MITIGATED NEGATIVE DECLARATION, APPROVING THE PROJECT ACCORDING TO CEQA STATUTE, AND FILING A NOTICE OF DETERMINATION FOR THE EBBETTS PASS REACH 1 WATER TRANSMISSION PIPELINE IMPROVEMENT PROJECT (CCWD CIP#11085 / SCH NO.2018052042)

WHEREAS, in accordance with the California Environmental Quality Act (CEQA) an Initial Study with Intent to Adopt a Mitigated Negative Declaration (IS/MND) was prepared for the Ebbetts Pass Reach 1 Water Transmission Pipeline Improvement Project, CIP #11085, and filed with the State Clearinghouse as of May 16, 2018, and

WHEREAS, public notices were posted at the District's main office, in the Calaveras Enterprise and with the County Clerk's office and all documents made available for public review for 30-days ending June 15, 2018, and for all comments received during public review CCWD has provided responses satisfactory to the Lead Agency.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Calaveras County Water District upon reviewing and considering all information presented in the Initial Study, Mitigated Negative Declaration and responses to public comments determines that the project will not cause a significant effect on the environment because revisions to the project and specific mitigation measures have been made or agreed to by the District, and

BE IT FURTHER RESOLVED that the Board of Directors approves the Ebbetts Pass Reach 1 Water Transmission Pipeline Improvement Project, CIP #11085, adopts the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Plan, and directs staff to file a Notice of Determination with the Calaveras County Clerk with five (5) working days.

PASSED AND ADOPTED this 27th day of June 2018 by the following vote:

AYES: **Directors Underhill, Thomas, Strange, Davidson, and Ratterman**
NOES: **None**
ABSTAIN: **None**
ABSENT: **None**

CALAVERAS COUNTY WATER DISTRICT

Scott Ratterman, President
Board of Directors

ATTEST:

Rebecca Hitchcock

Rebecca Hitchcock, Clerk to the Board

Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project

Final

Initial Study/Mitigated Negative Declaration

State Clearinghouse Number 2018052042

June 2018

CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 1. INTRODUCTION

This document is the Final Initial Study/Mitigated Negative Declaration (IS/MND) and Mitigation Monitoring and Reporting Plan (MMRP) for the Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project (Proposed Project). It has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resource Code Section 21000 et. seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.) as amended. This Final IS/MND document supplements the Draft IS/MND released for public review May 17, 2018.

The Calaveras County Water District (CCWD) is the Lead Agency for the Proposed Project. On May 17, 2018, CCWD distributed the Draft IS/MND for the Proposed Project to public agencies and the general public for review and comment. In accordance with the State CEQA Guidelines, a 30-day review period, which began on May 17, 2018, and ended on June 16, 2018 was completed. During the public review period, 2 comments on the Draft IS/MND were received from agencies. This Final IS/MND document is organized as follows:

- Section 1 provides a discussion of the purpose of the document and discusses the structure of the document.
- Section 2 includes the comment letters received and responses to these comments.
- Section 3 includes the Proposed Project's Mitigation Monitoring and Reporting Program (MMRP), prepared pursuant to Public Resources Code Section 21081.6.

Note: None of the comments received resulted in revisions to the Draft IS/MND.

This Final IS/MND document and the Draft IS/MND together constitute the environmental document for the Proposed Project.

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 2. COMMENTS AND RESPONSES

This section of the document contains copies of the comment letters received during the 30-day public review period, which began on May 17, 2018 and ended on June 16, 2018. CEQA does not require lead agencies to provide formal responses to comments received on initial studies supporting proposed mitigated negative declarations; however, CCWD prepared this response to comments document to provide responses to comments received on the IS/MND in order to provide comprehensive information and disclosure for both the public and CCWD's decision-makers.

CEQA provides guidance on what and how public agencies, organizations, and individuals should focus when providing comments on a IS/MND. CEQA Guidelines Section 151204 states:

> (b) In reviewing negative declarations, persons and public agencies should focus on the proposed finding that the project will not have a significant effect on the environment. If persons and public agencies believe that the project may have a significant effect, they should:
>
> (1) Identify the specific effect,
> (2) Explain why they believe the effect would occur, and
> (3) Explain why they believe the effect would be significant.
>
> (c) Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence.

Written comments on the draft IS/MND are reproduced on the following pages, along with responses to those comments.

3.1 List of Comment Letters

A list of public agencies, organizations, and individuals that provided comments on the Draft IS/MND is presented below. The letters and the responses to the comments follow this page.

Letter Number	Sender	Date Received
1	Central Valley Regional Water Quality Control Board	6/14/2018
2	California Department of Transportation (Caltrans) District 10	6/15/2018

Letter 1 Central Valley Regional Water Quality Control Board (CVRWQB)

CALIFORNIA Water Boards

Edmund G. Brown Jr. Governor

Matthew Rodriguez Secretary for Environmental Protection

Central Valley Regional Water Quality Control Board

8 June 2018

Charles Palmer
Calaveras County Water District
120 Toma Court
San Andreas, CA 95249

CERTIFIED MAIL
91 7199 9991 7039 6992 0760

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, EBBETTS PASS REACH 1 WATER TRANSMISSION PIPELINE CAPITAL IMPROVEMENT PROJECT, SCH# 2018052042, CALAVERAS COUNTY

Pursuant to the State Clearinghouse's 17 May 2018 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project, located in Calaveras County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit
Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan

(SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements – Discharges to Waters of the State
If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Dewatering Permit
If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver)
R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. ***Obtain Coverage Under a Coalition Group.*** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/for_growers/apply_coalition_group/index.shtml or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. ***Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100***. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water*

(Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit3.shtml

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.

Stephanie Tadlock

Stephanie Tadlock
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

Letter 1 Responses to Comments

Thank you for your comment. Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project will not include work within the waterway. Additionally, the Project will be obtaining all necessary permits (listed below as shown in Table 2.7-2 of the draft IS/MND), and will comply with the requirements set forth in these permits.

Regulatory Requirements, Permits, and Approvals

Agency or Organization	Approval or Permit
State Water Resources Control Board (SWRCB)	*National Pollutant Discharge Elimination System (NPDES) Permit, Construction Storm Water General Permit (including the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) and best management practices*
Calaveras County	*Encroachment Permit*
Stanislaus National Forest	*Review for conformance with special use permit*
California Department of Fish and Wildlife	*1602 Streambed Alteration Agreement*
U.S. Army Corps of Engineers	*Clean Water Act Section 404 Permit*
State Water Resources Control Board	*401 Water Quality Certification*
California Department of Transportation	*Standard Encroachment Permit*
California Department of Forestry and Fire Protection	*Utility right-of-way exemption (Forest Practice Act)*
Calaveras County Air Pollution Control District	*Dust Control Plan*

Letter 2 California Department of Transportation

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 10
P.O. BOX 2048, STOCKTON, CA 95201
(1976 E. DR. MARTIN LUTHER KING JR. BOULEVARD 95205)
PHONE (209) 948-7325
FAX (209) 948-3670
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

June 15, 2018

CAL-4-PM 32.093
Ebbetts Pass Reach 1 Water Pipeline Project
Mitigated Negative Declaration

Mr. Charles Palmer
Calaveras County Water District
120 Toma Court
San Andreas, CA 95249

Dear Mr. Palmer,

The California Department of Transportation (Caltrans) appreciates the opportunity to review and comment on the Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project with SCH #2018052042. The Calaveras County Water District (CCWD) is proposing approximately 24,500 lineal feet of new water pipeline, hydrants, blow-off valves, and main line valves to replace existing facilities constructed in 1965. Except for a ⊥1,080 foot long section of pipeline near the IIunter Dam Water Transmission Pipeline (WTP), the existing Ebbetts Pass Reach 1 pipeline is located within Caltrans SR-4 right-of-way (ROW). The alignment is from approximately post mile (PM) 32.3 (West of Forest Meadow) to PM 37.0 (near Hunter Dam Rd.), just west of Avery, CA. The replacement pipeline will also be placed within the SR-4 ROW and constructed as close as practical to the existing pipeline, which is primarily located past edge of pavement within the south shoulder.

Caltrans reviewed the Mitigated Negative Declaration Document and has the following comments:

If the proposed water transmission pipeline is pressurized, Caltrans requires it to be encased within Caltrans ROW. The installation of the proposed pipeline should not impact existing State drainage facilities such as culverts, ditches, etc. The facility should be at least 30" below unlined ditches within State ROW. CT-1

Please ensure that Mitigation measures (BIO-1 through BIO-6) proposed in the project are adhered to during construction for work within Caltrans ROW. Measures adequately addressed steps to minimize impacts or entirely avoid rare plants, oaks, migratory nesting birds, animal species, and potential waters of the US/State that may be present within Caltrans ROW. Please also ensure that the State Regional Water Quality Control Board 401 certification, U.S. Army Corps of Engineers Section 404 permit, and California Department of Fish and Wildlife 1602 Streambed Alteration Agreement are provided to Caltrans at the encroachment permitting phase. CT-2 CT-3

These project construction activities will encroach into State ROW requiring the project proponent to submit an application for an Encroachment Permit to the Caltrans Encroachment Permits Office. Any request for new encroachments onto the State highway system will need to obtain a Caltrans Encroachment Permit. Appropriate environmental studies must be submitted with any encroachment permit applications.

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Mr. Palmer
June 15, 2018
Page 2

These studies will include an analysis of potential impacts to any cultural sites, biological resources, hazardous waste locations, and/or other resources within State ROW at the project site.

Please do not hesitate to contact me at (209) 948-7325 (email gregoria.ponce@dot.ca.gov) or Austin Sos (209) 948-7936 (email austin.sos@dot.ca.gov) if you have any questions or concerns.

Sincerely,

Michelle Romero for

Gregoria Ponce, Office Chief
Office of Rural Planning

C: Peter Maurer, Planning Director
Amber Collins, Calaveras Council of Government

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Letter 2 Responses to Comments

CT-1: Comment noted. The proposed project will comply necessary design standards for pipeline crossing the right of way; however, as the comment was stated we required clarification. Therefore, on June 19, 2018 the project engineer was able to speak with Caltrans Encroachment Permit Office staff to obtain clarification regarding this comment. Paul Cavanaugh provided clarification as follows:

> *In response to the June 15, 2018 MND letter from Gregoria Ponce from Caltrans Planning, the encasement reference of pressurized pipeline only is necessary when pipelines cross the Right of way at right angles (90-degees to centerline of right of way). The design and alignment is acceptable to the encroachment permit office and a permit will be issued shortly after the Environmental document is approved by the lead agency.*

As stated the proposed project design and alignment is acceptable to the encroachment office. Once the CEQA process is complete the project will move forward with obtaining the encroachment permit.

CT-2: The proposed project will comply with all required mitigation as listed within the document and within the MMRP.

CT-3: As stated previously in the response to CVWQCB letter, the Project will obtain all necessary permits including (but not limited to) Standard Encroachment Permit, 401 Water Quality Certification, Clean Water Act Section 404 Permit, and 1602 Streambed Alteration Agreement, and will comply with the requirements set forth in all applicable permits and approvals. As part of the standard encroachment permit, the proposed project will provide all necessary documentation including technical studies where applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 3. MITIGATION MONITORING AND REPORTING PLAN

3.1 Introduction

In accordance with CEQA, a MND that identifies adverse impacts related to the construction activity for the Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project was prepared. The MND identifies mitigation measures that would reduce or eliminate these impacts.

Section 21081.6 of the Public Resources Code and Sections 15091(d) and 15097 of the State CEQA Guidelines require public agencies to adopt a reporting and monitoring program for changes to the project which it has adopted or made a condition of project approval to mitigate or avoid significant effects on the environment. A MMRP is required for the Proposed Project, because the IS/MND identified potentially significant adverse impacts related to construction activity, and mitigation measures have been identified to mitigate these impacts. Adoption of the MMRP will occur along with approval of the Proposed Project.

3.2 Purpose of the Mitigation Monitoring and Reporting Plan

This MMRP has been prepared to ensure that all required mitigation measures are implemented and completed according to schedule and maintained in a satisfactory manner during the construction and operation of the Proposed Project, as required. The MMRP may be modified by CCWD during Project implementation, as necessary, in response to changing conditions or other Project refinements. Table 3-1 has been prepared to assist the responsible parties in implementing the MMRP. This table identifies the category of significant environmental impact(s), individual mitigation measures, monitoring and mitigation timing, responsible person/agency for implementing the measure, monitoring and reporting procedure, and notation space to confirm implementation of the mitigation measures. The numbering of the mitigation measures follows the numbering sequence in the IS/MND.

3.3 Roles and Responsibilities

CCWD, as Lead Agency, is responsible for oversight of compliance of the mitigation measures in the MMRP.

3.4 Mitigation Monitoring and Reporting Plan

The column categories identified in the MMRP table (Table 3-1) are described below.

- **Mitigation Measure** – This column lists the mitigation measures by number.
- **Monitoring Activity/Timing/Frequency/Schedule** – This column lists the activity to be monitored for each mitigation measure, the timing of each activity, and the frequency/schedule of monitoring for each activity.
- **Implementation Responsibility/Verification** – This column identifies the entity responsible for complying with the requirements of the mitigation measure, and provides space for verification initials and date.
- **Responsibility for Oversight of Compliance/Verification** – This column provides the agency responsible for oversight of the mitigation implementation, and is to be dated and initialed by the agency representative based on the documentation provided by the construction contractor or through personal verification by agency staff.

- **Outside Agency Coordination** – this column lists any agencies with which the CCWD may coordinate for implementation of the mitigation measure.
- **Comments** – this column provides space for written comments, if necessary.

Table 3-1
Napa State Hospital Solar Project
Mitigation Monitoring and Reporting Program

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AQ-1: In accordance with CCAPCD requirements, CCWD will submit a dust control plan to the County for approval. CCAPCD requires the submittal of a dust control plan for approval prior to surface disturbance larger than 1 acre. CCWD and contractor will be responsible for ensuring that all reasonable dust control measures are implemented in a timely manner during all phases of project development and construction.	**Activity:** Preparation of Dust Control Plan. **Timing:** Prior to Construction, during construction. **Frequency:** Once prior to construction, as required.	**Contractor** _____ Initials _____ Date	**Calaveras County Water District** _____ Initials _____ Date	Possible coordination with CCAPCD	
AQ-2: In order to reduce emissions related to construction equipment and vehicle use, the contractors will implement the following measures, as appropriate, during construction: A. Maintain all construction equipment in proper tune according to manufacturer's specifications. B. Maximize, to the extent feasible, the use of diesel construction equipment meeting the California Air Resource Board's 1996 or newer certification standard for off-road heavy-duty diesel	**Activity:** Construction emission controls **Timing:** Prior to Construction, during construction. **Frequency:** Once prior to construction, as required.	**Contractor** _____ Initials **Date**	**Calaveras County Water District** _____ Initials _____ Date		

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
engines. C. Utilize heavy equipment equipped with or install diesel oxidation catalysts, catalyzed diesel particulate filters, or other approved emission reduction retrofit devices. D. Minimize length of time construction equipment is left idling. E. Minimize the number of construction vehicles operating concurrently. F. Locate construction vehicle staging areas as far from residences as practicable.					
BIO-1: Consult with CDFW to determine appropriate buffer between construction activities and rare plant populations identified during protocol-level surveys to ensure impact avoidance. A qualified biologist shall be retained to oversee placement of ESA fencing around rare plant populations within the project area to provide avoidance during construction activities.	**Activity:** Rare Plant Survey. **Timing:** Already completed. **Frequency:** **Once prior to construction.**	**Contractor** _____ Initials _____ Date	**Calaveras County Water District** _____ Initials _____ Date	Possible coordination with CDFW	

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-2: Pre-Construction Nesting Bird Survey Pre-construction nesting bird survey shall be conducted within 14 days prior to the commencement of construction during the nesting season (1 February through 31 August). A pre-construction Swainson's hawk nesting survey shall be conducted within the Project Area and all publicly accessible areas within 0.5 mile of the Project Area. A pre-construction nesting raptor survey shall be conducted within 500 feet of the Project Area and a pre-construction nesting passerine survey shall be conducted within 100 feet of the Project Area. These surveys will be conducted concurrently. If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in consultation with CDFW. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. No further measures are necessary once the young are independent of the nest. Pre-construction nesting surveys are not required for construction activity outside the nesting season.	**Activity:** Nesting Bird Survey. **Timing:** Within 14 days prior to construction activity. **Frequency:** Once prior to construction.	**Project Biologist** Initials Date	**Calaveras County Water District** Initials Date	Coordination with CDFW	

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-3: Pre-Construction Roosting Bat Survey Pre-construction roosting bat surveys for all suitable roosting habitat (i.e., trees and manmade structures) within the Project Area shall be conducted prior to construction activities. If suitable roosting habitat is identified, a qualified biologist will conduct an evening bat emergence survey that may include acoustic monitoring to determine whether or not bats are present. If western red bats or pallid bats are found, consultation with CDFW prior to initiation of disturbance of suitable roosting habitat will be required. If bats are not found during the preconstruction surveys, no further measures will be necessary.	**Activity:** Pre-construction Bat Survey. **Timing:** Within 14 days prior to construction activity. **Frequency:** **Once prior to construction.**	**Project Biologist** Initials Date	**Calaveras County Water District** Initials Date	Coordination with CDFW	
BIO-4: Authorization to fill wetlands under the Section 404 of the federal CWA (Section 404 Permit) must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit for the Project will be prepared and submitted to USACE, and will include jurisdictional determination, direct, avoided, and preserved acreages of Waters of the U.S.	**Activity:** Obtain permits. **Timing:** prior to construction. **Frequency:** Once prior to construction.	**Contractor** Initials Date	**Calaveras County Water District** Initials Date	Possible coordination with CDFW	

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-5: A Water Quality Certification or waiver pursuant to Section 401 of the CWA, as issued by RWQCB, must be obtained for Section 404 permit actions.	**Activity:** Obtain certification. **Timing:** Prior to construction. **Frequency:** Once prior to construction.	**Contractor** Initials Date	**Calaveras County Water District** Initials Date	Coordination with RWQCB	
BIO-6: A Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code must be obtained for any activity that will impact the bed, bank, or channel of any river, stream or lake.	**Activity:** Obtain permit. **Timing:** Within 14 days prior to construction activity. **Frequency:** Once prior to construction.	**Project Biologist** Initials Date	**Calaveras County Water District** Initials Date		

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-7: Implement the following best management practices, where appropriate, during project construction: A. Limit unnecessary removal of healthy California native Tan Oak, Canyon Live Oak, and Blue Oak and monitor potentially compromised trees for 3-years after construction. B. Delineate root zone areas of trees to be preserved with high visibility fencing and avoid root compaction by limiting size of heavy equipment used within these areas. C. Within drip zone, monitor excavations to minimize damage to large roots and cut away large roots obstructing work with hand pruning saw; do not rip or pull on large roots with heavy equipment. D. CCWD will coordinate with Caltrans to remove additional trees that may be deemed compromised and pose a safety or hazardous condition to roadway users.	**Activity:** Best Management Practices. **Timing:** Within 14 days prior to construction activity. **Frequency:** Once prior to construction.	**Project Biologist** Initials Date	**Calaveras County Water District** Initials Date		

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
CUL-1: Unanticipated Discovery In the event that any subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find: A. If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required. B. If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the Calaveras County Water District and applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to	**Activity:** If archaeological materials are found then ground disturbing activities must be suspended within a 100-foot radius of the find. **Timing:** During construction. **Frequency:** As required.	**Project Archaeologist** Initials Date	**Calaveras County Water District** Initials Date	Possible coordination with State Historic Preservation Office (SHPO).	

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
be eligible for inclusion in the NRHP or CRHR. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.					
CUL-2: Human Remains Discovery If human remains of any kind are found during construction, or remains that are potentially human, a qualified professional archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Calaveras County Coroner (per §7050.5 of the Health and Safety Code). The provisions of §7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, then the Coroner will notify the Native American Heritage Commission, which then will designate a Native American Most Likely Descendant (MLD) for the project (§5097.98 of the Public Resources Code). The designated	**Activity:** If archaeological materials are found then ground disturbing activities must be suspended within a 100-foot radius of the find. **Timing:** During construction. **Frequency:** As required.	**Project Archaeologist** Initials Date	**Calaveras County Water District** Initials Date	Possible coordination County Coroner	

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, then the NAHC can mediate (§5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.					

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
HHM-1: To prevent fires, the contractor will prepare and implement a fire safety plan for construction operations, such as welding, and use construction equipment with fire prevention devices pursuant to Public Resource Code 4442. The fire safety plan will identify suppression measures to implement in the event of an accidental fire, which may include using watering trucks or water from the existing pipeline to suppress the fire.	**Activity:** Fire Safety Plan. **Timing:** During construction. **Frequency:** As required.	**Contractor** Initials Date	**Calaveras County Water District** Initials Date		
NO-1 The CCWD shall ensure that the construction contractor implements the following measures, as appropriate, during construction activities: A. Noise producing construction activities shall be limited to the hours of 7:00 a.m. and 6:00 p.m. when activities occur within 500 feet of a residential or other noise sensitive land use, unless activities are required outside these hours by Caltrans or other jurisdictional agencies. B. All construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers'	**Activity:** Limit construction hours, maintain equipment, minimize use next to residences. **Timing:** During construction. **Frequency:** As required.	**Contractor** Initials Date	**Calaveras County Water District** Initials Date		

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
specifications. C. The simultaneous operation of multiple types of construction equipment within 100 feet of residences shall be minimized, to the extent practicable. Equipment not in use shall not be left idling for more than 5 minutes.					
NO-2 The CCWD will work within the construction contractor and nearby residents to minimize disturbance to occupied residences. Before construction near noise-sensitive receptors, the CCWD shall provide written notification to potential affected receptors, identifying the type, duration, and frequency of construction operations, as well as contractor contact information.	**Activity:** Minimize disturbance. **Timing:** During construction. **Frequency:** As required.	**Contractor** _____ Initials _____ Date	**Calaveras County Water District** _____ Initials _____ Date		

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
P-1: Unanticipated Discovery of Paleontological Resources. If subsurface deposits believed to be paleontological in origin are discovered during construction, then all work must halt within a 50-foot radius of the discovery and CCWD shall be notified within 24 hours or as soon as practicable. A Qualified Professional Paleontologist shall be retained and empowered to halt or divert ground-disturbing activities. A plan for monitoring and fossil recovery must be completed and implemented before ground-disturbing activities can recommence in the area of the fossil find to allow for the recovery of the find. Recovered fossils shall be analyzed to a point of identification and curated at an established accredited museum repository with permanent retrievable paleontological storage. A technical memorandum of findings shall be prepared with an appended itemized inventory of identified specimens and submitted with the recovered specimens to the curation facility.	**Activity:** If archaeological materials are found then ground disturbing activities must be suspended within a 100-foot radius of the find. **Timing:** During construction. **Frequency:** As required.	**Project Archaeologist** Initials Date	**Calaveras County Water District** Initials Date	Possible coordination with the County Coroner	

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
TRA-1: Construction Traffic Management Plan Prior to commencing construction of the Proposed Project, a construction traffic management plan (Traffic Plan) shall be prepared by the Contractor, in coordination with the CCWD, California Department of Transportation, and Calaveras County. The management plan shall be detailed and comprehensive to adequately mitigate potential conflicts between traffic and construction-related activities. The Traffic Plan will include, at a minimum, the following measures: A Contractor's work within the State's right of way is subject to general permit conditions of Caltrans' issued encroachment permit including implementing traffic controls, restricting work on holidays and weekends, and notifying the traffic management center daily. B. Adequate off-street worker parking shall be provided along the pipeline route. C. A flagman or signal-controlled one-way traffic-control operation shall be provided where two-way traffic operation is impractical or unsafe. D. Roadway disturbances shall be minimized during non-working hours; open trenches shall be covered with steel plates or by	**Activity:** Traffic Management Plan. **Timing:** During construction. **Frequency:** As required.	**Project Archaeologist** Initials Date	**Calaveras County Water District** Initials Date		

Mitigation Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
the use of temporary backfill during non-working hours. Steel traffic plates will only be allowed in areas of the State's right of way as permitted by Caltrans and shall meet the State's specifications and requirements. E. Construction sites shall be posted with appropriate warning signage at least one week prior to construction to allow local residents to select an alternative travel route. F. Construction staging areas shall be provided to minimize storage of equipment and materials in the traffic lanes. G. All paved surfaces disturbed during construction shall be repaved when work is complete. H. The Contractor shall provide traffic control and diversion plans for review and approval by each appropriate jurisdiction. I. To minimize delays in emergency response during project construction, emergency providers shall be notified in advance. Police, fire protection, and ambulance services shall be notified in advance of the times, duration, and location of construction activities throughout the project's construction process.					

To be signed when all mitigation measures have been completed:

Signature

Charles Palmer, District Engineer
Calaveras County Water District

Printed Name

Date

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ATTACHMENTS

Attachment A – Draft Initial Study and Mitigated Negative Declaration

THIS PAGE INTENTIONALLY LEFT BLANK

DRAFT

Initial Study and Mitigated Negative Declaration

Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project

Lead Agency:

Calaveras County Water District
120 Toma Court
San Andreas, California 95249

May 2018

30 YEARS
ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

THIS PAGE INTENTIONALLY LEFT BLANK

DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION EBBETTS PASS REACH 1 WATER TRANSMISSION PIPELINE CAPITAL IMPROVEMENT PROJECT

Lead Agency: Calaveras County Water District

Project Location: The Proposed Project is located on the western slope of the Sierra Nevada Mountains along State Route 4 (SR-4) in Calaveras County, California. The site is approximately 67 miles southeast of the City of Sacramento and 52 miles northeast of the City of Stockton. The pipeline replacement project starts at the Hunter Dam Water Treatment Plant (WTP) southeast of the community of Avery, California and extends south approximately 4.5 miles to the community of Forest Meadows California.

Project Description: The Calaveras County Water District (CCWD) is proposing approximately 24,500 lineal feet of new water pipeline, hydrants, blow-off valves, and main line valves to replace existing facilities constructed in 1965. Except for a ± 1,080-foot long section of pipeline near the Hunter Dam WTP, the existing Ebbetts Pass Reach 1 pipeline is located within Caltrans SR-4 right-of-way (ROW). The alignment is from approximately post mile PM 32.3 (West of Forest Meadow) to PM 37.0 (near Hunter Dam Rd, just west of Avery, CA. The replacement pipeline will also be placed within the SR-4 ROW and constructed as close as practical to the existing pipeline, which is primarily located past edge of pavement within the south shoulder.

Public Review Period: May 16, 2018 – June 15, 2018

Mitigation Measures Incorporated into the Project to Avoid Significant Effects

AQ-1: In accordance with CCAPCD requirements, CCWD will submit a dust control plan to the County for approval. CCAPCD requires the submittal of a dust control plan for approval prior to surface disturbance larger than 1 acre. CCWD and contractor will be responsible for ensuring that all reasonable dust control measures are implemented in a timely manner during all phases of project development and construction.

AQ-2: In order to reduce emissions related to construction equipment and vehicle use, the contractors will implement the following measures, as appropriate, during construction:

A. Maintain all construction equipment in proper tune according to manufacturer's specifications.
B. Maximize, to the extent feasible, the use of diesel construction equipment meeting the California Air Resource Board's 1996 or newer certification standard for off-road heavy-duty diesel engines.
C. Utilize heavy equipment equipped with or install diesel oxidation catalysts, catalyzed diesel particulate filters, or other approved emission reduction retrofit devices.
D. Minimize length of time construction equipment is left idling.
E. Minimize the number of construction vehicles operating concurrently.
F. Locate construction vehicle staging areas as far from residences as practicable.

BIO-1: Consult with CDFW to determine appropriate buffer between construction activities and rare plant populations identified during protocol-level surveys to ensure impact avoidance. A qualified biologist shall be retained to oversee placement of ESA fencing around rare plant populations within the project area to provide avoidance during construction activities.

BIO-2: Conduct a pre-construction nesting bird survey of suitable habitat along the project corridor within 14 days of the commencement of construction during the nesting season (1 February through 31 August). If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in consultation with CDFW. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. No further measures are necessary once the young are independent of the nest. Pre-construction nesting surveys are not required for construction activity outside the nesting season. The survey may be performed in two or more phases according to the planned construction activity and potential disturbances.

BIO-3: Conduct a pre-construction clearance survey for special-status bats within the limits of active construction within 14 days of the start of construction activities. If roosting bats are found, consult with CDFW to implement appropriate measures (e.g., monitoring, roost exclusion). For each phase of construction, the survey will be conducted for the applicable limits of construction activity.

BIO-4: Authorization to fill wetlands under the Section 404 of the federal CWA (Section 404 Permit) must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit for the Project will be prepared and submitted to USACE, and will include jurisdictional determination, direct, avoided, and preserved acreages of Waters of the U.S.

BIO-5: A Water Quality Certification or waiver pursuant to Section 401 of the CWA, as issued by RWQCB, must be obtained for Section 404 permit actions.

BIO-6: A Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code must be obtained for any activity that will impact the bed, bank, or channel of any river, stream or lake.

BIO-7: Implement the following best management practices, where appropriate, during project construction:

A. Limit unnecessary removal of healthy California native Tan Oak, Canyon Live Oak, and Blue Oak and monitor potentially compromised trees for 3-years after construction.
B. Delineate root zone areas of trees to be preserved with high visibility fencing and avoid root compaction by limiting size of heavy equipment used within these areas.

C. Within drip zone, monitor excavations to minimize damage to large roots and cut away large roots obstructing work with hand pruning saw; do not rip or pull on large roots with heavy equipment.

D. CCWD will coordinate with Caltrans to remove additional trees that may be deemed compromised and pose a safety or hazardous condition to roadway users.

CR-1: Unanticipated Discovery

In the event that any subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

A. If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.

B. If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the Calaveras County Water District and applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.

CR-2: Human Remains Discovery

If human remains of any kind are found during construction, or remains that are potentially human, a qualified professional archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Calaveras County Coroner (per §7050.5 of the Health and Safety Code). The provisions of §7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, then the Coroner will notify the Native American Heritage Commission, which then will designate a Native American Most Likely Descendant (MLD) for the project (§5097.98 of the Public Resources Code). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, then the NAHC can mediate (§5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where

they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

HHM-1: To prevent fires, the contractor will prepare and implement a fire safety plan for construction operations, such as welding, and use construction equipment with fire prevention devices pursuant to Public Resource Code 4442. The fire safety plan will identify suppression measures to implement in the event of an accidental fire, which may include using watering trucks or water from the existing pipeline to suppress the fire.

NO-1 The CCWD shall ensure that the construction contractor implements the following measures, as appropriate, during construction activities:

A. Noise producing construction activities shall be limited to the hours of 7:00 a.m. and 6:00 p.m. when activities occur within 500 feet of a residential or other noise sensitive land use, unless activities are required outside these hours by Caltrans or other jurisdictional agencies.

B. All construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.

C. The simultaneous operation of multiple types of construction equipment within 100 feet of residences shall be minimized, to the extent practicable. Equipment not in use shall not be left idling for more than 5 minutes.

NO-2 The CCWD will work within the construction contractor and nearby residents to minimize disturbance to occupied residences. Before construction near noise-sensitive receptors, the CCWD shall provide written notification to potential affected receptors, identifying the type, duration, and frequency of construction operations, as well as contractor contact information.

P-1: Unanticipated Discovery of Paleontological Resources. If subsurface deposits believed to be paleontological in origin are discovered during construction, then all work must halt within a 50-foot radius of the discovery and CCWD shall be notified within 24 hours or as soon as practicable. A Qualified Professional Paleontologist shall be retained and empowered to halt or divert ground-disturbing activities. A plan for monitoring and fossil recovery must be completed and implemented before ground-disturbing activities can recommence in the area of the fossil find to allow for the recovery of the find. Recovered fossils shall be analyzed to a point of identification and curated at an established accredited museum repository with permanent retrievable paleontological storage. A technical memorandum of findings shall be prepared with an appended itemized inventory of identified specimens and submitted with the recovered specimens to the curation facility.

TRA-1: Construction Traffic Management Plan

Prior to commencing construction of the Proposed Project, a construction traffic management plan (Traffic Plan) shall be prepared by the Contractor, in coordination with the CCWD, California Department of Transportation, and Calaveras County. The management plan shall be detailed and comprehensive to adequately mitigate potential conflicts between traffic and construction-related activities. The Traffic Plan will include, at a minimum, the following measures:

A Contractor's work within the State's right of way is subject to general permit conditions of Caltrans' issued encroachment permit including implementing traffic controls, restricting work on holidays and weekends, and notifying the traffic management center daily.

B. Adequate off-street worker parking shall be provided along the pipeline route.

C. A flagman or signal-controlled one-way traffic-control operation shall be provided where two-way traffic operation is impractical or unsafe.

D. Roadway disturbances shall be minimized during non-working hours; open trenches shall be covered with steel plates or by the use of temporary backfill during non-working hours. Steel traffic plates will only be allowed in areas of the State's right of way as permitted by Caltrans and shall meet the State's specifications and requirements.

E. Construction sites shall be posted with appropriate warning signage at least one week prior to construction to allow local residents to select an alternative travel route.

F. Construction staging areas shall be provided to minimize storage of equipment and materials in the traffic lanes.

G. All paved surfaces disturbed during construction shall be repaved when work is complete.

H. The Contractor shall provide traffic control and diversion plans for review and approval by each appropriate jurisdiction.

I. To minimize delays in emergency response during project construction, emergency providers shall be notified in advance. Police, fire protection, and ambulance services shall be notified in advance of the times, duration, and location of construction activities throughout the project's construction process.

THIS PAGE INTENTIIONALLY LEFT BLANK

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACAPCD	Calaveras County Air Pollution Control District
ACRA	Calaveras County Recreation Agency
ACTC	Calaveras County Transportation Commission
ACUSD	Calaveras County Unified School District
AF	Acre-feet
AFPD	Calaveras Fire Protection District
AG	Agriculture General
AhB	Aiken loam
AhC	Aiken loam
APE	Area of Potential Effects
APN	Assessor's Parcel Number
ARSA	Calaveras Regional Sanitation Authority
ATCM	Air Toxics Control Measure
AWA	Calaveras County Water District
AWS	Calaveras Water System
BMPs	Best Management Practices
BO	Biological Opinion
BOD	Biochemical oxygen demand
BRA	Biological Resources Assessment
C1	Commercial
CAA	Clean Air Act
CAL FIRE	California Department of Forestry and Fire Protection
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CARI	California Aquatic Resources Inventory
CAWP	Central Calaveras Water Project
CbE	Cohasset very cobbly loam
CCR	California Code of Regulations
CCWD	Calaveras County Water District
CDBG	Community Development Block Grant
CDC	California Department of Conservation
CDCR	California Department of Corrections and Rehabilitation
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	Methane
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2	Carbon dioxide
CO2e	Carbon Dioxide-equivalent

ACRONYMS AND ABBREVIATIONS

CRHR	California Register of Historical Resources
CWA	Clean Water Act of 1972
Db	Decibel
Dba	A-weighted decibel
Dbh	Diameter at breast height
DEIR	Draft Environmental Impact Report
DOC	California Department of Conservation
DPM	Diesel Particulate Matter
EAP	Energy Action Plan
EBMUD	East Bay Municipal Utility District
EDCAPCD	El Dorado County Air Pollution Control District
EIR	Environmental Impact Report
EOC	Emergency Operations Center
EOP	Emergency Operation Plan
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
GHG	Greenhouse gas
HAP	Hazardous Air Pollutants
HCP	Habitat Conservation Plan
Hp	Horsepower
HUD	Housing and Urban Development
IPCC	International Panel on Climate Change
IRWMP	Integrated Regional Water Management Plan
KWh	Kilowatt hour
Ldn	Average day-night 24-hour average sound level
LEED	Leadership in Energy and Environmental Design
Leq	Equivalent sound level over a given time period
Lmax	Typical Noise Levels from construction equipment
LOS	Level of Services
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
MLD	Most Likely Descendant
MmE	McCarthy and Jiggs very cobbly loams
MND	Mitigated Negative Declaration
Mo	Mixed alluvial land
MOU	Memorandum of Understanding
MRZ	Mineral resource zones
MSL	Mean sea level
MT	Megaton
MvC	Musick very rocky sandy loam
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards

ACRONYMS AND ABBREVIATIONS

NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Planning
NCIC	North Central Information Center
ND	Negative Declaration
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOA	Naturally occurring asbestos
NOI	Notice of Intent
NO_X	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
PG&E	Pacific Gas & Electric Company
PM_{10}	Particulate matter less than 10 micrometers
$PM_{2.5}$	Particulate matter less than 2.5 micrometers
ppv	Peak Particle Velocity
PRV	Pressure reducing valve
PS	Public Service
PSI	Pounds per square inch
PUD	Public Utilities District
R1	Residential
Ro	Rock land
ROG	Reactive organic gases
RR	Rural Residential
RTP	Regional Transportation Plan
RWDs	Reports of waste discharge
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SCREEN3	EPA dispersion model
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SR	State Route
SSC	Species of Special Concern
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant
TDS	Total Dissolved Solids
tpd	Tons per day
TPZ	Timberland

ACRONYMS AND ABBREVIATIONS

TSS	Total Suspended Solids
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	United States Fish and Wildlife Service
VDECS	Verified Diesel Emissions Control Strategy
VOC	Volatile Organic Compounds
WARF	Western Calaveras Recycling Facility
WBWG	Western Bat Working Group
WDR	Waste discharge requirements
WUI	Wildland urban interface

SECTION 1.0 INTRODUCTION

1.1 Summary

Project Title:	Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project
Lead Agency Name and Address:	Calaveras County Water District 120 Toma Court, San Andreas, California 95249
Contact Person and Phone Number:	Charles Palmer P.E., Project Manager (209) 754-3174-5206
Project Location:	SR-4 between the communities of Avery and Forest Meadows from near the Hunter Dam WTP to 4000 feet west of Forest Meadows Drive
General Plan Designation:	Avery Hathaway Community Plan Area: Resource Production – USFS, Public Service, Single Family Residential, Rural Residential, Industrial, and Professional Office; Ebbetts Pass Highway Plan: Single Family Residential and Commercial
Zoning:	Right-of-Way (ROW), General Forest (GF)

1.2 Introduction

This Initial Study has been prepared to identify and assess the anticipated environmental impacts of the Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project (Project).

The water pipeline replacement Project begins near the Hunter Dam Water Treatment Plant (WTP), southeast of the community of Avery and continues west to the community of Forest Meadows, in Calaveras County California. The Project includes the installation of approximately 24,500 lineal feet (approximately 4.6 miles) of new 10 or 12-inch diameter ductile iron pipe to replace the existing Reach 1 water pipeline facilities. Except for the ± 1,080-foot long section of pipeline near the Hunter Dam WTP, the existing Ebbetts Pass Reach 1 pipeline is located within SR-4 right-of-way (ROW). The alignment is from approximately post mile PM 32.3 (West of Forest Meadows) to PM 37.0 (near Hunter Dam Road, just southeast of Avery, CA) a total of approximately 25.3 acres. The Project will be placed within the SR-4 ROW and constructed as close as practical to the existing pipeline, primarily located past edge of pavement within the south shoulder of SR-4.

1.3 Regulatory Guidance

This document has been prepared to satisfy the California Environmental Quality Act (CEQA) (Pub. Res. Code, Section 21000 *et seq.*) and State CEQA Guidelines (14 CCR 15000 *et seq.*). CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those Projects. A CEQA Initial Study is generally used to determine which type of CEQA document (e.g. Negative Declaration [ND], Mitigated Negative Declaration [MND], or Environmental Impact Report [EIR]) is appropriate for a Project.

This document is an Initial Study which concludes that a Mitigated Negative Declaration is the appropriate California Environmental Quality Act (CEQA) document for the Proposed Project). This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with the California Environmental Quality Act, Public Resources Code Section 21000 et seq., and the State CEQA Guidelines, California Code of Regulations Section 15000 et seq.

An initial study is conducted by a lead agency to determine whether a project may have a significant effect on the environment. In accordance with CEQA Guidelines Section 15063, an environmental impact report (EIR) must be prepared if an initial study indicates that the proposed project under review may have a potentially significant impact on the environment which cannot be avoided or mitigated to a level that is less than significant. A negative declaration may be prepared if the lead agency also prepares a written statement describing the reasons why the proposed project would not have a significant effect on the environment and therefore why it does not require the preparation of an EIR (CEQA Guidelines Section 15371). Pursuant to CEQA Guidelines Section 15070, a negative declaration shall be prepared for a project subject to CEQA when either:

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

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

   (1) Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed negative declaration is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and
   (2) There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant effect on the environment.

1.4 Lead Agency

The lead agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines Section 15051 provides criteria for identifying the lead agency. In accordance with CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." Based on the criteria above, the Calaveras County Water District (CCWD) is the Lead Agency for this Initial Study.

SECTION 2.0 PROJECT DESCRIPTION

2.1 Project Location

The Proposed Project is located in Calaveras County, California on the western slope of the Sierra Nevada, approximately 65 miles southeast of the City of Sacramento and 52 miles northeast of the City of Stockton (**Figure 1**. *Regional Location*). The water pipeline replacement project begins near the Hunter Dam Water Treatment Plant (WTP), southeast of the community of Avery and continues south to the community of Forest Meadows. The replacement pipeline will be placed within the SR-4 ROW and constructed as close as practical to the existing pipeline, which is primarily located past edge of pavement within the south shoulder (**Figure 2**. *Project Location*).

The Project includes the installation of approximately 24,500 lineal feet (approximately 4.6 miles) of new 10 or 12-inch diameter ductile iron pipe, pressure reducing valve stations (PRVs), fire hydrants and pipeline valves to replace the existing Reach 1 water pipeline facilities. Except for a ± 1,080-foot long section of pipeline near the Hunter Dam WTP, the existing Ebbetts Pass Reach 1 pipeline is located within the SR-4 ROW[1]. The alignment is from approximately post mile PM 32.3 (west of Forest Meadows) to PM 37.0 (near Hunter Dam Rd) approximately 25.3 acres.

2.2 Project Setting

The majority of the Proposed Project alignment is located within the existing ROW for SR-4. This roadway is primarily surrounded by a mixed conifer forest setting with a scattering of rural residential, public service, commercial and industrial uses along the 4.5-mile Project area. The easternmost approximately 1,080-foot section of the pipeline corridor is located within the Stanislaus National Forest. This segment starts just north of the north branch (gravel road) of Hunter Dam Road and extends south crossing the north branch and the paved Hunter Dam Road before reaching the SR-4 right of way just north of Commercial Way.

Ground elevations in the Project area range from approximately 3,000 to 3,350 feet above mean sea level (amsl). Vegetation consists primarily of mixed conifer forest with pines, cedars, oaks and firs as the dominate tree species. While the CCWD has maintained a path clear of significant tree growth for much of the existing pipeline, mature trees, mostly pine, with driplines within the limits of the new pipeline trench will typically have to be removed. While the Project route does not intersect any major creeks or rivers there are ephemeral streams and drainages which the pipeline improvements will cross.

Geologic mapping of the pipeline route suggests that the Project area is underlain by granodiorite with weathered rock and residual soil overlying bedrock. Project geotechnical engineers anticipate that the volcanoclastic alluvium and rocks of the Mehrten formation may be present over the granodiorite.

[1] The ROW varies in width depending on location from approximately 36 feet to 51 feet (1/2 road width).

THIS PAGE INTENTIIONALLY LEFT BLANK

Project Boundary - 25.2 acres

Calaveras County, California
§24, 25, 26, and 27, T.04N, R.14E, and
§18 and 19, T.04N, R.15E MDBM
Latitude (NAD83): 38.179446°
Longitude (NAD83): -120.388656°
Watershed: Upper Calaveras California (18040011) and Upper Stanislaus (18040010)

Scale in Feet
0 2,000

Murphys (2001, NAD27) and Stanislaus (2001, NAD27)
CA 7.5-minute Topographic Quadrangles
US Geological Survey.

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Location Vicinity\CCWDEP_LnV_20180507.mxd (MRG) JSwager 5/8/2018

Map Date: 3/22/2018

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 1. Regional Location

2017-108 CCWD Ebbetts Pass

THIS PAGE INTENTIIONALLY LEFT BLANK

2.3 Project Background

Calaveras County Water District (CCWD) serves roughly 17,000 water and wastewater connections (a permanent resident population of about 20,700) throughout six different water service areas within Calaveras County: Jenny Lind, Copper Cove/Copperopolis, Wallace, Ebbetts Pass, Sheep Ranch and West Point. The service area has a relatively low growth rate of less than one percent per year; 2040 projected permanent population is projected to be just over 25,000 people (CCWD 12016).

A large component of the CCWD's Capital Renovation and Replacement Program (Capital R&R) is focused on replacing water distribution mains that have reached the end of their useful lives (CCWD 2016). CCWD is proposing to replace an existing water pipeline with a new pipeline to improve the distribution system reliability in the Ebbetts Pass Service Area. This improvement was identified in the CCWD 2015 Urban Water Management Plan and is part of three projects in the Ebbetts Pass Service Area that replaces approximately 47,000 linear feet of pressurized water mains that have reached the end of their usable life or have been identified as being problematic due to leaks.

2.3.1 Calaveras County Water District

CCWD was organized in November 1946 under the laws of the State of California as a public agency to develop and administer water resources and wastewater services in Calaveras County. The District owns two hydropower projects: the North Fork Stanislaus Hydroelectric Development Project (FERC 2409), completed in 1990, and the New Hogan Power Project (FERC 2903) on the Calaveras River, completed in 1986. (CCWD 2016).

CCWD provides water to its customers from four sources: the Calaveras River, the Stanislaus River, the upper Mokelumne River (or its tributaries), or groundwater from the portions of the Eastern San Joaquin Groundwater Subbasin underlying the western portion of the county (CCWD 2016). In July of 1965 CCWD received a Special Use Permit for constructing, operating, and maintaining a water transmission and storage facility serving the Calaveras County Water District Improvement District No.5 with the US Department of Agriculture Forest Service.

2.3.2 Ebbetts Pass Service Area

Within the Project area, CCWD provides water to the Ebbetts Pass Service Area from the North Fork of the Stanislaus River via a diversion in the North Fork Hydroelectric Project's Collierville Tunnel. The Ebbetts Pass system is the CCWD's largest service area, serving 6,027 connections. This service area delivered 1,177 acre-feet (AF) in 2015, mostly for residential and landscaping use (CCWD 2016).

The Ebbetts Pass/Highway 4 service area covers nearly 8,500 acres in the northeastern part of the County along the SR-4 Corridor. This area occupies the North Fork Stanislaus River drainage, which is tributary to the Stanislaus River and New Melones Reservoir. The Ebbetts Pass service area covers the SR-4 Corridor from Avery to Arnold. The Ebbetts Pass Improvement District was formed on January 28, 1964 to provide water and wastewater services and includes the Forest Meadows subdivision. The system includes six wholesale connections in addition to retail connections.

THIS PAGE INTENTIIONALLY LEFT BLANK

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Location_Vicinity\CCWDEP_Loc_20170913.mxd (JL)-jlotta 9/14/2017

Map Date: 9/13/2017

Service Layer Credits: Copyright:© 2015 DeLorme
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 2. Project Location

2017-108 CCWD Ebbetts Pass

THIS PAGE INTENTIONALLY LEFT BLANK

The Ebbetts Pass system receives water supplies from North Fork of the Stanislaus River through the so-called Mill Creek "Tap". This Tap is a direct diversion out of the Collierville Tunnel, a rock drilled tunnel that feeds into the North Fork Hydroelectric Project's largest generation facility, the Collierville

Powerhouse. Additionally, the Mill Creek Tap diverts a portion of the water to serve the Utica Water and Power Authority's power project, which also conveys water supplies for Murphys and Angels Camp. CCWD retains the water rights to serve up to 9,000 AFY to this area, which resides outside of the District's service areas. The existing Hunters Water Treatment Plant, that serves the Ebbetts Pass area, has a capacity of 4 million gallons per day (mgd). The distribution system contains 17 storage tanks, 10 pumping stations, and 65 pressure zones. The upper system hydraulic grade line varies from fewer than 3,000 feet in elevation to more than 5,355 feet (CCWD 2016).

2.4 Project Description

The Proposed Project is for the replacement of an existing water transmission pipeline and associated facilities (pressure reducing valve stations, air relief valves, blow-off valves, main line valves, and fire hydrants).

The existing 8-inch diameter Ebbetts Pass Reach 1 pipeline is owned and operated by the CCWD. The existing pipeline was constructed in 1965 and delivers water treated from the District's Hunter Dam Water Treatment Plant (WTP) to CCWD customers located along the SR-4 corridor from Avery, south and west, to services located approximately 4,000 feet west of Forest Meadows Drive. A Project alignment map is included in **Figure 3**. *Proposed Project Alignment*. Several modifications were made during the planning process to the limits of work for the Project in order to avoid sensitive biological and cultural resources in the area. The limits of work utilized for this IS are provided in Appendix E and correspond to the Project area or Project site as described in this document.

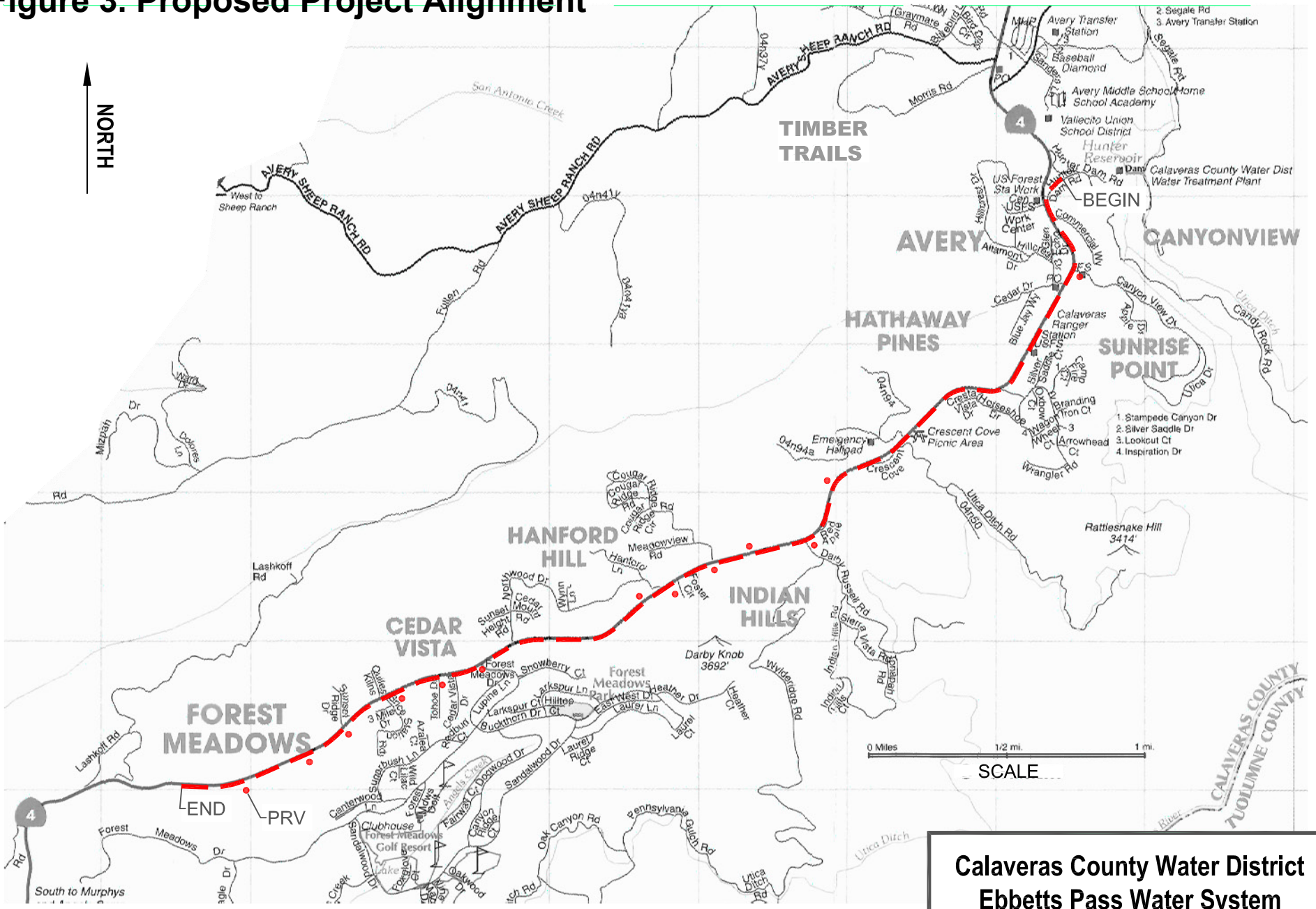
2.4.1 Pipeline

The existing pipeline requires replacement due to age, poor condition and frequent repairs. Approximately 24,500 lineal feet of new 10- or 12-inch diameter ductile iron pipe will be used to replace the existing pipeline. The Project construction will be sequenced such that existing CCWD customers will not be subjected to unusual or prolonged service outages with the placement of the Proposed Project.

The pipeline is typically installed in approximately a 30-inch wide trench with 36 to 48-inches of cover over the top of the pipe. The trench is 5 to 6 feet deep on average but the depth varies and can be as much as 7-10 feet deep in some locations. The new pipeline may be located near the top of slope, near the toe of slope or near the existing SR-4 road shoulder. Between Commercial Way and Darby Russell Road there is also located, parallel to the existing pipeline, underground PG&E power improvements. Ideally, the new pipeline will be placed between the existing pipeline and the existing underground power trench. Where this is not possible, the new pipeline will be placed between the existing pipeline and SR-4 shoulder. If it cannot be avoided, the worst case is that existing pipeline will have to be excavated and removed within some sections of the project so the new pipeline can be installed in exactly the same location.

THIS PAGE INTENTIONALLY LEFT BLANK

Figure 3. Proposed Project Alignment



Water Pipeline Alignment

Pressure Regulating Valve/Station (PRV)

Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project

By: C.Palmer Aug.2015 / Jan.2017

THIS PAGE INTENTIONALLY LEFT BLANK

Where existing pipelines that cross SR 4 need to be replaced, they will be replaced with bore and case construction requiring no open cut construction across SR 4. In a few cases, there are existing service connections within the Project area that are provided without PRVs and are typically located in the upper elevations of the Project.

All construction of the new pipeline will be performed in conformance with the most current industry standards including National Science Foundation (NSF) 60/61, American Water Works Association (AWWA) and State of California Waterworks standards assuring the public health and safety. The pipeline will be used for the transmission of potable water for domestic use as well as supply fire flow for communities along SR-4. The new pipeline will be fully disinfected and pass bacteriological tests before sections of new piping are placed into service.

2.4.2 Pressure Reducing Valve Stations

The existing and proposed pipeline will operate at pressures up to 250 pounds per square inch gauge (psig)[2]. Per the District's Standards, pressures delivered to CCWD customers should not exceed a maximum of 120 psig and ideally should be around 50-70 psi for household use. To reduce water pressures delivered to their customers, CCWD has installed 12 Pressure Reducing Valve Stations (PRVs) within the Proposed Project area. PRV's consist of a large buried concrete vault approximately 7-ft x 9-ft plan dimensions by 6-ft deep and the various pressure control valves, surge relief valves and isolation valves located inside this vault. The existing PRV Station located near the intersection with Tahoe Drive has recently been constructed and will not be replaced with the Proposed Project improvements. The PRV's serving Red Apple Ranch subdivision at Rome Court and Red Apple Drive are recent additions and are to be reused, as well. The remaining PRVs located within the Proposed Project reach will likely be replaced or relocated as part of the scope of improvements.

2.4.3 Fire Hydrants and Pipeline Valves

Existing fire hydrants along SR-4 now served directly by the existing pipeline will be removed and new hydrants will be installed and connected to the replacement pipeline. Additional hydrants may also be placed with the new pipeline.

Air relief valves will be place at all high spots in the elevation of the pipeline where any air accumulating in the pipeline may collect and be vented. These valves also vent air during filling and draining of the pipeline, such as during construction or subsequent draining for maintenance or repair of the pipeline. Most of the air relieve valve assembly is buried underground with only vent pipe and small insulating cover typically extending approximately 18-inches above ground.

There are currently blow-off valves at isolated low points along the existing pipeline route. The blow-off valves are placed at low points along the pipeline alignment for long term maintenance to be able to

[2]PSI and PSIG are both units of measurement for describing the amount pressure a gas or fluid is exerting. However, PSIG specifies what the measurement is relative to, whereas PSI does not. In both units, the letters "psi" is an abbreviation for "pounds per square inch. PSIG stands for "pounds per square inch gauge," or gage. PSIG units are relative to atmospheric pressure (Reference 2017).

drain the line in the case of an emergency repair. These will be removed and replaced with current CCWD blow-off standard valves and reconnected to the new pipeline.

Existing main line valves located along the pipeline will also be replaced with the new pipeline improvements. Additional main line valves will be placed with the Reach 1 improvements to provide for better maintenance and isolation and the valves will be utilized in the event of a future water leak/repair. The valves are typically resilient seat gate valves in accordance with applicable AWWA industry standards for water systems.

2.4.4 Temporary Staging/Laydown Areas

The Proposed Project includes up to four staging / laydown areas along the pipeline route. These areas may temporarily stage equipment and materials in the designated work zones as necessary to perform daily work. Also, up to two of the staging areas would be used for the construction trailer, parking equipment and vehicles, storing materials, storage containers, etc. that is outside the SR-4 right-of-way on a larger property. As of the date of this document the staging areas are proposed as follows:

- CCWD owned parcel near Forest Meadows Sewer Lift Station
- Ebbetts Pass Ministries, Parking Area and Mini Storage Lot
- USFS Parking Lot
- Utica Power Authority Parking Area, Storage Area; Southwest of Hunter Dam WTP (east end of project)

2.5 Operations and Maintenance

Periodic flushing of hydrants on the proposed pipeline alignment and exercising valves will be required to maintain the system. Daily operation of the pipeline will have little or no demonstrable effects on the surrounding environment.

2.6 Project Construction, Timing, and Crew

The Proposed Project would be installed in a trench, with an average depth of 5 - 6 feet and maximum depth of 10 feet below ground surface. The Project includes the replacement/installation of 24,500 lineal feet of pipeline, associated Pressure Reducing Stations and several small branch pipelines that cross SR-4.

It is anticipated that the Proposed Project would be constructed over a two-year period starting in 2018. Construction will be suspended for the winter in mid-October. The project will then resume in May 2019 and is anticipated to be completed in 2019. The actual construction period will occur over eight months.

Construction crews will vary in size from a minimum of four at close out of the project to 12 to 25 depending on phase of construction (See **Table 2.6-1**). The maximum number of employees at any one time along the Project route is estimated at 25 personnel.

Table 2.6-1 Construction Crews by Phase

Phase	Construction Workers	Equipment	Total number of personnel
Mobilization	Project manager, superintendent, 3 crew members	Personnel vehicles	5
Clearing, grubbing, erosion control, safety, rough grading	2 Crews; Each Crew: Forman and 3 crew members	Light equipment	8
Pipeline excavation, placement and Initial Backfill	2 Crews; Each Crew: Forman, Truck Driver, excavator operator, backhoe operater, 2 laborers	Hauling trucks, excavators and backhoes	12
Pavement restoration at crossings	Foreman, truck driver, backhoe and steel wheel roller compactor operator, 2 laborers	Hauling/delivery trucks. Backhoe, Steel Wheel Roller Compactor	5
Replace PRV Stations	Foreman, Truck Driver, Backhoe Operator, Pipe/Equipment Fitter, 1 laborer	Hauling/delivery trucks. and Backhoe	5
Bore and Case Crossing	2 Crews; Each Crew: Forman, Truck Driver, backhoe operator, bore and case equipment operator, 1 laborer	Hauling/delivering trucks, backhoe, bore and case equipment	10
Testing and Disinfection	Foreman, 2 laborers	Personnel vehicles	3
Punchlist, Close out, Demobilization	Forman, Truck Driver, 2 laborers	Hauling Trucks	4

2.7 Regulatory Requirements, Permits, and Approvals

The following approvals and regulatory permits may be required for implementation of the Proposed Project:

Table 2.7-2. Regulatory Requirements, Permits, and Approvals

Agency or Organization	Approval or Permit
State Water Resources Control Board (SWRCB)	*National Pollutant Discharge Elimination System (NPDES) Permit, Construction Storm Water General Permit (including the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) and best management practices*
Calaveras County	*Encroachment Permit*
Stanislaus National Forest	*Review for conformance with special use permit*
California Department of Fish and Wildlife	*1602 Streambed Alteration Agreement*
U.S. Army Corps of Engineers	*Clean Water Act Section 404 Permit*
State Water Resources Control Board	*401 Water Quality Certification*
California Department of Transportation	*Standard Encroachment Permit*
California Department of Forestry and Fire Protection	*Utility right-of-way exemption (Forest Practice Act)*
Calaveras County Air Pollution Control District	*Dust Control Plan*

SECTION 3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

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

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

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 in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. ☒

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

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

Charles Palmer, District Engineer
for the Calaveras County Water District

5/8/18
Date

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

The following section provides a discussion of environmental impacts associated with the Proposed Project relative to the environmental factors identified in Section 3.

4.1 Aesthetics

4.1.1 Environmental Setting

Regional Setting

Calaveras County is located in California's central Sierra Nevada region characterized by a wide variety of natural and cultural landscapes, ranging from low-elevation oak-covered foothills to high-elevation pine forests supporting the County's agricultural, timber, mining and tourism-based industries. The Mokelumne, Stanislaus and Calaveras rivers flow through the County collecting water from rain and melting snow to fill the County's numerous reservoirs.

Together with neighboring foothill counties, Calaveras County forms a central part of the Mother Lode Region. The County's history and natural setting are the foundation of its economically-important tourism industry and influences the physical and cultural character of many of the County's numerous and widely distributed small communities. Approximately 20 percent of the County is owned by the federal government, either as national forests, Bureau of Land Management lands or Bureau of Reclamation/Army Corp of Engineers land and water (Calaveras County 2016).

Project Area Visual Setting

The Project site is primarily composed of portions of a two-lane roadway (SR-4) and roadside habitat. The roadsides are a mixture of ruderal and undeveloped to scattered commercial and residential developments. Vegetation communities found within the ruderal and undeveloped portions of the Project site include annual forb meadow, annual grassland, ponderosa pine forest, and California black oak forest. The Project runs along SR-4 amidst a heavily wooded pine canopy with an understory of overgrown shrubs, ferns, and nonnative planted foliage. The SR-4 road alignment is located along the ridge or divide between the Stanislaus River Canyon and San Domingo Creek. The vegetation communities within the Project area include Sierran mixed conifer forest. The conifer forest is composed of a close canopy of Douglas fir, incense cedar, and white fir. Various plants and shrubs include Himalayan blackberry, western poison oak, and mountain misery. Wildlife commonly observed in this vegetation community includes western fence, American robin, western tanager, Douglas' squirrel, and long-eared chipmunk.

California Scenic Highways

The California Scenic Highway Program protects and enhances the scenic beauty of California's highways and adjacent corridors. A highway can be designated as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view (Caltrans 2016).

Caltrans has designated SR-4 (Ebbetts Pass Highway) as a state scenic highway from east of Arnold to the Alpine County line. SR-4 west of Arnold to the SR-49 intersection is designated as eligible as a state scenic highway but has not been officially designated as so. All of SR-49 within Calaveras County is considered to be eligible as a state scenic highway. Eligible state scenic highways are recognized for aesthetic quality; however, are not officially designated as scenic highways.

4.1.2 Aesthetics (I.) Environmental Checklist and Discussion

a)	Would the project have a substantial adverse effect on a scenic vista?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

The Proposed Project consists of the installation of a pipeline, pressure reducing valve stations, air release valves, fire hydrants and temporary construction staging areas. Once completed, the only portion of the Project that would be above ground would be the fire hydrants. The pipeline is typically installed in approximately a 30-inch wide trench with 36 to 48-inches of cover over the top of the pipe. The trench is 5 to 6 feet deep on average but the depth varies and can be as much as 7-10 feet deep in some locations. All construction, with the exception of the 1,080-feet of pipeline near the Hunter Dam WTP, would occur along SR-4. The project will require removal of approximately 131 of the 1,262 trees located within the limits of work. Trees to be removed are scattered along the 4 ½ mile construction corridor and there will be no clear cutting associated with the project. Views of the surrounding forest will remain intact. Therefore, changes to the existing visual character of the area would be temporary and associated with construction of the Proposed Project. Once the construction corridor is returned to preconstruction conditions, the view shed along this corridor will be similar to current conditions. There are no designated scenic vistas located within the vicinity of the Proposed Project. The impact, therefore, is 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?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

The majority of the Proposed Project alignment is located adjacent to SR-4. SR-4 from east of Arnold to the Alpine County line is an Officially Designated Scenic Highway (Caltrans 2017). SR-4 within the Project area has been identified as being eligible for designation as a scenic highway, but is not an officially designated scenic highway. As discussed above, the proposed project will include tree removal along the roadway; however, the trees will be removed individually (not clear-cut) and views of the surrounding forest will remain intact. Once construction is complete, the Project corridor will be returned to existing visual conditions. For these reasons, the Proposed Project would not permanently or temporarily

substantially damage scenic resources within a state scenic highway. As such, the impact is considered less than significant.

c)	Would the project substantially degrade the existing visual character or quality of the site and its surroundings?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

As described previously in item a), The Proposed Project consists of the installation of a pipeline, pressure reducing valve stations, air release valves, fire hydrants and temporary construction staging areas. Once completed, the only portion of the Project that would be above ground would be the fire hydrants. This would temporarily change the existing visual character along the alignment until construction is completed. This is a short-term, temporary impact that would not adversely affect the long-term visual character or quality of the Proposed Project alignment or surrounding land uses along the alignment. This impact is considered less than significant.

d)	Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

As described previously in item a), The Proposed Project consists of the installation of a pipeline, pressure reducing valve stations, air release valves, fire hydrants and temporary construction staging areas. Once completed, the only portion of the Project that would be above ground would be the fire hydrants. Construction would be implemented during day light hours. As the Project would introduce no new sources or light or glare, no impact would occur and no mitigation measures are required.

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

According to the California Department of Conservation (DOC) Important Farmland Finder website, and the Farmland Mapping and Monitoring Program, no DOC mapping exists for agriculturally important lands in Calaveras County (DOC 2017a, 2017b). However, the 1996 Calaveras County General Plan[3] includes a map titled "High Capability Agricultural Lands". As shown on this map, the Proposed Project site is not located within an area considered to be High Capability Agricultural Lands (Calaveras County 1996).

[3] Calaveras County is currently revising its General Plan. As of the writing of this Initial Study, this Plan has not yet been adopted by the County.

4.2.2 Agriculture and Forestry Resources (II.) Environmental Checklist and 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Proposed Project alignment transects several zoning designations however; none are zoned for agricultural uses. Additionally, all Project impact areas are located within the SR-4 ROW and the 1,080-foot section west of the CCWD Hunter Dam WTP and not within any productive farmland. Finally, according to DOC's Important Farmland Finder, no Prime, Unique, or Farmland of Statewide Importance farmlands are located within the Project site (DOC 2017a). Therefore, no impact would occur and no mitigation is required.

b)	Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

None of the Proposed Project alignment transects any land zoned for agricultural use or Williamson Act lands (DOC 2013). Therefore, the Proposed Project would have no impact in this area.

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))?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Proposed Project alignment transects several properties, including properties zoned as General Forest by Calaveras County and within the Stanislaus National Forest. Approximately two miles of the Proposed Project alignment (starting at approximately 250 feet north of Darby Russell Road/SR-4 intersection) is within the Stanislaus National Forest. However much of the alignment for this area is within SR-4 ROW with the exception of the 1,080-foot alignment near the Hunter Dam WTP. Implementation of the Proposed Project would not result in a conflict with the existing zoning or result in a rezoning of this area. The Proposed Project alignment does not transect properties zoned for timberland or Timberland Production. The Proposed Project is the replacement of an existing water pipeline and therefore would not conflict with existing zoning codes. No impact would occur.

d)	Would the project result in the loss of forest land or conversion of forest land to non-forest use?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

See discussion under item c). No impact would occur.

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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

See discussion under item a) and c), the Proposed Project would not result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest

4.3 Air Quality

4.3.1 Environmental Setting

Calaveras County is located within the Mountain Counties Air Basin (MCAB), which also encompasses Plumas, Sierra, Nevada, Placer (middle portion), El Dorado (western portion), Amador, Tuolumne, and Mariposa counties.

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological and geographical conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, stability, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains, valleys, and large bodies of water), determine the effect of air pollutant emissions on local air quality.

The MCAB lies along the northern Sierra Nevada Mountain Range, close to or contiguous with the Nevada border, and covers an area of roughly 11,000 square miles. The population of the entire air basin is less than 500,000. The entirety of Calaveras County lies within the MCAB. Elevations range from over 10,000 feet at the Sierra crest down to several hundred feet above sea level at the western County boundary. Throughout the basin, the topography is highly variable, and includes rugged mountain peaks and valleys with extreme slopes and differences in elevation in the Sierras, as well as rolling foothills to the west.

The general climate of the MCAB varies considerably with elevation and proximity to the Sierra ridge. The terrain features of the basin make it possible for various climates to exist in relatively close proximity. The Sierra Nevada receives large amounts of precipitation in the winter, with lighter amounts in the summer. Precipitation levels are high in the highest mountain elevations but decline rapidly toward the western portion of the basin. Winter temperatures in the mountains can be below freezing for weeks at a time, and

substantial depths of snow can accumulate. In the summer, temperatures in the mountains are mild, with daytime peaks in the 70s to low 80s, but the western end of the County can routinely exceed 100 degrees.

4.3.2 Air Quality (III.) Environmental Checklist and Discussion

a)	Would the project conflict with or obstruct implementation of the applicable air quality plan?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

A project is inconsistent with regional air quality planning if it would result in population and/or employment growth that exceeds growth estimated in the applicable air quality plan. The proposed Project does not include development of new housing or employment centers, and would not induce population or employment growth. The proposed Project improvements address existing deficiencies that require modification in order to continue to provide reliable water service for existing development and future growth planned and evaluated in the County General Plan. Therefore, the proposed Project would not conflict with or obstruct the implementation of any air quality plan.

b)	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Construction Impacts

Implementation of the proposed Project would result in short-term emissions from construction activities. Construction-generated emissions would be short term and of temporary duration, lasting only as long as construction activities occur. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of coarse particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities. Off-road construction equipment is often diesel-powered and can be a substantial source of nitrogen oxide (NO_X) emissions, in addition to PM_{10} and $PM_{2.5}$ emissions. Worker commute trips and architectural coatings are dominant sources of reactive organic gas (ROG) emissions.

The predicted maximum daily emissions of ROG, NO_x, PM_{10}, $PM_{2.5}$, and carbon monoxide (CO) associated with Project construction are summarized in **Table 4.3-1** and compared to the threshold promulgated by the Calaveras County Air Pollution Control District (CCAPCD), the air quality officer with jurisdiction in Calaveras County, and thus the Project area. The emissions modeling results are provided in Appendix A. As shown in Table 4.3-1, the project would not result in exceedance of CCAPCD thresholds.

Table 4.3-1. Construction AQ Emissions- Maximum Pounds per Day

Construction Phase	ROG	NOx	PM_{10}	$PM_{2.5}$	CO
2018 Emissions	6.36	62.48	15.35	8.68	44.94
2019 Emissions	3.10	29.86	1.58	1.33	22.00
Calaveras County APCD Daily Thresholds	150	150	150	None	None
Exceed Calaveras County APCD Daily Thresholds?	No	No	No	N/A	N/A

Source: CalEEMod, version 2016.3.1; CCAPCD n.d.: See Appendix A for emission model outputs.

Although the project does not exceed adopted thresholds, because of the proximity of the project to sensitive receptors and the existing nonattainment status of the county, temporary emissions from construction activities could affect sensitive receptors and contribute to existing violations of air quality standards, resulting in a significant impact. Implementation of Mitigation Measures **AQ-1** and **AQ-2** would reduce construction-related emissions to less than significant.

Mitigation Measure

AQ-1: In accordance with CCAPCD requirements, CCWD will submit a dust control plan to the County for approval. CCAPCD requires the submittal of a dust control plan for approval prior to surface disturbance larger than 1 acre. CCWD and contractor will be responsible for ensuring that all reasonable dust control measures are implemented in a timely manner during all phases of project development and construction.

AQ-2: In order to reduce emissions related to construction equipment and vehicle use, the contractors will implement the following measures, as appropriate, during construction:

A. Maintain all construction equipment in proper tune according to manufacturer's specifications.
B. Maximize, to the extent feasible, the use of diesel construction equipment meeting the California Air Resource Board's 1996 or newer certification standard for off-road heavy-duty diesel engines.
C. Utilize heavy equipment equipped with or install diesel oxidation catalysts, catalyzed diesel particulate filters, or other approved emission reduction retrofit devices.
D. Minimize length of time construction equipment is left idling.
E. Minimize the number of construction vehicles operating concurrently.
F. Locate construction vehicle staging areas as far from residences as practicable.

Long-Term Operational Impacts

The proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, will not generate quantifiable criteria emissions from project operations. The Project does not propose any buildings and therefore no permanent source or stationary source emissions. Once the Project is completed, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. While it is anticipated that the Project

would require intermittent maintenance, such maintenance would be minimal requiring a negligible amount of traffic trips on an annual basis. Therefore, operational impacts would be less than significant.

c)	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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

As discussed under item b) above, construction-related emissions from the proposed Project would not exceed the CCAPCD's criteria air pollutant significance thresholds. Additionally, since the proposed Project would not generate new stationary or mobile sources of criteria pollutant emissions, there would not be an increase of operational emissions. Further, the proposed Project would not conflict with the applicable air quality plans, which addresses the cumulative emissions in the MCAB. The proposed Project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Therefore, this impact is less than significant.

d)	Would the project expose sensitive receptors to substantial pollutant concentrations?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Sensitive land uses are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors are residences, schools, hospitals, and day care centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65 years old, children under the age of 14, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

Construction Impacts

Sources of construction-related air toxics potentially affecting these sensitive receptors include off-road diesel-powered equipment. Construction would result in the generation of diesel particulate matter (diesel PM) emissions from the use of off-road diesel equipment required for construction activities. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to toxic air contaminant emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer.

The use of diesel-powered construction equipment would be temporary and episodic and would occur over several locations isolated from one another. The duration of exposure would be short, and exhaust

from construction equipment dissipates rapidly. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. Furthermore, construction would be subject to and would comply with California regulations limiting the idling of heavy-duty construction equipment to no more than 5 minutes, which would further reduce nearby sensitive receptors' exposure to temporary and variable diesel PM emissions. For these reasons, diesel PM generated by construction activities, in and of itself, would not be expected to expose sensitive receptors to substantial amounts of air toxics. However, implementation of **AQ-1** and **AQ-2** will insure impacts are less than significant.

Long-Term Operational Impacts

Operation of the proposed Project would not result in the development of any substantial sources of air toxics, as the improvements would not change existing activities on the Project site. There are no stationary sources nor delivery trucks associated with the operations of the Project. Therefore, the Project would not be a source of TACs and there would be no impact as a result of the Project during Project operations.

e)	Would the project create objectionable odors affecting a substantial number of people?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

Individual responses to odors are highly variable and can result in various effects, including psychological (i.e., irritation, anger, or anxiety) and physiological (i.e., circulatory and respiratory effects, nausea, vomiting, and headache). Generally, the impact of an odor results from a variety of interacting factors such as frequency, duration, offensiveness, location, and sensory perception.

Construction Impacts

During construction, the proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources.

Long-Term Operational Impacts

The California Air Resources Board's (CARB's) *Air Quality and Land Use Handbook* (2005) identifies the sources of the most common operational odor complaints received by local air districts. Typical sources include facilities such as sewage treatment plants, landfills, recycling facilities, petroleum refineries, and livestock operations. The Project does not contain any of the land uses identified as typically associated with emissions of objectionable odors. As such, a less than significant impact would occur.

4.4 Biological Resources

4.4.1 Environmental Setting

A Biological Resource Assessment (BRA) was prepared for the Proposed Project by ECORP Consulting, Inc. (ECORP 2017a; Appendix B). The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the Project site. The methods used to determine the presence/absence of significant biological resources with the project area are explained in detail in Appendix B. In preparation of this IS/MND ECORP conducted a review of current literature; conducted a series of site reconnaissance visits of the Project area on 24 and 25 May, 15 and 16 June, and 12 and 13 July 2017; performed a Wetland Delineation; and conducted Special-Status Plant Surveys [24 and 25 May, and 12 and 13 July 2017]. The findings of these activities are described in detail in Appendix B, and are summarized below. For the purposes of the BRA, special status species are defined as plant or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA (CESA);
- meet the definitions of endangered or rare under §15380 of the California Environmental Quality Act (CEQA) Guidelines;
- are identified as a species of special concern by the California Department of Fish and Wildlife (CDFW);
- are birds identified as birds of conservation concern by the U.S. Fish and Wildlife Service (USFWS);
- are considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California", "plants about which more information is needed", or "plants of limited distribution – a watch list" (i.e., species with a California Rare Plant Rank [CRPR] of 1B, 2, 3, or 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA) [California Fish and Game Code, §1900 et seq.]; or
- are fully protected in California in accordance with the Fish and Game Code of California, §§3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above listed groups were considered for the BRA.

Based on species occurrence information from the CNDDB, the literature review, and observations in the field, a list of special-status plant and animal species that have the potential to occur within the Project site was generated (ECORP 2017a). Only special-status species as defined above were included in this analysis.

Vegetation Communities

Vegetation communities found within undeveloped portions of the Project area include annual forb meadow, annual grassland, ponderosa pine forest, and California black oak forest.

Annual forb meadows are located in the central portion of the Project alignment northeast of Forest Meadows Drive, and at the northeastern end of the Project alignment. The dominant plants found in the annual forb meadows include Ramm's media (*Jensia rammii*), white-tip clover (*Trifolium variegatum*), white meadowfoam (*Limnanthes alba* ssp. *alba*), American bird's foot trefoil (*Acmispon americanus*), soft brome (*Bromus hordeaceus*), and medusahead grass (*Elymus caput-medusae*).

Annual grasslands are located in small patches throughout the Project alignment, primarily at disturbed locations. This plant community is dominated by non-native grasses and forbs, including medusahead grass, soft brome, ripgut brome (*Bromus diandrus*), hairy vetch (*Vicia hirsuta*), yellow star-thistle (*Centaurea solstitialis*), and white sweetclover (*Melilotus albus*).

Ponderosa pine forest is the dominant vegetation community within the Project area. Ponderosa pine forest within the Project area is characterized by an open-to-dense canopy dominated by ponderosa pine (*Pinus ponderosa*), incense cedar (*Calocedrus decurrens*), sugar pine (*Pinus lambertiana*), and black oak (*Quercus kelloggii*), with an understory dominated by mountain misery (*Chamaebatia foliolosa*) and whiteleaf manzanita (*Arctostaphylos viscida*). Pine forest is intermixed in some locations with California black oak forest. California black oak forest within the Project area is made up of an open canopy of black oak and Oregon oak (*Quercus garryana*), with an understory of birch leaf mountain mahogany (*Cercocarpus betuloides*), pink honeysuckle (*Lonicera hispidula*), and buck brush (*Ceanothus cuneatus*).

Wildlife

As described in the BRA, wildlife species observed within the Project area during the 2017 site visits included western fence lizard (*Sceloporus occidentalis*) and a variety of common birds such as hairy woodpecker (Picoides villosus), western wood-pewee (*Contopus sordidulus*), Steller's jay (*Cyanocitta stelleri*), California scrub-jay (*Aphelocoma californica*), mountain chickadee (*Poecile gambeli*), and American robin (*Turdus migratorius*). Mammals observed on-site included western gray squirrel (*Sciurus griseus*), Douglas' squirrel (*Tamiasciurus douglasii*) and mule deer (*Odocoileus hemionus*). (ECORP 2017a).

Soils

According to the Web Soil Survey (NRCS 2017a), six soil units, or types, have been mapped within the Project area (see Figure 3 in Appendix B). These are:

- 152 – Josephine family, deep, 35 to 50 percent slopes
- 153 – Josephine family, deep-moderately deep complex, 5 to 35 percent slopes
- 155 – Josephine-Sites families association, deep, 5 to 35 percent slopes
- 175 – Lithic Xerumbrepts-Rock outcrop-McCarthy family, moderately deep complex, 5 to 60 percent slopes

- Jp-Mh-CE – Josephine-Mariposa association, 5 to 30 percent slopes
- Ms-Ir-CE – McCarthy-Iron Mountain association, 5 to 30 percent slopes

None of these soils are considered hydric soils (NRCS 2017b).

Potential Waters of the U.S.

A jurisdictional delineation of Waters of the U.S was conducted for the Project area in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). Potential Waters of the U.S. mapped on-site include wetlands and other waters (**Table 4.4-1**. *Potential Waters of the U.S.)*. Also, see Figure 2. *Wetland Delineation* in Appendix B (ECORP 2017b). A total of 0.184 acre of potential Waters of the U.S. were mapped within the Project area. Wetlands consist of seeps and a seasonal wetland swale. Other waters include intermittent drainages, ephemeral drainages, and ditches. Detailed descriptions of the wetlands and other waters are provided in Appendix B.

One seasonal wetland swale occurs in the central portion of the Project area east of Red Apple Drive. This seasonal wetland swale is a roadside drainage feature dominated by Baltic rush (*Juncus balticus*), clustered field sedge (*Carex praegracilis*), arroyo willow (*Salix lasiolepis*), and Himalayan blackberry (*Rubus armeniacus*). Two seeps occur in the central portion of the Project area east of Forest Meadows Drive within the annual forb meadow. These features are dominated by Himalayan blackberry, Baltic rush, common large monkey-flower (*Mimulus guttatus*), and white meadowfoam.

Ditches and ephemeral drainages occur scattered throughout the Project area. The ditches are primarily unvegetated due to the scouring of fast-moving water during precipitation events. The intermittent drainages mapped within the Project area tend to be sparsely vegetated due to the absence of soil, presence of bedrock and/or cobble, and the scouring effects of flowing water. Vegetated portions of intermittent drainages within the Project area are dominated by common large monkey-flower, clustered field sedge, and Baltic rush.

Table 4.4-1. Potential Waters of the U.S.

Type	Acreage[1]
Wetlands	
Seasonal wetland swale	0.045
Seep	0.056
Other Waters	
Intermittent drainage	0.017
Ephemeral drainage	0.021
Ditch	0.045
Total:	0.184

[1]Acreages represent a calculated estimation and are subject to modification following the USACE verification process. Waters of the US are based on current information; however, further refinement will take place as a part of the 404 application.

Special-Status Plants

Thirty-one special-status plant species were identified as having the potential to occur within the Project area based on the literature review. Upon further analysis and site reconnaissance, 10 species were determined to be absent from the Project area due to the lack of suitable habitat or because the Project area is outside of the species elevational range. No further discussion of these species is provided in this assessment. The remaining 21 special-status plant species considered to have potential to occur within the Project area include the following species:

- Sanborn's onion (*Allium sanbornii*)
- Three-bracted onion (*Allium tribracteatum*)
- Sierra bolandra (*Bolandra californica*)
- Pleasant Valley mariposa-lily (*Calochortus clavatus* var. *avius*)
- Fresno ceanothus (*Ceanothus fresnensis*)
- Red Hills soaproot (*Chlorogalum grandiflorum*)
- Small's southern clarkia (*Clarkia australis*)
- Mariposa clarkia (*Clarkia biloba* ssp. *australis*)
- Sierra clarkia (*Clarkia virgata*)
- Streambank spring beauty (*Claytonia parviflora* ssp. *grandiflora*)
- Mountain lady's slipper (*Cypripedium montanum*)
- Yellow-lip pansy monkeyflower (*Diplacus pulchellus*)
- Tuolumne button-celery (*Eryngium pinnatisectum*)
- Stanislaus monkeyflower (*Erythranthe marmorata*)
- Tuolumne fawn lily (*Erythronium tuolumnense*)
- Parry's horkelia (*Horkelia parryi*)
- Tuolumne iris (*Iris hartwegii* ssp. *columbiana*)
- Dubious pea (*Lathyrus sulphureus* var. *argillaceus*)
- Humboldt lily (*Lilium humboldtii* ssp. *humboldtii*)
- Stebbins' lomatium (*Lomatium stebbinsii*)
- Coleman's rein orchid (*Piperia colemanii*)

These 21 species were considered target species for special-status plant surveys conducted by ECORP on 24 and 25 May, and 12 and 13 July 2017 (ECORP 2017c). Descriptions of each of these species are

provided in Appendix B. No special-status plant species were observed within the Project area. However, two special-status plant species, yellow-lip pansy monkeyflower, and small-flowered monkeyflower (*Erythranthe inconspicua*) were observed adjacent to the Project area (see Figure 4 in Appendix B). Yellow-lip pansy monkeyflower is not listed pursuant to either the federal or California ESAs, but it is designated as a CRPR 1B.2 species. This species was observed at two locations: adjacent to the northeastern portion of the Project alignment to the north of Hunter Dam Road, and adjacent to the central portion of the Project alignment to the east of Forest Meadows Drive.

Small-flowered monkeyflower is not listed pursuant to either the federal or California ESAs, but it is designated as a CRPR 4.3 species. Small-flowered monkeyflower was not identified during the literature search as having the potential to occur within the Project area. However, this species was observed adjacent to the central portion of the Project alignment to the east of Forest Meadows Drive.

Special-Status Wildlife

Invertebrates

One special-status invertebrate species, Valley elderberry beetle (*Desmocerus californicus dimorphus*), was identified as having potential to occur within the Project area based on the literature review (Table 3 of Appendix B). Upon further analysis and after the reconnaissance visit, the species was determined to be absent from the Project area due to lack of suitable habitat as elderberry shrubs were absent from the Project site. No further discussion of this species is provided in this assessment.

Fish

Two special-status fish species, Delta smelt (*Hypomesus transpacificus*) and steelhead (*Oncorhynchus* (=*Salmo*) *mykiss*), were identified as having potential to occur within the Project area based on the literature review (Table 3 of Appendix B). Upon further analysis and after the reconnaissance visit, both species were determined to be absent from the Project area due to the lack of suitable habitat. No further discussion of these species is provided in this assessment.

Amphibians

Three special-status amphibians, foothill yellow-legged frog (*Rana boylii*), California red-legged frog (*Rana draytonii*) and Sierra Nevada yellow-legged frog (*Rana sierrae*), were identified as having potential to occur within the Project area based on the literature review (Table 3 of Appendix B). Upon further analysis and after the reconnaissance visit, all amphibian species were determined to be absent from the Project area due to the lack of suitable habitat. No further discussion of these species is provided in this assessment.

Reptiles

One special-status reptile species, Western pond turtle (*Emys marmorata*), was identified as having potential to occur within the Project area based on the literature review (Table 3 of Appendix B). Upon further analysis and after the reconnaissance visit, the species was determined to be absent from the Project area due to the lack of suitable habitat. No further discussion of this species is provided in this assessment.

Birds

Twenty-eight special-status bird species were identified as having potential to occur within the Project area based on the literature review (Table 3 of Appendix B). Upon further analysis and after the reconnaissance visit, 16 species were determined to be absent from the Project area due to the lack of suitable habitat. No further discussion of these species is provided in this assessment. Brief descriptions of the remaining 12 species that have the potential to occur within the Project area are presented below.

Osprey

Osprey (Pandion haliaetus) is not listed pursuant to either the California or federal ESAs; however, the species is fully protected pursuant to § 3511 of the California Fish and Game Code. It is a U.S. Forest Service sensitive species and is considered a CDFW watch list species. This species typically breeds in northern California from Cascade Ranges south to Lake Tahoe and along the coast to Marin County (Zeiner et al. 1990) and is an uncommon breeder along the southern Colorado River and other central and southern California waterbodies. Breeding occurs from March to September. Nesting occurs in tall structures including trees, cliffs, large snags or human made structures usually within 1,312 feet to 1 mile of large, fish-producing waters (Zeiner et al. 1990).

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). While the ponderosa pine forest present within the Project area may provide potential nesting habitat, the Project area is not adjacent to a large waterbody generally associated with osprey nests. Osprey are known to nest around New Melones Lake whose northern extent occurs approximately three miles to the south of the Project area. Osprey has low potential to occur within the Project area.

Northern Goshawk

The Northern goshawk (*Accipiter gentilis*) is not listed pursuant to either the California or federal Endangered Species Acts. However, it is a CDFW species of special concern, BLM sensitive species and U.S. Forest Service sensitive species. In the western United States, northern goshawks breed in mountainous habitat from northern Washington south through Oregon and into California, including the Siskiyou Mountains to the north Coast Range, from the Warner Mountains south through the Cascade and Sierra Nevada Mountains to the Greenhorn Mountains, White Mountains, Kern and Ventura Counties (Squires and Reynolds 1997). Breeding habitat in the West includes Douglas fir, various pine, and aspen forests (Squires and Reynolds 1997). Breeding occurs during March through July, with a peak from April through August.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Northern goshawk has low potential to occur within the Project area.

Flammulated Owl

The flammulated owl (*Otus flammeolus*) is a USFWS bird of conservation concern, but not listed pursuant to the state or federal endangered species acts. This small owl (to 17 cm in height) is a resident of coniferous forests at elevations from 6,000 to 10,000 feet MSL, mainly in ponderosa pine and Jeffrey pine

(*P. jeffreyi*) forests of low- to moderate-canopy density (McCallum 1994). Flammulated owls are secondary cavity nesters, using woodpecker holes, or occasionally natural cavities, in ponderosa pine, Douglas-fir (*Pseudotsuga menziesii*), aspen (*Populus tremuloides*), oak (*Quercus* sp.), or snags (Linkhart and McCallum 2013). Wintering occurs in Mexico and Central America, migration north occurs in April. Breeding occurs in May to August.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Flammulated owl has low potential to occur within the Project area.

California Spotted Owl

The California spotted owl (*Strix occidentalis occidentalis*) is a CDFW species of special concern, a USFWS bird of conservation concern, a BLM sensitive species, and a U. S. Forest Service sensitive species. This is a subspecies of spotted owl, which occurs primarily on the west slope of the Sierra Nevada range. A year-round resident in most of its range, breeding range occurs from 1,000 feet to almost 8,000 feet, with some birds migrating to lower elevations in the winter (Verner et al. 1992). This is an owl primarily of dense Ponderosa pine and mixed coniferous forest, with old-growth trees, snags, a complex canopy, and abundant woody debris (Shuford and Gardali 2008). Wintering may occur in blue oak (*Q. douglasii*) gray pine (*P. sabiniana*) foothill riparian forests. California spotted owls do not build their own nest, but rather use naturally-occurring platforms, cliffs, and abandoned common raven (*Corvus corax*), raptor, or squirrel nests. Nesting occurs during March through September.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. California spotted owl has low potential to occur within the Project area.

Rufous Hummingbird

The rufous hummingbird (*Selasphorus rufus*) is not listed and protected under either Federal or California ESA's; however, it is considered a species of conservation concern according to the U.S. Fish and Wildlife Service. Rufous hummingbirds breed from coastal southeastern Alaska south British Columbia and Alberta, Canada, Washington, Idaho, Montana, and Oregon (Healy and Calder 2006). Rufous hummingbirds do not nest in California, but are common in the foothills and lower conifer zones of the west slope of the Sierra Nevada during migration (Beedy et al. 2013).

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The annual forb meadow, annual grassland and understory of the ponderosa pine forest present within the Project area may provide potential foraging habitat for the species. Rufous hummingbird has potential to occur within the Project area.

Calliope Hummingbird

The calliope hummingbird (*Selasphorus calliope*) is not listed and protected under either Federal or California ESA's; however, it is considered a species of conservation concern according to the U.S. Fish and Wildlife Service. Calliope hummingbirds breed in North America west of the Rockies from British Columbia

and Alberta, Canada south through Mexico. In Northern California, the breeding range includes the interior portions of the Klamath Mountains and the inner Coast Range to northeastern Mendocino and northwestern Glenn Counties, south through the Sierra-Cascade axis to southern Tulare County, and in the Warner Mountains (Small 1994). Nesting habitat includes shrub-sapling seral stage of reforestation, in aspen thickets along streams, and open montane forests (Calder and Calder 1994). Nesting occurs during May through August. Calliope hummingbirds winter from Sinaloa and Durango, Mexico south to Oaxaca (Calder and Calder 1994).

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The annual forb meadow, annual grassland and understory of the ponderosa pine forest present within the Project area may provide potential foraging habitat for the species. Calliope hummingbird has potential to occur within the Project area.

Lewis' Woodpecker

The calliope hummingbird (*Selasphorus calliope*) is not listed and protected under either Federal or California ESA's; however, it is considered a species of conservation concern according to the U.S. Fish and Wildlife Service. Calliope hummingbirds breed in North America west of the Rockies from British Columbia and Alberta, Canada south through Mexico. In Northern California, the breeding range includes the interior portions of the Klamath Mountains and the inner Coast Range to northeastern Mendocino and northwestern Glenn Counties, south through the Sierra-Cascade axis to southern Tulare County, and in the Warner Mountains (Small 1994). Nesting habitat includes shrub-sapling seral stage of reforestation, in aspen thickets along streams, and open montane forests (Calder and Calder 1994). Nesting occurs during May through August. Calliope hummingbirds winter from Sinaloa and Durango, Mexico south to Oaxaca (Calder and Calder 1994).

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The annual forb meadow, annual grassland and understory of the ponderosa pine forest present within the Project area may provide potential foraging habitat for the species. Calliope hummingbird has potential to occur within the Project area.

White-Headed Woodpecker

The white-headed woodpecker (*Picoides albolarvatus*) is not listed and protected under either state or federal Endangered Species Acts, but is considered a USFWS bird of conservation concern. White-headed woodpeckers require montane coniferous forests and are found from British Columbia to San Diego County, in southern California (Garrett et al 1996). These woodpeckers nest in tree cavities primarily within large diameter conifers in mixed coniferous forests of ponderosa and sugar pines, white and red fir, Douglas-fir, and black oak (Garrett et al 1996). Breeding occurs during April through August.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. White-headed woodpecker has potential to occur within the Project area.

Williamson's Sapsucker

The Williamson's sapsucker (*Sphyrapicus thyroideus*) is not listed and protected under either Federal or California ESA's; however, it is considered a species of conservation concern according to the U.S. Fish and Wildlife Service. In California, Williamson's sapsucker breeding range include Sierra Nevada-Cascade Range from Greenhorn Mountains to the Oregon Border, isolated breeding populations are located in Siskiyou, Trinity and the Warner Mountains (Small 1994). They nest in middle to high elevation conifer and mixed conifer-deciduous forests (Gyug et al. 2012). They nest in tree cavities of western larch, ponderosa pine, Jeffrey pine, Sierra-Cascade lodgepole pine, Douglas-fir, spruce, grand fir, white fir, red fir, trembling aspen, water birch, black cottonwood, and occasionally, utility poles (Gyug et al. 2012). Nesting occurs during May through July.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Williamson's sapsucker has potential to occur within the Project area.

Olive-Sided Flycatcher

The olive-sided flycatcher (*Contopus cooperi*) is not listed pursuant to either the California or federal Endangered Species Acts but is a CDFW species of special concern and a USFWS bird of conservation concern. In the western United States, olive-sided flycatchers breed from Washington south throughout California, except the Central Valley, eastern deserts, and mountains of southern California (Small 1994). This species breeds in late-successional coniferous forests including Ponderosa pine woodlands, black oak woodlands, mixed coniferous forests, and Jeffrey pine forests, usually at mid to high elevations (Shuford et al 2008). They use edges and clearings surrounding dense forests, foraging primarily on bees and wasps. Nesting occurs during May through August.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting and foraging habitat for the species. Olive-sided flycatcher has potential to occur within the Project area.

Oak Titmouse

The oak titmouse (*Baeolophus inornatus*) is not listed and protected under either state or federal Endangered Species Acts, but are considered a USFWS bird of conservation concern. Oak titmouse breeding range includes southwestern Oregon south through California's Coast, Transverse and Peninsular ranges, western foothills of the Sierra Nevada, into Baja California; they are absent from the humid northwestern coastal region and the San Joaquin Valley (Cicero et al. 2017). They are found in dry oak or oak-pine woodlands, but may also use scrub oaks or other brush near woodlands (Cicero et al. 2017). Nesting occurs during March through July.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting and foraging habitat for the species. Oak titmouse has potential to occur within the Project area.

Fox Sparrow:

The fox sparrow (*Passerella iliaca*) is not listed pursuant to either the California or federal Endangered Species Acts, but it is designated as a species of conservation concern by the USFWS. The "large-billed" fox sparrow (*Megarhyncha* Group) nests in western Oregon south into coastal northern California, the Siskiyou and Warner Mountains, Sierra Nevada, and mountains of southern California, and western Nevada. Nesting habitat includes montane chaparral and mixed coniferous forest (Weckstein et al. 2002).

Wintering fox sparrows are typically found in thick riparian, chaparral vegetation in California (Weckstein et al. 2002). "Sooty" fox sparrows (*Unalaschcensis* Group) winter along the entire coastal region; "slate-colored" fox sparrows (*Shistacea* Group) winter from northern interior California to Baja California; and "large-billed" fox sparrows winter from central California south to Baja (Weckstein et al. 2002). Breeding occurs during May through July, and can be found on wintering grounds from September through April.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Fox sparrow has potential to occur within the Project area.

Mammals

Six special-status mammal species were identified as having potential to occur within the Project area based on the literature review (Table 3 of Appendix B). Upon further analysis and after the reconnaissance visit, three species were considered to have potential to occur on-site. Brief descriptions of these species with the potential to occur within the Project area are presented below.

Western Red Bat:

The western red bat (*Lasiurus blossevillii*) is not listed pursuant to either the California or federal ESAs; however, it is designated as a species of special concern by CDFW. In addition, the WBWG has classified the western red bat in California as "imperiled or are at high risk of imperilment" (WBWG 2005). The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This bat occurs from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts, and is typically associated with forested and riparian communities. This solitary species roosts in the foliage of large shrubs and trees in communities bordering forests, rivers, cultivated fields, and urban areas. They feed on a variety of insects, usually foraging in or near riparian areas. This species is a year-round resident of California; however, they do migrate seasonally with the extent of these movements being poorly understood (Shump and Shump 1982, Philpott 1996).

There are no occurrences of western red bat within five miles of the Project area (CDFW 2017). Trees within the Project area may provide potential roosting habitat for this species. Western red bat has potential to occur within the Project area.

Townsend's Big-Eared Bat:

The Townsend's big-eared bat (*Corynorhinus townsendii*) is not listed pursuant either the California or Federal ESAs; however, it is designated as a species of special concern by CDFW. In addition, the WBWG

has classified the Townsend's big-eared bat in California as "imperiled or are at high risk of imperilment" (WBWG 2005). Distribution of this species is strongly correlated with the availability of caves and cave-analogue roosting habitat, including abandoned mines. Townsend's big-eared bats have also been reported to utilize buildings, bridges, rock crevices, and hollow trees as roost sites (WBWG 2005). These bats are highly sensitive to human disturbance at roosting, maternity, and hibernacula sites. This species will roost alone or in groups of 15 to 100 individuals. They feed primarily on moths and prefer to forage along the edge of clumps of native vegetation. Townsend's big-eared bats are year-round residents in California, and even though they hibernate during the winter, will occasionally forage during the winter months (Kunz and Martin 1982, Philpott 1996).

There are two occurrences of Townsend's big-eared bat within five miles of the Project area (CDFW 2017). Trees within the Project area may provide potential roosting habitat for this species, but there are no caves or mines within the Project, which are preferred habitat for this species. Townsend's big-eared bat has low potential to occur within the Project area.

Pallid Bat:

The pallid bat (*Antrozous pallidus*) is not listed pursuant to either the California or federal ESAs; however, it is designated as a CDFW species of special concern as well as a BLM and USFS sensitive species. In addition, the Western Bat Working Group (WBWG) has classified the pallid bat in California as "imperiled or are at high risk of imperilment" (WBWG 2005). The pallid bat is a large buff-colored bat, with large ears and broad wings (Orr 1954). The pallid bat occurs in Oregon and Washington and throughout the southwestern United States, south into Mexico (Hermanson and O'Shea 1983). Pallid bats inhabit low elevation rocky arid deserts and canyonlands, shrub-steppe grasslands, oak woodlands, karst formations, and higher elevation coniferous forests (Philpott 1996, WBWG 2005). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, and trees; and in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (WBWG 2005). Pallid bats are primarily insectivores and feed by gleaning prey items from the ground or from vegetation (Bell 1982).

There are no occurrences of pallid bat within five miles of the Project area (CDFW 2017). Trees within the Project area may provide potential roosting habitat for this species. Pallid bat has potential to occur within the Project area.

Wildlife Movement Corridors

The majority of the Project is located along existing roadways within a low density/rural residential area. Portions of the Project located within undeveloped areas along the roadway likely don't function as wildlife corridors due to vehicular traffic. Installation of the pipeline is not anticipated to impede any wildlife movement.

4.4.2 Regulatory Setting

Federal

Federal Endangered Species Act:

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" [50CFR 17.3]. For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on nonfederal land in knowing violation of state law [16 USC 1538]. Under Section 7 of ESA, federal agencies are required to consult with USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion (BO), USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan is developed.

Section 7

Section 7 of ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. If direct and/or indirect effects will occur to critical habitat that appreciably diminish the value of critical habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a biological assessment for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

Critical Habitat and Essential Habitat:

Critical habitat is defined in Section 3 of ESA as (1) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For inclusion in a critical habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential lifecycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are

essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior
- Food, water, air, light, minerals, or other nutritional or physiological requirements
- Cover or shelter
- Sites for breeding, reproduction, or rearing (or development) of offspring
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species

Excluded essential habitat is defined as areas that were found to be essential habitat for the survival of a species and assumed to contain at least one of the primary constituent elements for the species but were excluded from the critical habitat designation. The USFWS has stated that any action within the excluded essential habitat that triggers a federal nexus will be required to undergo the Section 7(a)(1) process, and the species covered under the specific critical habitat designation would be afforded protection under Section 7(a)(2) of ESA.

Migratory Bird Treaty Act:

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in §§3800, 3513, and 3503.5 of the California Department of Fish and Game Code.

Federal Clean Water Act:

The federal Clean Water Act's (CWA) purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the United States (U.S.) without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency (EPA) also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

State

California Endangered Species Act:

The CESA (California Fish and Game Code §§2050-2116) generally parallels the main provisions of ESA, but unlike its federal counterpart, CESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

Fully Protected Species:

The State of California first began to designate species as "fully protected" prior to the creation of CESA and ESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under CESA and/or ESA. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code §4700 for mammals, §3511 for birds, §5050 for reptiles and amphibians, and §5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

Native Plant Protection Act:

The NPPA of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code §§1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The CESA of 1984 (California Fish and Game Code §§2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

Birds of Prey:

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in

California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, Subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting native birds.

California Streambed Alteration Notification/Agreement:

Section 1602 of the California Fish and Game Code requires that a Streambed Alteration Application (SAA) be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits proposed for measures to protect affected fish and wildlife resources to the applicant. The final proposal that is mutually agreed-upon by CDFW and the Applicant is the SAA. Often, projects that require an SAA also require a permit from USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA overlap.

Species of Special Concern:

Species of Special Concern (SSC) are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under ESA, CESA or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered, or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) which, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.
- SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state-threatened or endangered species are considered "significant" under CEQA.

California Plant Ranks:

The CNPS maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2016) that provides a list of plant species native to California that are threatened with extinction, have limited distributions,

and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, nongovernmental organizations, and private sector botanists, and is jointly managed by CDFW and CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of one through three, with one being the most threatened and three being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20-80 percent occurrences threatened/moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank, and differences in Threat Ranks do not constitute additional or different protection (CNPS 2016). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines §15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

Porter-Cologne Water Quality Act:

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB

regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" [Water Code 13260(a)]. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" [Water Code 13050 (e)]. The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

California Oak Woodlands Conservation Act:

The California Oak Woodlands Conservation Act was passed in 2001; this act provides funding for conservation and protection of California oak woodlands and requires that a lead agency analyze the potential effects of the project and whether or not the project may have a significant effect on the environment. If it is determined that the project may have significant effects on oak woodlands, this act requires mitigation for the conversion of oak woodlands. The law applies to all oak woodlands except those dominated by black oak.

The act defines "oak" trees as native tree species in the genus *Quercus, which are not designated as Group A or Group B commercial species pursuant to regulations adopted by the State board of Forestry and Fire Protection pursuant to Section4526,* which are five inches or more in diameter at breast height.

The lead agency shall determine whether a project within Calaveras County may result in a conversion of oak woodlands that will have a significant effect on the environment. If the county determines that there may be a significant effect to oak woodlands, the county prescribes the following mitigation options, as described in the General Plan Draft EIR (DEIR, Calaveras County 2014a):

- conserving oak woodland through the use of conservation easements,
- contributing funds to the Oak Woodlands Conservation Fund to purchase oak woodlands conservation easements,
- replanting trees (Public Resources Code §21083.4 does not allow oak plantings for more than 50 percent of the required mitigation), or
- implementing other mitigation actions as outlined or developed by the county.

Local Ordinances

Calaveras County Voluntary Oak Woodland Management Plan:

Native oaks trees that may be protected by the Calaveras County Voluntary Oak Woodland Management Plan are present within the Project area. If tree trimming or removal of native oaks, or work under native oaks is required for installation of the pipeline, appropriate, voluntary best management practices, as discussed in Appendix A-1 of the Voluntary Oak Woodland Management Plan, should be implemented where practicable:

- Protect existing native oaks during construction.
- Avoid root compaction by limiting heavy equipment in the root zone.

- Carefully plan roads, cuts and fills, building foundations and septic systems to avoid damage to tree roots.
- Design roads to minimize excessive erosion and sedimentation to downstream resources. Consider re-seeding of disturbed ground.
- Consider replacing trees whose removal during construction was unavoidable.

4.4.3 Biological Resources (IV.) Environmental Checklist and 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Special Status Plants

Two special-status plant species (yellow-lip pansy monkeyflower and small-flowered monkeyflower) were observed at two different locations just outside the Project alignment. Observations of both species occurred in the southern section between Northwood Drive and Forest Meadows Drive and another observation of yellow-lip pansy monkeyflower occurred in the northern section near Hunter Reservoir. No other special-status plants were found during protocol-level surveys in 2017. Due to the potential presence of special-status plant species, the following measure is recommended:

Mitigation Measure

BIO-1: Consult with CDFW to determine appropriate buffer between construction activities and rare plant populations identified during protocol-level surveys to ensure impact avoidance. A qualified biologist shall be retained to oversee placement of ESA fencing around rare plant populations within the project area to provide avoidance during construction activities.

Special Status Invertebrates, fish, amphibians, and Reptiles

There are no potentially occurring special-status invertebrates, fish, amphibian, or reptile species within the project area. The project also does not occur within enhanced fish habitat. Therefore. No measures are recommended.

Special Status Birds

Suitable nesting habitat for 12 special-status birds is present within the Project. These are:

Osprey, northern goshawk, Flammulated owl, California spotted owl, rufous hummingbird, calliope hummingbird, Lewis' woodpecker, white-headed woodpecker, Williamson's sapsucker, olive-sided

flycatcher, oak titmouse and fox sparrow. If present, the Project could result in harassment to nesting individuals and may temporarily disrupt foraging activities.

In addition to the above-listed special-status birds, all native birds, including raptors, are protected under the federal MBTA. As such, to ensure that there would be no impacts to protected active nests during construction, the following mitigation measures will be implemented to reduce the impact to less than significant:

BIO-2: Conduct a pre-construction nesting bird survey of suitable habitat along the project corridor within 14 days of the commencement of construction during the nesting season (1 February through 31 August). If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in consultation with CDFW. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. No further measures are necessary once the young are independent of the nest. Pre-construction nesting surveys are not required for construction activity outside the nesting season. The survey may be performed in two or more phases according to the planned construction activity and potential disturbances.

Special Status Mammals

Three special-status mammals have potential to occur within the Project: Western red bat, Townsend's big-eared bat, and pallid bat. To ensure that these species are not impacted by the Project, the following measure is recommended:

BIO-3: Conduct a pre-construction clearance survey for special-status bats within the limits of active construction within 14 days of the start of construction activities. If roosting bats are found, consult with CDFW to implement appropriate measures (e.g., monitoring, roost exclusion). For each phase of construction, the survey will be conducted for the applicable limits of construction activity.

Implementation of Mitigation Measure BIO-3 would reduce impacts to special status mammals to a less than significant level.

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 the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

The wetland delineation identified 0.184 acre of potential Waters of the U.S. within the Project area (ECORP 2017b). A formal wetland delineation has been conducted and the wetlands have yet to be verified by USACE. Based on the Project description, the proposed pipeline will cross the following feature

types: seasonal wetland swale, seep, intermittent drainage, ephemeral drainage and ditch. Therefore, it is anticipated that installation of the pipeline will result in fill of potential Waters of the U.S.

If the potential jurisdictional features are verified as Waters of the U.S. by USACE and if disturbance would occur to Waters of the U.S. within the Project, the following mitigation measures are recommended to minimize potential impacts to Waters of the U.S.:

Mitigation Measures

BIO-4: Authorization to fill wetlands under the Section 404 of the federal CWA (Section 404 Permit) must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit for the Project will be prepared and submitted to USACE, and will include jurisdictional determination, direct, avoided, and preserved acreages of Waters of the U.S.

BIO-5: A Water Quality Certification or waiver pursuant to Section 401 of the CWA, as issued by RWQCB, must be obtained for Section 404 permit actions.

BIO-6: A Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code must be obtained for any activity that will impact the bed, bank, or channel of any river, stream or lake.

c)	Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Refer to the discussions presented under Items a and b above, Waters of the U.S. Implementation of mitigation measures BIO-4, BIO-5, and BIO-6 will reduce the potential impact on federally protected wetlands to less than significant.

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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

The majority of the Project is located along existing roadways within a low density/rural residential area. Portions of the Project located within undeveloped areas along the roadway likely don't function as

wildlife corridors due to vehicular traffic. Installation of the pipeline is not anticipated to impede any wildlife movement. Consequently, impacts on wildlife movement are considered 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Calaveras County has established voluntary oak protection guidelines that are designed to help protect and conserve oak woodlands in the county. The proposed project would not affect oak woodlands, although approximately 131 trees including 8 black oaks will be impacted to accommodate the new pipeline alignment. However, none of the 131 trees that will be impacted are protected by state or local law, policy, or ordinances (Table 4.4-2. Tree Impacts).

Table 4.4-2. Tree Impacts

Type of Tree (common name)	Number to be removed	Protected
Black Oak	8	No
California Black Walnut	1	No
Foothill Pine	1	No
Incense Cedar	49	No
Ponderosa Pine	62	No
Redbud	1	No
Sugar Pine	6	No
11' Pine	1	No
15" Pine	1	No
8" Cedar	1	No

*Note: Full tree inventory can be found in the Arborists Tree Inventory (Appendix C)

If tree trimming or removal of native/protected oaks, or work under native/protected oaks is required, appropriate, voluntary best management practices, as discussed in Appendix A-1 of the Voluntary Oak Woodland Management Plan and listed below, shall be implemented. Therefore, with implementation of **BIO-7**, the proposed project will not conflict with local policy regarding oak woodlands and the impact would be less than significant.

BIO-7: Implement the following best management practices, where appropriate, during project construction:

A. Limit unnecessary removal of healthy California native Tan Oak, Canyon Live Oak, and Blue Oak and monitor potentially compromised trees for 3-years after construction.

B. Delineate root zone areas of trees to be preserved with high visibility fencing and avoid root compaction by limiting size of heavy equipment used within these areas.

C. Within drip zone, monitor excavations to minimize damage to large roots and cut away large roots obstructing work with hand pruning saw; do not rip or pull on large roots with heavy equipment.

D. CCWD will coordinate with Caltrans to remove additional trees that may be deemed compromised and pose a safety or hazardous condition to roadway users.

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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

There is no adopted Habitat Conservation Plan (HCP), Natural Conservation Community Plan (NCCP), or other approved local, regional, or state habitat conservation plan applicable to the Proposed Project (CDFW 2016). No impact would occur.

4.5 Cultural Resources

4.5.1 Environmental Setting

A Cultural Resources Inventory and Evaluation Report was prepared by ECORP Consulting, Inc. (ECORP 2017b, Appendix D - Confidential) for the Proposed Project to determine if cultural resources were present in or adjacent to the Project Area and assess the sensitivity of the Project Area for undiscovered or buried cultural resources. A survey of the area was required to identify potentially eligible cultural resources (archaeological sites and historic buildings, structures, and objects) that could be affected by the Project, and to delineate the boundaries of these resources so the final Project Area can be created to avoid the resources.

The analysis of cultural resources includes a cultural resources inventory. The inventory included a records search with the California Historical Resource Information System and with the Stanislaus National Forest Calaveras Ranger District, a literature review, and a field survey.

The records search results indicated that seven previous cultural resources studies have been conducted within the APE. As a result of those studies, two resources were recorded within the APE.

Regional Prehistory

It is generally believed that human occupation of California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 and 8,000 BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Around 8,000 BP, there was a shift in focus from hunting towards a greater reliance on plant resources. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter. This period, which extended until around 5,000 years BP, is sometimes referred to as the Millingstone Horizon.

In sites dating to after about 5000 BP, archaeological evidence indicates that reliance on both plant gathering and hunting continued as in the previous period, with more specialized adaptation to particular environments. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Flaked-stone tools became more refined and specialized, and bone tools were more common. During this period, new peoples from the Great Basin began entering southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. During this period, known as the Late Horizon, population densities were higher than before and settlement became concentrated in villages and communities along the coast and interior valleys. Regional subcultures also started to develop, each with its own geographical territory and language or dialect. These were most likely the basis for the groups encountered by the first Europeans during the eighteenth century. Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction. The introduction of the bow and arrow into the region sometime around 2000 BP is indicated by the presence of small projectile points (ECORP 2017b).

Local Prehistory

The most extensive data set for the west slope of the Sierra Nevada in Calaveras County comes from archaeological studies carried out on the North Fork of the Stanislaus River for the New Melones Archaeological Project between 1969 and 1990. Several decades of work conducted in the area resulted in the identification of at least eight distinct periods of occupation, dated to between 9600 BP and AD 1848.

The earliest evidence of human use of the area comes from the Clarks Flat, which produced a large cultural assemblage. Artifacts collected from Clarks Flat include a variety of large stemmed projectile points (Western Stemmed Series), a transverse point (crescent), utilized flakes, gravers, and large scrapers. Assemblages of this type, dated to between 9600 and 6800 BP, are representative of the Clarks Flat Phase.

A second period of occupation, known as the Stanislaus Phase, is marked by the appearance of Pinto-like projectile points sometime around 6550 BP. Named the Stanislaus Broad-Stemmed, the point style was in use for an apparently short period of time, perhaps only 300 years. Other artifacts in use during this phase include a variety of steatite objects, net weights, atlatl weights, manos, and other groundstone implements.

The period between 5500 and 4500 BP is represented at another site within the North Fork Stanislaus River Drainage. Designated the Texas Charley Phase, this period of occupation is characterized by the existence of a distinctive, percussion flaked stone industry with little evidence of habitation. Artifacts attributed to the phase include choppers, large lanceolate bifaces, possible manos, scrapers, and contracting stem biface fragments. This period is not well represented in the archaeological record and coincides with a warming and drying trend in the West known as the Altithermal. Most lithic material identified at the site is locally available chert from the Vallecito area.

The Calaveras Phase (5500–3000 BP) within the Stanislaus River Drainage encompasses several cultural components and appears to be partially coeval with the Texas Charley Phase, albeit technologically (and possibly culturally) distinct. The phase is marked by the presence of Humboldt and Pinto series projectile

points and abundant groundstone. Human occupation of the area during this period was widespread, although ephemeral in nature.

The period between 3000 to 1500 BP witnessed a sharp increase in use of the area by prehistoric Native Americans. Designated the Sierra Phase, this period of occupation in the New Melones area is represented at a number of sites, many of which contain midden deposits suggesting a much greater degree of sedentism. Groundstone artifacts are abundant and it is during this time that mortar and pestle technology, which could be used for processing acorns, first appears in the area. Well-established trade networks are evident in this period based on the presence of large quantities of obsidian that came from the western Great Basin (mostly from the Bodie Hills source) and Haliotis and Olivella beads and ornaments traded in from the coast.

Redbud Phase components (1500–700 BP) are represented in at least 24 sites in the New Melones area. Human occupation of the area during this time is thought to be ephemeral and of low intensity. Settlement patterns are strikingly different from the preceding period, and marked by a high degree of residential mobility with small group sizes. Bolstering support for the hypothesized break in cultural continuity with preceding phases is the apparent breakdown in trade networks as indicated by the near absence of obsidian artifacts. Furthermore, it is during the Redbud Phase that Rosegate and small barbed projectile points appear, marking the introduction of the bow and arrow into the area.

The Horseshoe Bend Phase, (700 BP–1848 AD), is marked by architectural remains, cemeteries, the reappearance of midden deposits, and the widespread use of bedrock mortars. Sedentism was on the rise during this phase, and very intensive use of the North Fork Stanislaus Drainage by people ancestral to the Miwok is evident. The material culture of the Horseshoe Bend Phase mirrors that of the ethnographic Sierra Miwok and includes Desert Side-Notched, Cottonwood Triangular, and Gunther Barbed projectile points, beads of *Olivella*, Saxidomus and steatite, a variety of flaked stone tool types, as well as a sophisticated groundstone technology including milling artifacts and pestles used in bedrock mortars.

The period of Miwok acculturation and eventual loss of traditional life ways, subsequent to the Gold Rush, is represented by the Peoria Basin Phase. Occupation of the North Fork Stanislaus region became much more ephemeral during this period and a number of Euro-American artifacts appear in assemblages attributed to this phase (ECORP 2017d).

Ethnography

Ethnographically, the Project Area is in the nuclear territory occupied by the Northern Sierra Miwok. Prior to the arrival of the Spanish, the Miwok were one of the most geographically extensive native groups in California. They occupied an area extending from the crest of the Sierra, across the Great Valley and Delta Region, to the Coast Range north of San Francisco. The Northern Sierra Miwok lived within the foothills and mountains of the Cosumnes and Mokelumne River drainages. They belong to the Sierra Miwok language group, a subset of the Utian language family. Lexicostatistical chronologies suggest that the Miwok ancestors inhabited California's Delta Region for millennia and more recently expanded into the foothills.

Subsistence activities of the Northern Sierra Miwok closely resembled that of other inhabitants of the Sierra foothills. As winter snows thawed, small groups moved out of the village, following deer into higher elevations. At the same time, spring greens were gathered to supplement the stored foods and meat. Seeds of many different plants, particularly grasses, were collected between May and August. Following the annual burning of the underbrush in August, the highly prized digger pine nuts were collected. Fall and early winter was when families would set out to collect and stockpile acorns. Hunting was a year-round activity for the Northern Sierra Miwok. They also harvested roots like wild onion and "Indian potato," which were eaten raw, steamed, baked, or dried and processed into flour cakes to be stored for winter use. Berries were eaten, although they did not comprise a substantial portion of the diet.

The Sierra Miwok constructed a variety of structures for different purposes. The primary house used by the Miwok living in the foothills was the conical bark-slab house. More substantial semi-subterranean houses were occupied during the winter months by those with sufficient resources to construct such a structure. A circular brush structure was used in the summer during times of mourning. Semi-subterranean earth lodges, measuring 40–50 feet in diameter, were used for social or communal gatherings. The Miwok also made use of sweathouses that generally measured 6–15 feet in diameter.

Trade was important with goods generally traveling east to west and vice versa. Items such as *Olivella* spp. and *Haliotis* spp. shells, salmon, and salt traveled east from the coast and valley into the Sierra and beyond. Digger pine nuts, bows, arrows, deer skins, and sugar pine nuts came down from the Sierra to the Great Valley. Precious goods such as salt and obsidian were also traded in from the Great Basin. Basketry moved in both directions in the prehistoric trade networks (Wilson and Towne 1978; Levy 1978).

The Spanish made occasional forays into the Central Valley beginning around 1769, with the first written description composed by Pedro Fages in 1772. By 1776, Miwok territory had been explored by José Canizares. In 1808, Miwok territory was again crossed by Gabriel Moraga while he led an expedition to identify appropriate sites for the establishment of new missions and to capture Indians who had fled missionary life. In 1813, a major battle was fought between the Miwok and the Spaniards near the mouth of the Cosumnes River.

Though the Northern Sierra Miwok appear to have largely escaped being removed to missions by the Spanish (unlike the Plains Miwok), they were not spared the ravages of European-spread disease. In 1833, an epidemic—probably malaria—raged through the Sacramento Valley, killing an estimated 75 percent of the native population. When John Sutter erected his fort at the future site of Sacramento, he had no problem getting the few native survivors to settle nearby. The discovery of gold in 1848, near the Nisenan village of Colluma (also Coloma), drew thousands of miners into the foothills and led to widespread killing and the virtual destruction of traditional Miwok culture. Based on mission records, the accounts of early explores and initial attempts at censuses, it has been estimated that the total Miwok population was around 19,500 prior to AD 1800. In 1904, Special Indian Agent C.E. Kelsey estimated the total population at less than 800 (ECORP 2017d).

Regional History

Although the Spanish had made forays into the Central Valley since about 1769, it was not until 1808 that Captain Gabriel Moraga explored, and named, the Sacramento area. Other than fighting with the Indians,

as in 1813 when Luis A. Arguello fought a major battle with the Miwok near the mouth of the American River, the Spanish took little interest in the area. In 1827, American trapper Jedediah Smith traveled up the Sacramento River and into the San Joaquin Valley to meet other trappers of his company he had left encamped there, but no permanent settlements were established.

In 1839, John Augustus Sutter, a Swiss émigré, arrived at the confluence of the American and Sacramento rivers with hopes of building an agricultural empire. Mexican Governor Juan Bautista Alvarado assisted in this dream by granting Sutter a 48,000-acre tract of land known as the New Helvetia Land Grant where Sutter built what is now known as Sutter's Fort, the first permanent Euro-American settlement in the region. Sutter's Fort became a Mecca for thousands of immigrants traveling the Overland Emigrant Trail, in need of rest and fresh supplies after the arduous trek across Carson Pass. The area around Sutter's Fort later developed into the town and then city, of Sacramento. The course of California history changed dramatically when John Marshall discovered gold in a flume at Sutter's lumber mill on the South Fork of the American River near the Nisenan village of Culloma (Coloma) in 1848, initiating the California Gold Rush.

Calaveras County was created during the 1849–1850 session of the California Legislature as one of the original 27 counties. As originally laid out, the county encompassed parts of modern Amador, Alpine, and Mono Counties. Originally, the county seat was Pleasant Valley (also known as Double Springs), but was subsequently moved to Jackson in 1850, Mokelumne Hill in 1852, and finally to San Andreas in 1866 (ECORP 2017d).

Project Area History

The Mother Lode belt, a massive gold-rich deposit of quartz veins in California, runs through Altaville to Angel's Creek and throughout Calaveras County. The Angels Camp Mining District (eight miles southwest of the Project Area) is classified as both a placer and lode mining region, although most of the placer mining ended by 1860 when the surface deposits were depleted. By the late 1880s, large scale underground mining began in Angels Camp due to new mining and milling technologies. During World War I, all of the major mines in the Angels Camp District were closed after the accessible gold was depleted.

The Altaville Grammar School was built in 1858 by the Town of Altaville (nine miles southwest of Project Area). It is believed to be the oldest surviving schoolhouse in California and is listed on the NRHP (N795). The school was open from 1858 through 1950, before falling into disrepair. The school was moved to its present location in 1983 and restoration work was completed in 1989.

Washington Flat was the name in the historic period for the valley three miles southwest of the Project Area bounded on the south by Angels Camp; on the east by Vallecito, Douglass' Flat and Murphy's; on the north by a county road called the Murphy's and Hawkeye Road, and on the west by Altaville. The area saw an influx of placer miners in the early 1850s, and by 1857, newspaper accounts described the Washington Flat as a rich valley with several ranches and much mining, including orchards fruits, grapes, melons, grains, and placer mining operations. It also had stores and a saloon. Extensive mining operations evidentially damaged much of the property, and by the 1860s, no commercial establishments remained.

The area was largely used for ranching and agriculture in subsequent years, with livestock, fruit, grapes, poultry, honey, and alfalfa among the major marketable items produced. Numerous Chinese immigrants also worked in and around Washington Flat, although their presence was not noted by most historic accounts. After 1882 their numbers dwindled with the passage of the Chinese Exclusion Act, and by 1910 there were only 49 people of Chinese descent in Calaveras County.

Murphys, a town about 2.5 mile southwest of the Project Area, began as a gold rush settlement, with rich placer deposits found along Angel's Creek and its tributaries in the area. It eventually grew into a central trading center for other mining camps in the area. In 1948, two brothers from Santa Clara County named John and Daniel Murphy came to the area with a group of miners including Henry Angel, and established the first mine. The brothers set up a trading post, and were very good at getting the local native tribes to mine for them. John apparently married a Miwok woman named Pokela, and by the time he returned to Santa Clara County in late 1849, he had more gold than any man on the Pacific Coast.

Large amounts of gold were extracted from Murphys from 1848 to 1850, but soon the mines became overcrowded and much less successful. Seeing a need for a constant water supply to increase mine prosperity, the Union Water Company was established in 1853, and a series of ditches and flumes were created to bring water 15 miles from the Stanislaus River to Murphys. Ditches were soon constructed to all mining areas around the flat, and within the next ten years, the town saw its greatest prosperity.

Red Apple is an unincorporated community marked by The Red Apple Bakery and Fruit Stand, home to mountain-grown apples, whose orchards have been around since the early 1900s.

Hathaway Pines is a small, unincorporated town named after Robert Hathaway, a developer and general contractor who purchased 320 acres from the USFS in the early 1930s to build his retirement home. He soon abandoned his original plan after he realized that a significant number of tourists used Ebbetts Pass Road. He subdivided the land into two lots and built a gas station and a general store. Hathaway Pines had become a resort with seasonal cabins by 1943, and the name was made official. The site also became the headquarters of the Stanislaus National Forest Calaveras Ranger District. Most of the buildings and residences in Hathaway Pines date to the period between the 1930s and 1940s when the resort town was established (ECORP 2017d).

State Route 4/Ebbetts Pass Road

The present-day alignment of Highway 4 (also known as SR-4) follows the approximate route of an early emigrant trail over the Sierra Nevada in the 1850s. It was known as the Big Tree Road or the Big Tree and Carson Valley Turnpike. It was improved in the mid-1850s as a free road, then became a toll road from 1864-1910, and a free county road in 1911. In 1926, it was accepted into the State Highway System, and portions were paved beginning in the 1930s. SR-4 was realigned in the 1960s with the opening of the Bear Valley Ski resort, and improved into an all-weather highway.

Within the Project Area, SR-4 is labeled Big Trees Road and Ebbetts Pass Road and follows roughly the same trajectory as that shown on the 1876 General Land Office (GLO) Plat Image, although the exact alignment has been altered in some locations over the past century. Aerial imagery and topographic maps indicate the route has been moved north approximately 600 feet, and the alignment was straightened

near Darby Russell Road at Red Apple (Sections 24 and 25). The alignment was smoothed and straightened within 500 feet from Northwood Drive to Forest Meadows Drive (in Section 26) between 1946 and 1993. From 1993 to present day the segment within the Project Area has remained along the same alignment (ECORP 2017d).

Paleontological Resources

A paleontological records search was requested from the University of California Museum of Paleontology (UCMP) on September 8, 2017. The search included a review of the institution's paleontology specimen collection records for Calaveras County, including the Project area and vicinity. In addition, a query of the University of California Museum of Paleontology (UCMP) catalog records; a review of regional geologic maps from the California Geological Survey; a review of local soils data; and a review of existing literature on paleontological resources of Calaveras County by ECORP. The purpose of the assessment was to determine the sensitivity of the Project area, whether or not known occurrences of paleontological resources are present within or immediately adjacent to the Project area, and whether or not implementation of the project could result in significant impacts to paleontological resources. Paleontological resources include mineralized (fossilized) or un-mineralized bones, teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains.

The results of the search of the UCMP indicated that of the 180 paleontological specimens recorded from 8 localities in Calaveras County. Paleontological resources include fossilized remains of birds, mammals, reptiles and amphibians. No paleontological resources have been previously recorded within or near the Proposed Project alignment (UCMP 2017).

Native American Consultation

Although the cultural resources technical study solicited comments from the Native American Heritage Commission (NAHC) by requesting a search of their Sacred Lands File, this request was for information-gathering purposes only. Native American consultation is the responsibility of the lead state and federal agency, and was not conducted as part of the cultural resources technical study.

Section 4.17: Tribal Cultural Resources of this Initial Study describes in detail the Native American consultation process executed for this Initial Study.

4.5.2 Regulatory Setting

NHPA and CEQA (Title 14, CCR, Article 5, §15064.5) apply to cultural resources of the historical and prehistoric periods. Any project with an effect that may cause a substantial adverse change in the significance of a cultural resource, either directly or indirectly, is a project that may have a significant effect on the environment. As a result, such a project would require avoidance or mitigation of impacts to those affected resources. Significant cultural resources must meet at least one of four criteria that define eligibility for listing on either the California Register of Historical Resources (CRHR) (Pub. Res. Code §5024.1, Title 14 CCR, §4852) or the National Register of Historic Places (NRHP) (36 CFR 60.4). Cultural resources eligible for listing on the NRHP are considered Historic Properties under 36 CFR Part 800 and

are automatically eligible for the CRHR. Resources listed on or eligible for inclusion in the CRHR are considered Historical Resources under CEQA.

4.5.3 Cultural Resources (V.) Environmental Checklist and Discussion

a)	Would the project cause a substantial adverse change in the significance of an historical resource as defined in §15064.5?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

As noted, ECORP conducted a cultural resource inventory for the proposed Calaveras County Water District (CCWD) Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvements Project within an initial area to inform delineation of the final Project Area design. The inventory included a records search with the California Historical Resource Information System and with the Stanislaus National Forest Calaveras Ranger District, a literature review, and a field survey. The records search results indicated that seven previous cultural resources studies have been conducted within the Project Area. As a result of those studies, two resources were recorded within the area of potential effects (APE): FS-05-16-52-1077, an historic district including buildings in the town of Hathaway Pines; and P-05-003552, a segment of SR-4, an historic-period road, running through the APE. No isolates were previously recorded in the project area. As a result of the field survey, only a segment of P-05-003552 was located within the APE. No previously recorded elements of FS-05-16-52-1077 were located within the APE. No additional cultural resources were identified within the project area.

FS-05-16-52-1077, an historic district including buildings in the town of Hathaway Pines, has not been formally evaluated for inclusion in the NRHP; however, for the purpose of this project alone, it is considered an historic property under Criterion C. FS-05-16-52-1077 is an historic district, the town of Hathaway Pines, recorded in 2002 by B. Larson and R. Flores. The town developed in the 1930s and 1940s and most buildings were of the Minimal Traditional style. The buildings recorded were in the vicinity of SR-4, and although the boundary encompasses the town itself and includes the Project Area corridor, no buildings or structures that contribute to the district are in the current Project Area and, therefore, would not be adversely affected by the Project.

A segment of P-05-003552, historic SR-4, was evaluated as eligible for the CRHR under Criterion A. It is currently a paved route that was the original route over the Sierra Nevada for immigrants to come into the towns of Murphey's and Angel's camp during the gold rush. The Project plans to replace a pipe segment on the southeastern side of SR 4, and bore underneath the road at several locations along the route of the pipe to tie into areas on the northwestern side of the road. This activity will be done by jack-and-bore, and no equipment or staging areas will come into contact with the resource, and the project will not directly or indirectly affect the contributing elements of the town of Hathaway Pines. The post-project setting will be identical to current conditions. Therefore, the Project will have an effect on the resource, but this affect will not be adverse.

Therefore, this project will have no adverse effect on historic properties; therefore, the impact of the proposed project on cultural resources is less than significant.

Excavation activities during construction of the Proposed Project could disturb potentially significant and previously unknown prehistoric or historical resources. Implementation of mitigation measure **CR-1**, below, will reduce this potential impact to a level considered less than significant.

Mitigation Measure

CR-1 Unanticipated Discovery

In the event that any subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

A. If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.

B. If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the Calaveras County Water District and applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
	☐	☐	☒	☐

As noted, ECORP conducted a cultural resource inventory for the Proposed Project within an initial area to inform delineation of the final Project Area design. The inventory included a records search with the California Historical Resource Information System and with the Stanislaus National Forest Calaveras Ranger District, a literature review, and a field survey. The records search results indicated that seven previous cultural resources studies have been conducted within the Initial Project Area. As a result of those studies, no archaeological resources were recorded in the Project area, and none were encountered in the project area during the field survey.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Trenching for placement of the proposed water line will be performed as part of the Proposed Project. Although the proposed trench depth would be limited to approximately 5 feet below grade on average, trenching activities may result in penetration of the underlying Mehrten Formation which, as noted above, has yielded fossils in other areas. These activities may damage or destroy unknown paleontological resources. Due to the noted paleontological resources previously recorded in the Tertiary Mehrten Formation and the project site subsurface conditions described above, unknown significant, non-renewable paleontological resources could be adversely affected by proposed construction activities. This potential impact can be mitigated to a level that is less than significant with the implementation of Mitigation Measure **P-1**.

Mitigation Measure

P-1: Unanticipated Discovery of Paleontological Resources. If subsurface deposits believed to be paleontological in origin are discovered during construction, then all work must halt within a 50-foot radius of the discovery and CCWD shall be notified within 24 hours or as soon as practicable. A Qualified Professional Paleontologist shall be retained and empowered to halt or divert ground-disturbing activities. A plan for monitoring and fossil recovery must be completed and implemented before ground-disturbing activities can recommence in the area of the fossil find to allow for the recovery of the find. Recovered fossils shall be analyzed to a point of identification and curated at an established accredited museum repository with permanent retrievable paleontological storage. A technical memorandum of findings shall be prepared with an appended itemized inventory of identified specimens and submitted with the recovered specimens to the curation facility.

d Would the project disturb any human remains, including those interred outside of formal cemeteries?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

No formal cemeteries are located in or near the Project Area and no human remains have been reported in the project vicinity. Therefore, the Proposed Project has low potential to disturb human remains. The potential exists however for previously unknown remains to be unearthed during construction. The impact on such resources would be less than significant with the implementation of Mitigation Measure **CR-2**.

Mitigation Measure

CR-2 Human Remains Discovery

If human remains of any kind are found during construction, or remains that are potentially human, a qualified professional archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Calaveras County Coroner (per §7050.5 of the Health and Safety Code). The provisions of §7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, then the Coroner will notify the Native American Heritage Commission, which then will designate a Native American Most Likely Descendant (MLD) for the project (§5097.98 of the Public Resources Code). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, then the NAHC can mediate (§5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

4.6 Geology and Soils

4.6.1 Environmental Setting

Geomorphic Setting

California's geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform. Earth scientists recognize eleven provinces in California. Each region displays unique, defining features based on geology, faults, topographic relief, and climate. The Proposed Project site is located in the Sierra Nevada geomorphic province.

The Sierra Nevada geomorphic province is a tilted fault block nearly 400 miles long. Its east face is a high, rugged multiple scarp, contrasting with the gentle western slope (about 2°) that disappears under sediments of the Great Valley. Deep river canyons are cut into the western slope. Their upper courses, especially in massive granites of the higher Sierra, are modified by glacial sculpturing, forming such scenic features as Yosemite Valley. The high crest culminates in Mt. Whitney with an elevation of 14,495 feet above sea level near the eastern scarp. The metamorphic bedrock contains gold bearing veins in the northwest trending Mother Lode. The northern Sierra boundary is marked where bedrock disappears under the Cenozoic volcanic cover of the Cascade Range (CGS 2002).

Elevations along the Project site range from 3,260 to 3,360 feet above mean sea level. The Project Area consists of the right-of-way along SR 4 heavily wooded pine canopy with an understory of overgrown shrubs, ferns, and non-native planted foliage. The road alignment is located at the ridge between the Stanislaus River Canyon and San Domingo Creek.

Soils

While the U.S. Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS) has the most current soil surveys for Calaveras County and much of California and the U.S., surveys for the lower 2.5 miles of the alignment area are not available at this time. However, the upper two miles of the Project site alignment are available and are used as a part of this analysis.

The NRCS Web Soil Survey website (NRCS 2017) indicates that northeast of Red Apple, four soil types are located within the Project Area: Josephine-Sites families association (155), 5 to 35 percent slopes, a deep well drained soil found on mountains summits, shoulders, and backslopes; Josephine family (152), 35 to 50 percent slopes, and Josephine family, deep-Moderately deep complex (153), 5 to 35 percent slopes, both a well-drained soils found on mountains and backslopes; and Lithic Xerumbrepts-Rock outcrop-McCarthy family, moderately deep complex (175), 5 to 60 percent slopes, an excessively drained soil found on mountain summits, shoulders, ad backslopes. The underlying geomorphology is primarily Undivided Paleozoic metasedimentary rocks. Includes slate, sandstone, shale, chert, conglomerate, limestone, dolomite, marble, phyllite, schist, hornfels, and quartzite. Tertiary pyroclastic and volcanic mudflow deposits are also present in a small portion in the center of the linear Project area. **Table 4.6-1** identifies some of the information available from the Web Soil Survey for soils in the Project site.

Table 4.6-1. Project Soil Characteristics

Soil	Percentage of Survey Area1	Drainage	Flooding Frequency Class	Erosion Hazard2	Hydrologic Soil Group3	Linear Extensibility4	Frost Action5
Josephine family, deep- Moderately deep complex, 5 to 35 slopes	72.7%	Well drained	None	Severe	B	4.4	Low
Josephine family, deep, 35 to 50 percent slopes	6.0%	Well drained	None	Severe	B	4.4	Low
Josephine-Sites families association, deep, 5 to 35 percent slopes	12.4%	Well drained	None	Severe	B	4.4	Low
Lithic Xerumbrepts-Rock outcrop-McCarthy family, moderately deep complex, 5 to 60 percent slopes	8.9%	Excessively drained	None	Severe	D	1.5	Low

Source: NRCS 2017

Notes:

1. Soil data is only available for the upper two miles of the Project site.
2. The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.
3. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation. Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. Group B. Soils having a moderate infiltration rate when thoroughly wet. Group C. Soils having a slow infiltration rate when thoroughly wet. Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet.
4. Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Regional Seismicity and Fault Zones

In California, special definitions for active faults were devised to implement the Alquist-Priolo Earthquake Fault Zoning Act of 1972, which regulates development and construction in order to avoid the hazard of surface fault rupture. The State Mining and Geology Board established policies and criteria in accordance with the act. The board defined an active fault as one which has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault was considered to be any fault that showed evidence of surface displacement during Quaternary time (last 1.6 million years). Because of the large number of potentially active faults in California, the State Geologist adopted additional definitions and criteria in an effort to limit zoning to only those faults with a relatively high potential for surface rupture. Thus, the term sufficiently active was defined as a fault for which there was evidence of Holocene surface displacement. This term was used in conjunction with the term well-defined, which relates to the ability to locate a Holocene fault as a surface or near-surface feature (CGS 2010b, p. 4).

The nearest fault to the project site is the Melones fault, which trends in a north-south direction starting south of New Melones Lake north towards Placerville in El Dorado County. Portions of this fault, north of the Calaveras County Airport and south of New Melones Lake are classified as a Late Quaternary time fault (displacement during past 7000,000 years) (CGS) (2010a). The Melones fault is approximately 14 miles to the west of the lower Project site (near Forest Meadows) (CGS 2010a). This fault is classified as a Quaternary time fault and is considered to be a potentially active fault by the California Geological Survey (CGS) (2010a).

The Alquist-Priolo Earthquake Fault Zoning Act (1972) and the Seismic Hazards Mapping Act (1990) direct the State Geologist to delineate regulatory Zones of Required Investigation to reduce the threat to public health and safety and to minimize the loss of life and property posed by earthquake-triggered ground failures. Cities and counties affected by the zones must regulate certain development projects within them. These acts also require sellers of real property (and their agents) within a mapped hazard zone to disclose at the time of sale that the property is in such a zone.

The project site is not located in an Alquist-Priolo Earthquake Zone. The nearest fault zone mapped by the CGS under the Alquist-Priolo Earthquake Fault Zoning Act is the Coleville fault, which is near the California/Nevada state line south of Topaz Lake, approximately 54 miles northeast of Chico. The CGS does not identify the Project site as an area affected by this fault or any other Alquist-Priolo Earthquake Fault Zone (CGS 2015).

4.6.2 Geology and Soils (VI.) Environmental Checklist and Discussion

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Would the project expose people or structures to 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?	☐	☐	☐	☒

i and ii) As discussed previously, according to CGS, there are no mapped earthquake fault zones covered under the Alquist-Priolo Earthquake Fault Zoning Act in the vicinity of the Proposed Project. The Project site is located in an area considered to have a low potential for seismic-related hazards. The Project site is not located in an active fault zone, and the nearest active fault (Melones fault) is over 14 miles from the Project site. Additionally, the Earthquake Shaking Potential for California map identifies that the Project site and all of Calaveras County are located in an area of distant from known, active faults and will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged (CGS 2016). Because of the low potential for earthquake hazards the Project would have a less than significant impact in this area.

iii) Liquefaction is a phenomenon whereby granular material (i.e., silt and sand) is transformed from a stable state into a freely moving liquid-like state as a result of an increase in pore-water (water between the grains) pressure due to an earthquake. The CGS identifies areas of California that are considered susceptible to liquefaction on their Information Warehouse: Regulatory Maps web-based mapping program (CGS 2017). According to this map, the Project site is not located in an area considered to be susceptible to liquefaction. As described in Items i and ii above, the project is not located in an area of high seismic activity. Additionally, the proposed Project is the replacement of an existing waterline. No occupied structures would be constructed with implementation of the Project. For these reasons, the Proposed Project will have no adverse effects that could result in risk of loss, injury, or death due to liquefaction that may occur during a seismic event. No impact would occur.

iv) Landslides refer to a wide variety of processes that result in the perceptible downward and outward movement of soil, rock, and vegetation under gravitational influence. Common names for landslide types include slump, rockslide, debris slide, lateral spreading, debris avalanche, earth flow, and soil creep. Although landslides are primarily associated with steep slopes (i.e., greater than 15 percent), landslides

can also occur in areas of generally low relief and occur as cut-and-fill failures, river bluff failures, lateral spreading landslides, failures associated with quarries, and open-pit mines. Landslides may be triggered by both natural- and human-induced changes in the environment resulting in slope instability.

Because of the low potential of seismic activity in the Project area and site conditions, seismic induced landslides are not likely; no impact would occur.

b)	Would the project result in substantial soil erosion or the loss of topsoil?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

According to the U.S. Department of Agriculture's (USDA) Web Soil Survey website (NRCS 2017), four mapped soil types are located within the Proposed Project site, all of which have a severe erosion potential (see **Table 4.6-1**). The Proposed Project would remove ground cover vegetation from the project site. During construction, trenching and fill on the project site could create locally unstable soil conditions that could result in a localized increase in wind- or water-related soil erosion.

All excavation activities, grading, and construction would be conducted according to standard construction practices and building codes. Since the Proposed Project would affect more than one acre, a National Pollutant Discharge Elimination (NPDES) permit would be required for construction activities from the Regional Water Quality Control Board (RWQCB), requiring a Stormwater Pollution Prevention Plan (SWPPP). Implementation of the SWPPP, including the use of stormwater quality Best Management Practices (BMPs), would prevent erosion of soil in storm water runoff during project construction (see Section 4.9: Hydrology and Water Quality). . Once construction is completed, soils would be stabilized and monitored according to the SWPPP until a Notice of Termination for the NPDES construction permit is filed with the RWQCB. Consequently, the Proposed Project would not result in substantial erosion and/or unstable earth conditions from project construction or operation. This is applicable to all proposed phases of construction. For these reasons, erosion-related impacts are considered to 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

As discussed previously, the Project site has little potential for landslides due to its location and minor elevation rise.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary. Lateral spreading can result from either the slump of low cohesion and unconsolidated material or, more commonly, by liquefaction of either the soil layer or a subsurface layer

underlying soil material on a slope, resulting in gravitationally driven movement. One indicator of potential lateral expansion is frost action. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing (NRCS 2017). The Web Soil Survey identifies the Project site as having soils with low frost action potential. Additionally, no occupied structures would be constructed with implementation of the Proposed Project. As such, the potential for lateral spreading is also low. Therefore, the Proposed Project would have a less than significant impact regarding lateral spreading.

With the withdrawal of fluids, the pore spaces within the soils decrease, leading to a volumetric reduction. If that reduction is significant enough over an appropriately thick sequence of sediments, then regional ground subsidence can occur. This typically only occurs within poorly lithified sediments and not within competent rock.[4] No known oil, gas, or high-volume water extraction wells are known to be present in the Project area. According to the United States Geological Service (USGS), the Project site is not located in an area of land subsidence (USGS 2017).

Collapse occurs when water is introduced to poorly cemented soils, resulting in the dissolution of the soil cementation and the volumetric collapse of the soil. In most cases, the soils are cemented with weak clay (argillic) sediments or soluble precipitates. This phenomenon generally occurs in granular sediments situated within arid environments. In the mountain areas of California, where there is a potential for frost, frost action (as shown in **Table 4.6-1**) can identify the potential for collapse for a particular soil type. As shown in **Table 4.6-1**, the Project site has a low potential for frost action. Therefore, collapse is not of concern in the Project area and is considered a less than significant impact.

d)	Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

Expansive soils can be determined by a soil's linear extensibility. There is a direct relationship between linear extensibility of a soil and the potential for expansive behavior, with expansive soil generally having a high linear extensibility. Thus, granular soils typically have a low potential to be expansive, whereas clay-rich soils can have a low to high potential to be expansive. According to the NRCS, linear extensibility values for the site range from 1.5 to 4.4. Soils with linear extensibility in that range correlate to soils having a low to moderate expansion potential, as noted in **Table 4.6-1**.

Although the Project soils have a low to moderate expansive soil potential, the limitations due to structural loading are minimal as are the risk to life and property as no new building or other occupied structures would be constructed with implementation of the Proposed Project. The potential effects due to expansion potential of native soils along the pipeline alignment is further mitigated by the proposed

[4] The processes by which loose sediment is hardened to rock are collectively called lithification.

placement of stable backfill material in the pipeline trench. For these reasons, the impact is less than significant.

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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Proposed Project would not directly or indirectly result in the installation of any new septic systems or alternative waste water disposal systems.

4.7 Greenhouse Gas Emissions

4.7.1 Environmental Setting

Greenhouse gases (GHGs) are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Table 4.6-2 provides descriptions of the primary GHGs attributed to global climate change, including a description of their physical properties, primary sources, and contribution to the greenhouse effect.

Table 4.6-2. Greenhouse Gases

Greenhouse Gas	Description
Carbon dioxide (CO_2)	CO_2 is a colorless, odorless gas and is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
Methane (CH_4)	CH_4 is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. CH_4 is emitted from both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (livestock intestinal fermentation and manure management), biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years.[2]

Nitrous oxide (N_2O)	N_2O is a clear, colorless gas with a slightly sweet odor. N_2O is produced by natural and human-related sources. Primary human-related sources are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: [1] EPA 2017a, [2] EPA 2017b, [3] EPA 2017c

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

4.7.2 Greenhouse Gas Emissions (VII.) Environmental Checklist and Discussion

a)	Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

Greenhouse Gas (GHG) emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts and as such is addressed only as a cumulative impact.

GHG emissions associated with the Project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. It is not anticipated that there will be long-term regional emissions associated with the Project, as the Project will not include the provision of new permanent stationary or mobile sources of emissions.

Thresholds of significance illustrate the extent of an impact and are a basis from which to apply mitigation measures. Numerical significance thresholds for GHG emissions resulting from land use development projects have not been established in Calaveras County. Therefore, the projected emissions are compared to the nearest air district that does have an adequate threshold. In this case, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has recommended thresholds of 1,100 metric tons of CO_2e annually for construction-related emissions and 1,100 metric tons of CO_2e annually for operations-related emissions (2016). While SMAQMD significance thresholds are not binding in Calaveras County or on the CCAPCD, they are instructive for comparison purposes. The project would be considered to have a significant impact if projected emissions would exceed 1,100 metric tons of CO_2e annually.

Construction GHG Emissions

Construction of the proposed Project would result in direct emissions of GHGs from construction. The approximate quantity of daily GHG emissions generated by construction equipment utilized to build the proposed Project is depicted in **Table 4.7-1**. Modeling results are included in Appendix A.

Table 4.7-1. Construction GHG Emissions- Metric Tons per Year

Construction Activities	CO_2e
2018	283
2019	65
SMAQMD Potentially Significant Impact Threshold	1,100
Exceed SMAQMD Threshold?	No

Source: CalEEMod, version 2016.3.1. See Appendix A for emission model outputs.

As shown, construction would generate a maximum of 283 metric tons of CO_2e annually. Therefore, because the project is below the annual threshold of 1,100 metric tons of CO_2e, the impact is less than significant.

Operational GHG Emissions

In terms of operational GHG emissions, the proposed Project involves water pipeline improvements and does not propose an automotive trip-generated land use, the most potent source of GHG emissions in the state. The proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, will not generate quantifiable GHG emissions from Project operations. The Project does not propose any buildings and therefore no permanent source or stationary source emissions. Once the Project is completed, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. While it is anticipated that the Project would require intermittent maintenance, such maintenance would be minimal requiring a negligible amount of traffic trips on an annual basis. The proposed Project improvements address existing deficiencies that require modification in order to continue to provide reliable water service for existing development and future growth planned and evaluated in the County General Plan. The operational impact is 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

The proposed Project would result in GHG emissions from construction activities. GHG emissions would be generated from the use of construction equipment, haul trucks, and work vehicles. GHG emissions from the proposed Project would generate a maximum of 283 metric tons of CO_2e annually during the construction period, which is far below the GHG significance threshold for construction of 1,100 metric

tons of CO_2e per year. Since this threshold was prepared with the purpose of complying with California GHG reduction goals, the construction impact is less than significant.

The proposed Project consists of improvements to an existing water pipeline. Therefore, there would be no operational impacts over existing conditions after construction is completed. Operations of the proposed Project would not conflict with any applicable plans, policies, or regulations for the purpose of reducing GHG emissions. Operational GHG impacts would be less than significant.

4.8 Hazards and Hazardous Materials

4.8.1 Environmental Setting

A hazardous material is defined as any material that poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment because of its quantity, concentration, or physical or chemical characteristics. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering regulatory agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (California Health and Safety Code, Section 25501). A number of properties may cause a substance to be considered hazardous, including toxicity, ignitibility, corrosivity, or reactivity.

4.8.2 Hazards and Hazardous Materials (VIII.) Environmental Checklist and Discussion

a)	Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

The Project includes the installation of approximately 24,500 lineal feet (approximately 4.6 miles) of new 10 or 12-inch diameter ductile iron pipe, pressure reducing valve stations, fire hydrants and pipeline valves to replace the existing Reach 1 water pipeline facilities. The majority of the Proposed Project alignment is located within the existing right-of-way for SR-4. This roadway is primarily surrounded by private rural residences and scattered commercial amidst a mixed conifer forest setting.

The Proposed Project is anticipated to require the use of some hazardous materials such as diesel fuel during construction. The transport of hazardous materials by truck is regulated by federal safety standards under the jurisdiction of the U.S. Department of Transportation. The use of such materials would not create a significant hazard to the public and impacts would be less than significant.

b)	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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

On-site storage and/or use of large quantities of hazardous materials capable of affecting soil and groundwater are not proposed. The potential risk associated with accidental discharge associated with use and storage of equipment-related hazardous materials during pipe and valve construction is considered low because the handling of any such materials would be addressed through the implementation of Best Management Practices (BMPs) associated with the Storm Water Pollution Prevention Plan (SWPPP) required for the project. The Proposed Project is an infrastructure project that would not require the long-term use or storage of hazardous substances; therefore, no potential for the release of hazardous materials into the environment is expected. A less than significant impact would occur.

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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Proposed Project consists of the installation of a 10 to 12-inch potable water pipeline and the replacement of existing pressure reducing valve stations and fire hydrants to increase reliability of the distribution system. Hazardous materials, substances, or waste would be handled consistent with federal, state, and local regulations. Avery Middle School, located at 4545 Moran Road, Avery, CA 95224 is the nearest school to the Proposed Project alignment. This school is located approximately 0.3 miles north of the most northern portion of the Project site. 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Project site is not located on a list of hazardous materials sites. There are no open cases of hazardous materials cleanup sites within five miles of the Project site (DTSC 2017; SWRCB 2017a).

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 for people residing or working in the Project Area?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

According to the Calaveras County Airport Land Use Commission Airport Land Use Plan, the Calaveras County Airport is the nearest public use airport to the project site. The Proposed Project is located approximately 12.5 miles east of the Calaveras County Airport and not within the safety zones for the airport. Therefore, no safety hazards to people residing or working in the Project Area would result due to the proximity to a public or public use airport. No impact would occur.

f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the Project Area?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The project site is located more than 10 miles south of the Eagle Ranch Ridge private airstrip located at Mokelumne Hill, CA 95245. Therefore, no safety hazards to people residing or working in the Project Area would result due to the proximity to a private or private use airstrip. No impact would occur.

g)	Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

The Calaveras County Emergency Operation Plan (EOP) is considered the primary document when discussing how disasters will be managed by the County. Implementation of the Proposed Project would not interfere with the adopted Calaveras County EOP. While much of the Project construction would occur in the SR-4 right-of-way, all construction that would impede traffic would require approval of Caltrans and Calaveras County. This approval would allow for prior notification to those emergency facilities involved in a potential evacuation and evacuation routes would be changed if needed. In addition, implementation of Mitigation Measure TRA-1 (see Section 4.16), which requires a Construction Traffic Management Plan, would assist in traffic flow on SR-4. Therefore, construction of the proposed project would not obstruct evacuation routes or access to critical emergency facilities. Once construction is completed, the proposed pipeline would not interfere with the OEP or any evacuation. This impact is less than significant with mitigation.

h)	Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Construction activities have the potential to result in the ignition of a fire. A fire could be ignited from construction equipment use without a proper spark arrestor or from other construction activities such as welding. Due to the high fire hazard rating of the surrounding area, if a fire were to start, it could expose people to a significant risk of loss, injury, or death, resulting in a significant impact, especially in the northern portion of the project area where forest surround the project area. Implementation of mitigation measures **HHM-1** would minimize the potential for construction activities to ignite a fire and would reduce this impact to a less than significant level.

Mitigation Measure

HHM-1: To prevent fires, the contractor will prepare and implement a fire safety plan for construction operations, such as welding, and use construction equipment with fire prevention devices pursuant to Public Resource Code 4442. The fire safety plan will identify suppression measures to implement in the event of an accidental fire, which may include using watering trucks or water from the existing pipeline to suppress the fire.

4.9 Hydrology and Water Quality

4.9.1 Environmental Setting

Regional Hydrology

Surface Water

The U.S. Environmental Protection Agency (USEPA) identifies Calaveras County as having six watersheds within its boundaries (USEPA 2017). These include the: Middle San Joaquin River-Lower Merced River-Lower Stanislaus River; Lower Calaveras River-Mormon Slough; Lower Cosumnes River -Lower Mokelumne River; Upper Stanislaus River; Upper Calaveras River; and Upper Mokelumne River watersheds.

All of these watersheds are part of the greater San Joaquin River hydrologic region. The region extends south from just below the northeastern corner of Sacramento County and east to include the southern third of El Dorado County, almost all of Calaveras County, all of Amador, Mariposa, Madera, Merced, Stanislaus, and Tuolumne counties, and the western slope of Alpine County (DWR 2005).

The Project site lies within the Upper Stanislaus River watershed. The Stanislaus River watershed drains 1,075 square miles and is divided into two distinct sections – the mountainous upper watershed, where the vast majority of its flow originates, and the narrow, heavily developed lower watershed where it flows across the San Joaquin Valley (NOAA 2014). Goodwin Dam has traditionally been considered the dividing line between the upper and lower watersheds (Metz 2017). The upper watershed comprises 90 percent of

the total area and supplies a commensurate proportion of the river flow. Stretching from the foothill to alpine regions of the Sierra Nevada, it consists of rugged narrow canyons and ridges with an average local relief of 2,000 feet or more from river to rim. Much of the watershed is at high elevation, with 40 percent of the total area above winter snow line. The average precipitation in the upper basin as a whole is 46.8 inches (Moratto n.d.). The vast majority of the upper basin is either undeveloped, or commercial timber land, with very small areas of open water (mostly reservoirs), agriculture and ranching, as well as mountain meadows and exposed rock above the tree line (SWRCB 2002). The higher elevations are mostly federal Forest Service land and designated wilderness, while the middle elevations are a patchwork of state, federal and privately-owned land (NOAA 2007).

Groundwater

As previously stated, the Proposed Project site is located in the San Joaquin River hydrologic region. While approximately half to the San Joaquin River hydrologic region is unlined by the San Joaquin Valley Groundwater Basin, most of Calaveras County is not (DWR 2013). The Project site is not located within an identified groundwater basin.

Regional Water Quality

Surface and groundwater water quality in Calaveras County is generally good. The western portion of Calaveras County holds the majority of population and associated developed land uses, and therefore has the greatest potential for water quality problems. The California State Water Resources Control Board (SWRCB) identifies impaired water bodies in the state. Impaired water bodies are those that are contaminated by pollutants, the water bodies are considered impaired and subsequently placed on the 303d list. These impairments are related to the amount of pollution that has occurred in or near the water body**.** The 303(d) list is the list of impaired waterbodies. All states are required to develop a list of waterbodies that do not meet water quality standards. This requirement comes from Section 303(d) of the Clean Water Act, hence the common name for the list. In Calaveras County, there are 12 bodies of water that are considered impaired. These include: San Antonio Creek, Bear Creek, Little Johns Creek, Calaveras Creek, the Calaveras River, the North Fork and Middle Fork of the Mokelumne River, Pardee Reservoir, Comanche Reservoir, New Hogan Lake, New Melones Reservoir and the Stanislaus River below Melones Reservoir. The Project site is within the Stanislaus River watershed. However, the Stanislaus River above New Melones Reservoir is not an impaired water body (SWQCB 2017).

Site Hydrology and On-Site Drainage

As described in Section 2 of this IS, the Proposed Project would construct a water supply pipeline to improve the distribution system quality in the Ebbetts Pass Service Area of the Calaveras County Water District. The project would install approximately 24,500 feet of buried 10 to 12-inch potable water gravity-flow pipeline commencing near the Hunter Dam Water Treatment Plant and ending at approximately post mile 32.3, west of Forest Meadows. The majority of construction of the Proposed Project would occur within the SR-4 ROW.

A wetlands delineation report was prepared for the Proposed Project by ECORP Consulting (2017c). The report identified two seasonal wetland swales, a number of seeps, intermittent drainages, ephemeral

drainages and ditches that would be within close proximity of the Project construction area. No creeks, rivers or lakes were identified within the Project site. In total, approximately 0.184 acre of wetland features were identified by the Wetlands Delineation within the APE.

Seasonal wetland swales are generally linear wetland features that convey stormwater runoff, but do not exhibit an ordinary high-water mark (OHWM) and support a predominance of hydrophytic vegetation and hydric soils. These are typically inundated for short periods during and immediately after rain events, but usually maintain soil saturation for longer periods mainly during the growing season. Two seasonal wetland swales were identified within the Project site amounting to 0.45 acre.

Seeps are typically found on sloped terrain where subsurface water reaches the surface. They may form small pools where the topography is relatively flat, but are more commonly characterized by saturated soil, either seasonally or perennially. Approximately 0.56 acres of seeps were identified in the Project area just southwest of where Northwood Drive meets the alignment.

Intermittent drainages are linear features that exhibit a bed and bank, OHWM, and flow for longer duration than ephemeral drainages. Intermittent drainages differ from ephemeral drainages in that they flow for longer duration, typically weeks or months following rainfall events. The intermittent drainages mapped within the Project site amount to 0.017 acres and tend to be sparsely vegetated due to the absence of soil, presence of bedrock and/or cobble, and the scouring effects of flowing water.

Ephemeral drainages are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. Ephemeral drainages within the Project site were sparsely vegetated and amounted to 0.021 acres.

The ditches are linear features constructed to convey stormwater along roadsides. Ditches occur scattered throughout the Project area. The ditches are usually unvegetated due to the absence of soil and the scouring of fast-moving water during precipitation events. Approximately 0.045 acres of ditches are within the Project site.

4.9.2 Hydrology and Water Quality (IX.) Environmental Checklist and Discussion

a)	Would the project violate any water quality standards or waste discharge requirements?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

Project Operation:

he Proposed Project would replace an existing water supply pipeline with no alteration in water source, treatment or delivery capacity relative to current conditions. As such, long-term operation of the Proposed Project will have no impact on existing water quality standards or waste discharge requirements.

Project Construction:

Site preparation and construction activities associated with proposed pipeline construction and staging area development will involve temporary/short-term earth-moving activities including trenching and grading which can facilitate soil erosion and sediment loading to nearby water bodies. Construction activities that are subject to the NPDES Construction General Permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, which result in soil disturbances of at least one acre of total land area. The SWRCB permits all regulated construction activities under Order No. 98-08-DWQ (1999). This Order requires that prior to beginning any construction activities, the permit applicant must obtain coverage under the General Construction Permit by preparing and submitting a Notice of Intent (NOI) and appropriate fee to the SWRCB. Additionally, coverage will not occur until an adequate Stormwater Pollution Prevention Plan (SWPPP) has been prepared. A separate NOI shall be submitted to the SWRCB for each construction site.

Required elements of a SWPPP include (1) site description addressing the elements and characteristics specific to the site; (2) descriptions of BMPs for erosion and sediment controls; (3) BMPs for construction waste handling and disposal; (4) implementation of approved local plans; (5) proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and (6) non-stormwater management.

Typical construction BMPs include, but are not necessarily limited to, scheduling or limiting activities to certain times of year; prohibiting certain construction practices; implementing equipment maintenance schedules and procedures; implementing a monitoring program; other management practices to prevent or reduce pollution, such as using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks do not enter the storm drain system or surface waters; developing and implementing a spill prevention and cleanup plan; installing traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains; and using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter drains or surface water. Because construction of the Proposed Project would cumulatively disturb more than one acre, all activities would be subject to these permit requirements.

With preparation of the required SWPPP, implementation of BMPs associated with that plan and listed above and compliance with the Calaveras County Code Chapter 15.05 Grading and Drainage Ordinance, the construction activities for the Proposed Project would fully comply with all relevant water quality standards and waste discharge requirements as described above. The impact, therefore, is less than significant.

b)	Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

Construction and operation of the Proposed Project would not increase the use of groundwater. No new water services are proposed with implementation of the Project. The Ebbetts pass service area receives its water supply from the North Fork of the Stanislaus River (CCWD 2016). No groundwater is used to supplement this water supply. Due to the linear nature of the proposed pipeline and proposed restoration of project construction staging areas to pre-project conditions, any localized effects of the project on groundwater recharge would be unsubstantial. Therefore, the Proposed Project would have no impact.

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, in a manner that would result in substantial erosion or siltation on- or off-site?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

As discussed in Item a) above, project construction and staging activities will result in soil disturbances of at least one acre of total land area. As such, an NPDES Construction General Permit will be required prior to the start of construction. Additionally, coverage will not occur until an adequate SWPPP has been prepared.

As noted, required elements of a SWPPP include (1) site description addressing the elements and characteristics specific to the site; (2) descriptions of BMPs for erosion and sediment controls; (3) BMPs for construction waste handling and disposal; (4) implementation of approved local plans; (5) proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and (6) non-stormwater management.

Excavation and grading activities associated with the Proposed Project will reduce vegetative cover and expose bare soil surfaces making these surfaces more susceptible to erosion and sediment transport. To comply with the requirements of the NPDES Construction General Permit AWA will be required to file a Notice of Intent (NOI) with the State of California and submit a SWPPP defining BMPs for construction and post-construction related control of the Proposed Project site runoff and sediment transport. Requirements for the SWPPP include incorporation of both erosion and sediment control BMPs. The SWPPP should include the following applicable elements:

- diversion of offsite run-off away from the construction area;
- prompt revegetation of proposed landscaped areas;
- perimeter straw wattles or silt fences and/or temporary basins to trap sediment before it leaves the site;
- regular sprinkling of exposed soils to control dust during construction during the dry season;
- installation of a minor retention basin(s) to alleviate discharge of increased flows;
- specifications for construction waste handling and disposal;
- erosion control measures maintained throughout the construction period;
- preparation of stabilized construction entrances to avoid trucks from imprinting debris on City roadways;
- contained wash out and vehicle maintenance areas;
- training of subcontractors on general construction area housekeeping;
- construction scheduling to minimize soil disturbance during the wet weather season; and
- regular maintenance and storm event monitoring.

Note that the SWPPP is a "live" document and should be kept current by the person responsible for its implementation. Preparation of, and compliance with a required SWPPP would effectively prevent Proposed Project on-site erosion and sediment transport off-site. This will reduce potential runoff, erosion, and siltation associated with construction and operation of the Proposed Project. The effects of the Proposed Project on on-site and off-site erosion and siltation, therefore, would be less than significant.

d)	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 substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
		☐	☐	☒	☐

As noted, the Proposed Project would restore areas affected by pipeline construction, construction staging and related facilities to pre-project conditions relative to topography and groundcover, to the extent practicable. Also, as noted, the proposed pipeline alignment will not transect any stream or river courses. As such, the Proposed Project would not substantially alter surface runoff conditions relative to pre-project conditions. This impact, therefore, is less than significant.

e)	Would the project 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

As noted under Item d) above, the Proposed Project would restore areas affected by pipeline construction, construction staging and related facilities to pre-project conditions relative to topography and groundcover, to the extent practicable. Therefore, any impact of the project on existing or planned stormwater drainage systems would be less than significant relative to existing conditions. With acquisition of the required SWPPP and compliance with standard permit measures for the control and management of construction-related erosion and polluted runoff discussed above, the Proposed Project impacts on the quality and quantity of runoff from the project site would be less than significant.

f)	Would the project otherwise substantially degrade water quality?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

As discussed under Items a, c, and e, above, with acquisition of the required SWPPP, and compliance with standard permit measures for the control and management of construction-related erosion and polluted runoff, the Proposed Project impacts on the quality and quantity of runoff during project construction would be less than significant. With restoration of the project site to pre-project conditions relative to topography and cover after project completion, the long-term impact of the project on water quality is less than significant.

g)	Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒
h)	Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒
i)	Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

	☐	☐	☐	☒

Discussion: Items g), h), and i)

As identified in Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) 06009C0475E and 06009C0450E dated December 17, 2010, the proposed pipeline alignment, construction staging areas and related facilities are located entirely within Zone X. Zone X is an area of minimal flood hazard, determined to be outside of the 0.2 percent annual chance of flood. Additionally, the Proposed Project would not directly or indirectly result in the construction or modification of any occupied structures. For these reasons, the Proposed Project would have no impact on flood-related issues identified in Items g, h and i, above.

j)	Would the project be subject to inundation by seiche, tsunami, or mudflow?	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
		☐	☐	☐	☒

The Proposed Project site does not occur in areas susceptible to seiche, tsunami, or mudflows. No impact would occur.

4.10 Land Use and Planning

4.10.1 Environmental Setting

The Proposed Project alignment is located within the Avery-Hathaway Pines Community Plan and the Ebbetts Pass Highway Special Plan in Calaveras County. Within the Avery-Hathaway Community Plan area the Proposed Project alignment transects several parcels which are designated as Resource Production – USFS, Public Service, Single Family Residential, Rural Residential, Industrial, and Professional Office. Ebbetts Pass Highway Plan defines the areas of the Project alignment within the plan area as Single Family Residential and Commercial. Title 17 of the Calaveras County Zoning Code designates the SR-4 right-of-way as ROW (Right-Of-Way) or GF (General Forest).

4.10.2 Land Use and Planning (X.) Environmental Checklist and Discussion

a)	Would the project physically divide an established community?	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
		☐	☐	☐	☒

The Proposed Project consists of the replacement of existing water distribution system. The majority of the proposed pipeline alignment would be within the SR-4 right-of-way, with the exception of a 1,080-foot section near the Hunter Dam WTP. Replacing the existing pipeline within a 5- to 10-foot trench

would not divide any existing communities in the area. The Proposed Project would have no impact in this area.

b)	Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Proposed Project involves the replacement of existing water pipeline facilities to improve the distribution system reliability. As described previously in Section 4.10.1 Environmental Setting, the majority of the Proposed Project alignment is located within the existing roadway right-of-way for SR-4. Prior to installation of the proposed pipeline, an encroachment permit would be required for construction within the Caltrans roadway. 1,080 feet of the pipeline near Hunter Dam WTP is located within the Stanislaus National Forest. CCWD has a Special Use Permit (SUP) with the U.S. Forest Service covering the pipeline and related maintenance activities. The proposed pipeline replacement is an allowed activity that is covered by the current SUP.

Therefore, the Proposed Project would not conflict with any applicable land use plan, policy or regulation. A less than significant impact would occur and no mitigation measures are required.

c)	Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

As described previously in Section 4.4.2 Biological Resources Item f), according to the CDFW's NCCP program, there is no approved or planned HCP or NCCP located within Calaveras County. No impact would occur.

4.11 Mineral Resources

4.11.1 Environmental Setting

The Surface Mining and Reclamation Act (SMARA) of 1975 requires all cities and counties to incorporate the mapped mineral resource designations approved by the State Mining and Geology Board, in their General Plans. These designations categorize land as Mineral Resource Zones (MRZ-1 through MRZ-4) and are defined below.

The State-mandated Surface Mining and Reclamation Act of 1975 (SMARA) requires the identification and classification of mineral resources in areas within the State subject to urban development or other

irreversible land uses that could otherwise prevent the extraction of mineral resources. MRZs are classified by the State Geologist by analyzing associated geologic and economic factors without regard to current land use or ownership (DOC 2013). There are four general classifications (MRZ-1 through MRZ-4) based upon the State Geologist's determination of identified mineral resource significance and are defined below:

- MRZ-1 "Areas of No Mineral Resource Significance", wherein geologic information indicates no significant mineral deposits are present;
- MRZ-2 "Areas of Identified Mineral Resource Significance," are areas that contain Identified mineral resources;
- MRZ-3 "Areas of Undetermined Mineral Resource Significance," are areas of undetermined mineral resource significance; and
- MRZ-4 "Areas of Unknown Mineral Resource Significance", are areas of unknown mineral resource potential.

The Calaveras County General Plan has identified a number of mineral resources that are found in the county including limestone, gold, sand, gravel, copper, zinc, asbestos and chromite (Calaveras County 1996)

4.11.2 Mineral Resources (XI.) Environmental Checklist and 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Calaveras County Geographical Information Systems (GIS) provides mapping for areas in the County that are considered to have potential mineral resources. The Proposed Project alignment is not within an area identified as having the potential for mineral resources by the County (Calaveras County 2017a). Therefore, implementation of the Proposed Project would not result in the loss of availability of a known mineral resource. 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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Calaveras County Geographical Information Systems (GIS) provides mapping for areas in the County that are considered have potential mineral resources. The Proposed Project alignment is not within an area identified as have the potential for mineral resources by the County (Calaveras County 2017a).

Therefore, implementation of the Proposed Project would not result in the loss of availability of a known mineral resource. No impact would occur.

4.12 Noise

4.12.1 Environmental Setting

Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in Leq) and the average daily noise levels (in Ldn/CNEL).

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, and hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (EPA 1971).

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise, but are less effective than solid barriers.

Vibration

Ground vibration can be measured several ways to quantify the amplitude of vibration produced. This can be through peak particle velocity or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.12.2 Noise (XII.) Environmental Checklist and Discussion

a)	Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Construction Impacts

Title 9, Chapter 9.02 of the Calaveras County Code of Ordinances regulates noise control in Calaveras County. Although Chapter 9.02 of the County's Code of Ordinances exempts noise sources associated with construction, provided that all construction in or adjacent to residential areas shall be limited to the daytime hours between 7:00 a.m. and 6:00 p.m., a discussion of construction noise is included for full disclosure purposes.

Construction of the proposed Project would result in a temporary short-term increase of noise levels in the Project vicinity. Construction activities would include replacement of approximately 24,500 feet of buried water pipeline. The proposed Project would be completed in approximately eight months; commencing in May 2018 and extending over the construction seasons. Construction activities would require the use of construction equipment such as a trencher, excavators, tractors, loaders, forklifts, rollers, pavers and other paving equipment.

The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment and the prevailing wind direction. The noise levels for various types of construction equipment that could be required during construction of the proposed Project are provided in **Table 4.12-1**.

Table 4.12-1. Typical Noise Levels from Construction Equipment

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Air Compressor	80	76
Backhoe/Front End Loader	80	76
Compactor (Ground)	80	73
Concrete Mixer Truck	85	81
Concrete Mixer (Vibratory)	80	73
Concrete Pump Truck	82	75
Concrete Saw	90	83
Crane	85	77

Table 4.12-1. Typical Noise Levels from Construction Equipment

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Dozer/Grader/Excavator/Scraper	85	81
Drill Rig Truck	84	77
Generator	82	79
Gradall	85	81
Hydraulic Break Ram	90	80
Jackhammer	85	78
Impact Hammer/Hoe Ram (Mounted)	90	83
Pavement Scarifier/Roller	85	78
Paver	85	82
Pneumatic Tools	85	82
Pumps	77	74
Truck (Dump/Flat Bed)	84	80

Source: FTA 2006

During the construction phase of the Project, exterior noise levels resulting from construction could affect nearby sensitive receivers. As shown in **Table 4.12-1**, L_{eq} noise levels associated with individual construction equipment used for typical construction projects can reach levels of up to approximately 83 dBA L_{eq} at a distance of 50 feet. This equates to noise levels of 89 dBA L_{eq} at the nearest sensitive receptors 25 feet distant. Construction activities would be temporary, but it could exceed General Plan recommended maximum noise standards for sensitive land uses and would be potentially significant. Implementation of mitigation measure **NO-1** and **NO-2** would reduce noise exposure to nearby receptors and ensure impacts are less than significant.

NO-1 The CCWD shall ensure that the construction contractor implements the following measures, as appropriate, during construction activities:

A. Noise producing construction activities shall be limited to the hours of 7:00 a.m. and 6:00 p.m. when activities occur within 500 feet of a residential or other noise sensitive land use, unless activities are required outside these hours by Caltrans or other jurisdictional agencies.

B. All construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.

C. The simultaneous operation of multiple types of construction equipment within 100 feet of residences shall be minimized, to the extent practicable. Equipment not in use shall not be left idling for more than 5 minutes.

NO-2 The CCWD will work within the construction contractor and nearby residents to minimize disturbance to occupied residences. Before construction near noise-sensitive receptors, the CCWD shall provide written notification to potential affected receptors, identifying the type, duration, and frequency of construction operations, as well as contractor contact information.

Long-Term Operational Impacts

There will be no new operational activities associated with the proposed Project. Additionally, because the proposed Project would not directly or indirectly introduce a new population into the region, the total number of automobile trips, a substantial noise source, generated by the Project is not expected to change significantly from existing conditions. Therefore, there is no impact in regard to operational noise.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
	☐	☐	☒	☐

Although the County does not regulate vibration associated with construction or operations, a discussion of construction vibration is included for full disclosure purposes.

Construction Impacts

Construction operations have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. The ground vibration levels associated with various types of construction equipment are summarized in **Table 4.12-2**. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels.

Table 4.12-2. Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Loaded Trucks	0.076
Jackhammer	0.035

Source: FTA 2006; Caltrans 2004

It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. The nearest off-site structure to any of the construction areas is a residence approximately 25 feet away. Based on the vibration levels presented in **Table 4.12-2**, ground vibration generated by heavy-duty equipment would not be anticipated to exceed

approximately 0.089 inches per second peak particle velocity at 25 feet. This vibration level is below Caltrans's (2004) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for older residential buildings. This is also the level at which vibrations may begin to annoy people in buildings. Therefore, since predicted vibration levels at the nearest off-site structures would not exceed recommended criteria and because the County does not regulate vibration associated with construction, there would be a less than significant impact.

Long-Term Operational Impacts

Once operational, the project would not be a source of groundborne vibration. For these reasons, there is no impact.

c)	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

As discussed in a) *Long-Term Operational Impacts* above, the proposed Project consists of improvements to an existing water pipeline. Therefore, long-term traffic levels would not increase and there would be no new operational noise sources. The proposed Project would not result in a significant increase in existing ambient noise levels in the Project vicinity. Thus, there is no impact.

d)	Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

As described in Issue a) *Construction Impacts*, above, Chapter 9.02 of the County's Code of Ordinances exempts noise sources associated with construction, provided that all construction in or adjacent to residential areas is limited to the daytime hours between 7:00 a.m. and 6:00 p.m. With adherence to the County's Code of Ordinances, noise associated with construction activity will have a less than significant impact.

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 expose people residing or working in the Project Area to excessive noise levels?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Project site is not located within an area covered by an airport land use plan or within two miles of a public or public use airport. Thus, no impact would occur with implementation of the proposed Project.

f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the Project Area to excessive noise levels?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

There are no private airstrips located near the Project site. No impact would occur.

4.13 Population and Housing

4.13.1 Environmental Setting

The Proposed Project alignment spans a distance of approximately 4.5 miles and is adjacent to the two unincorporated communities of Hathaway Pines and Forest Meadows. Both Hathaway Pines and the surrounding area are in the 95233 zip code and Forest Meadows and surrounding area are in the 95247 zip code. Both zip code areas are much larger than the communities of Hathaway Pines and Forest Meadows. The U.S. Census reports that 2010 population in the 95233 zip code was 436 and in the 95247 zip code was 4,368. The 2015 American Community Survey (ACS) 5-year population estimate for the 95233 zip code area was 627 and for the 95247 zip code was 4,981 (US Census 2017). According to the 2010 Census there were 280 housing units 95233 zip code of which 87 were vacant. In the 95247 zip code area, there were 2,526 housing units of which 528 were vacant. The 2015 ACS indicates an estimated housing unit count of 310 for the 95233 zip code and 2,613 for the 95247 zip code. The 2015 ACS does not identify how many of these units were vacant.

4.13.2 Population and Housing (XIV.) Environmental Checklist and Discussion

a)	Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Proposed Project objective is to install a new pipeline to improve the distribution system reliability. Upon completion of the Proposed Project, the Project Area would be returned to existing conditions. The pipeline wouldn't increase service capacity or extend service to areas that do not currently have service. Implementation of the Proposed Project would upgrade existing deficient infrastructure and would not induce substantial population growth in the area. Furthermore, minimal operation and maintenance of the pipeline would be required and no permanent employees would be hired because of the Proposed Project. No impact would occur.

b)	Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

As described previously in Section 2.2 Project Setting, the majority of the Proposed Project is located within existing SR-4 right-of-way except for the portion near the Hunter Dam WTP. The Project does not include the removal of existing housing. No impact would occur.

c)	Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

See response above under item b). The Proposed Project alignment would not displace people and necessitate the construction of replacement housing elsewhere. No impact would occur.

4.14 Public Services

4.14.1 Environmental Setting

Police Services

The Calaveras County Sheriff's Office is the law enforcement agency for the unincorporated County. The Sheriff's Office provides services to 95 percent of the County's population. The Calaveras County Sheriff's Office and County Jail are located at the Government Center at 1045 Jeff Tuttle Drive in San Andreas. Four Sheriff's substations are in the communities of Valley Springs, Copperopolis, West Point, and Arnold. The Sheriff's Office staffing level is five officers per shift. Its goal is to increase that to six officers by 2020. The Sheriff's Office also operates the emergency communications system consisting of four communications towers. The Calaveras County Sheriff's Office operates and manages the County Office of Emergency Services which coordinates emergency service management with the State Office of Emergency Services and the Department of Homeland Security. The Sheriff's Office is the only Public Safety Answering Point for the County of Calaveras and Operates the only 911 Call Center within the County (Calaveras County 2016).

Fire Services

There are 11 cooperative districts that provide local fire protection services in Calaveras County. The Ebbetts Pass Fire District (EBFD) provides fire protection in the Proposed Project area (Calaveras LAFCO 2013). EPFD's service area encompasses 225 square miles of the County including areas in and around the Stanislaus National Forest. EPFD provides paramedic emergency response and emergency transit services to western Alpine County and areas of Tuolumne County accessed from SR-4. In 2017, the EPFD had 22 sworn personnel—one full-time fire chief, three full-time battalion chiefs, three full-time captains, six full-time engineers, seven firefighters, and two firefighter interns (EPFD 2017).

Schools

Vallecito Union School District (VUSD) is responsible for providing Kindergarten through 8th grade education to students within Project site area. There are two elementary schools and one middle school in the district. The nearest high school is Bret Harte Union High School located in the City of Angels Camp. No schools are within the Project site or adjacent communities of Hathaway Pines or Forest Meadows. The nearest school to the project site is Avery Middle School in Avery approximately .3 mile north of the Proposed Project alignment.

Parks

Calaveras County has a multitude of recreational opportunities including mountains, forests, lakes, streams, and areas of historical significance. The Stanislaus National Forest comprises 13 percent (85,000 acres) of the County's land area. The U.S. Bureau of Land Management (BLM) has numerous scattered land holdings throughout the County. BLM lands comprise 6 percent (39,500 acres) of the County's land area and provides undeveloped open space and recreational resources. Five major reservoirs comprise 5 percent (35,000 acres) of the County's land area. Calaveras Big Trees State Park has 5,500 acres. Listed below are the major parks and recreation facilities in the County.

- Stanislaus National Forest (U.S. Forest Service)
- Mokelumne Wilderness (U.S. Forest Service)
- New Melones Reservoir (U.S. Bureau of Reclamation)
- New Hogan Reservoir (U.S. Bureau of Reclamation)
- Pardee and Camanche Reservoirs (East Bay Municipal Utility District)
- Lake Tulloch (Oakdale and South San Joaquin Irrigation District)
- Calaveras Big Trees State Park (State of California)
- Calaveras County Fairgrounds (State of California)
- Salt Springs Reservoir (Pacific Gas & Electric Company)
- Mercer Caverns, Moaning Cave, and Cave City (Private Ownership)

Various other entities provide community park and recreational facilities within the County. Public elementary schools, middle schools and high schools throughout the County provide various recreational facilities and services for their students. The general public sometimes uses these facilities. Some parks are managed by community organizations, such as Murphys Park in the community of Murphys and White Pines Park in Arnold (Calaveras LAFCO 2005).

Other Public Facilities

Calaveras County Library provides materials and services to promote lifelong learning needs of residents from pre-school to adulthood. There are eight library branches that support the Calaveras County Library

including San Andreas, Angels Camp, Arnold, Copperopolis, Mokelumne Hill, Murphys, Valley Springs, and West Point Branch Libraries. Other public facilities in the Calaveras County Government Center. This center includes many of the government serves offered in the County such as the County Clerk and Recorder and Planning and Building Departments, as well as the Board of Supervisors facilities. (Calaveras County 2017b).

4.14.2 Public Services (XV.) Environmental Checklist and 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:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
	Fire Protection?	☐	☐	☒	☐
	Police Protection?				
	Schools?				
	Parks?				
	Other Public Facilities?				

The Proposed Project consists of the installation of a 10 to 12-inch potable water pipeline in order to improve the distribution system reliability. The proposed pipeline would be maintained by CCWD and would not require public services beyond existing conditions. The Proposed Project would not result in an increase in population which in turn would impact public facilities. As such, the Proposed Project would not affect police protection, fire protection, schools, parks, or other public facilities. A less than significant impact would occur.

4.15 Recreation

4.15.1 Environmental Setting

As stated previously in Section 4.15 Public Services, Calaveras County has a multitude of recreational opportunities including mountains, forests, lakes, streams, and areas of historical significance. The Stanislaus National Forest comprises 13 percent (85,000 acres) of the County's land area. The U.S. Bureau of Land Management (BLM) has numerous scattered land holdings throughout the County. BLM lands comprise 6 percent (39,500 acres) of the County's land area and provides undeveloped open space and recreational resources.

4.15.2 Recreation (XV.) Environmental Checklist and 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?	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
	☐	☐	☐	☒

The Proposed Project consists of the installation of a 10 to 12-inch potable water pipeline in order to improve the distribution system reliability. The population would not increase as a result of the project; and therefore, use of the existing neighborhood, regional parks, or other recreational facilities would not change from the current use. As such, the Proposed Project would not increase the use of existing recreational facilities that could cause substantial physical deterioration of the facilities. Therefore, no impact would occur.

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?	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
	☐	☐	☐	☒

See discussion under item a). The Proposed Project consists of the installation of a 10 to 12-inch potable water pipeline in order to improve the distribution system reliability. No recreational facilities are proposed as part of the project, and therefore, no impact would occur.

4.16 Transportation/Traffic

4.16.1 Environmental Setting

Project Area Transportation Setting

The Proposed Project would be constructed in Calaveras County, California approximately 50 miles southeast of the City of Sacramento on the western slope of the Sierra Nevada. The project is adjacent to the communities of Hathaway Pines and Forest Meadows, located approximately 8.5 miles northeast of the City of Angels Camp along SR-4. The Project spans approximately 4.5 miles, beginning just southwest of Forest Meadows near Silver Dawn Ranch Road and proceeding northeast towards the intersection of SR-4 and Hunter Dam Road where it then leaves SR-4 and continues for another 1,600-feet (see **Figure 3**).

Most of the Proposed Project alignment is located within the existing SR-4 right-of-way. This roadway primarily surrounded by private rural residences and some commercial uses amidst a mixed conifer forest setting. As noted in Section 2 of this Initial Study, the proposed pipeline alignment includes the replacement of an existing pipeline, pressure valves, and fire hydrants, of which 97 percent is within the SR-4 right-of-way. Just past the intersection of SR-4 and Hunter Dam Road, the proposed pipeline

alignment proceeds north and enters property of the Stanislaus National Forest to the connection point near the Hunter Dam WTP.

The Proposed Project would replace aging facilities with a new pipeline to improve the distribution system quality and reliability in the CCWD Ebbetts Pass Service Area. The Proposed Project is not intended to increase service capacity in the CCWD system and, as such, would not directly or indirectly result in future growth and development not served by existing facilities.

4.16.2 Transportation/Traffic (XVII.) Environmental Checklist and Discussion

a)	Would the project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Because the Proposed Project would not directly or indirectly introduce a new population in the region, the total number of trips generated by the project is not expected to change significantly from existing conditions. Project construction will, however, result in temporary increases in local traffic due to the transport of construction personnel, equipment and material to the project site.

As noted in Section 2 of this Initial Study, the Proposed Project would be completed over a two-year period with a suspension of construction during the winter months. Actual construction will take approximately 8 months. The number of construction workers would vary from a minimum of three to a maximum of 25, dependent on construction phase.

Project construction would have a temporary impact on traffic flow near the proposed pipeline alignment and construction staging areas. Existing traffic levels would increase on SR-4 due to deliveries of materials and equipment to the project site and by workers commuting to the site daily. It is assumed that construction workers would travel to and from the construction site daily in personal vehicles.

Trips generated by delivery of equipment and materials would vary and depend on the construction method selected by the contractor and cannot be accurately quantified at this time.

Construction of the Proposed Project could temporarily increase traffic safety hazards along the pipeline routes. In addition to possible lane closures, vehicles hauling construction equipment and materials would be traveling at slower speeds than through traffic. This would increase traffic safety hazards over the construction period.

Pipeline construction could degrade traffic conditions due to additional vehicle trips for the delivery of construction equipment, haul trucks, grading and excavation activities, slower moving construction traffic,

possible temporary blockages in traffic, and worker vehicle trips. Although lane closures may be necessary at certain times during construction, at least one lane would remain open.

Although construction is considered to have only short-term effects on traffic and circulation conditions in any particular area within the area proposed for construction, the Proposed Project's impact on local traffic conditions is considered potentially significant. With implementation of mitigation measure **TRA-1** below, this impact is considered less than significant with mitigation incorporated.

Mitigation Measure

TRA-1: Construction Traffic Management Plan

Prior to commencing construction of the Proposed Project, a construction traffic management plan (Traffic Plan) shall be prepared by the Contractor, in coordination with the CCWD, California Department of Transportation, and Calaveras County. The management plan shall be detailed and comprehensive to adequately mitigate potential conflicts between traffic and construction-related activities. The Traffic Plan will include, at a minimum, the following measures:

A. Contractor's work within State's right of way is subject to general permit conditions of Caltrans' issued encroachment permit including implementing traffic controls, restricting work on holidays and weekends, and notifying the traffic management center daily.
B. Adequate off-street worker parking shall be provided along the pipeline route.
C. A flagman or signal-controlled one-way traffic-control operation shall be provided where two-way traffic operation is impractical or unsafe.
D. Roadway disturbances shall be minimized during non-working hours; open trenches shall be covered with steel plates or by the use of temporary backfill during non-working hours. Steel traffic plates will only be allowed in areas of the State's right of way as permitted by Caltrans and shall meet the State's specifications and requirements.
E. Construction sites shall be posted with appropriate warning signage at least one week prior to construction to allow local residents to select an alternative travel route.
F. Construction staging areas shall be provided to minimize storage of equipment and materials in the traffic lanes.
G. All paved surfaces disturbed during construction shall be repaved when work is complete.
H. The Contractor shall provide traffic control and diversion plans for review and approval by each appropriate jurisdiction.
I. To minimize delays in emergency response during project construction, emergency providers shall be notified in advance. Police, fire protection, and ambulance services shall be notified in advance of the times, duration, and location of construction activities throughout the project's construction process.

b)	Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

As noted, the Proposed Project would not directly or indirectly result in long-term increases in vehicle traffic in the Project Area or within the Service Area. As such, the project would not be inconsistent with any adopted local or regional transportation plans. Traffic disruption that may occur during project construction, however, may adversely affect implementation of adopted plans including, but not limited to, the Calaveras County Emergency Operations Plan. This is considered a short-term but potentially significant impact. Implementation of Mitigation Measure TRA-1, above, will reduce this impact to *less than* significant with mitigation incorporated.

c)	Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

Because the Proposed Project would not directly or indirectly result in an increase in residential or commercial use within the CCWD Service Area and because the project consists of a below-ground pipeline and pressure reducing valve facilities, the project would have no impact on air traffic patterns or levels.

d)	Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

The Proposed Project would construct a below-ground water pipeline and pressure reducing valve facilities. No long-term modifications to roadway features are proposed as part of the project. Traffic disruption that may occur during project construction, however, could exacerbate existing roadway hazards, and adversely affect roadway safety due to pipeline construction and the transport of construction equipment and materials. This is considered a short-term but potentially significant impact. Implementation of Mitigation Measure TRA-1, above, will reduce this impact to *less than* significant with mitigation incorporated.

e)	Would the project result in inadequate emergency access?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

The Proposed Project would construct a below-ground water pipeline and pressure reducing valve facilities. No long-term modifications to roadway features are proposed as part of the project and, therefore would not result in any long-term adverse impact on emergency access. Traffic disruption during project construction, however, may adversely affect emergency access due to lane closures and the transport of construction equipment and materials. This is considered a short-term but potentially significant impact. Implementation of Mitigation Measure TRA-1, above, will reduce this impact to *less than* significant with mitigation incorporated.

f)	Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

The Proposed Project would construct a below-ground water pipeline and pressure reducing valve facilities. No long-term modifications to roadway features are proposed that would conflict with adopted policies, plans or programs regarding alternative transportation. Traffic disruption during project construction, however, may adversely affect access to roadways for alternative transportation. This is considered a short-term but potentially significant impact. Implementation of Mitigation Measure TRA-1, above, will reduce this impact to *less than* significant with mitigation incorporated.

4.17 Tribal Cultural Resources

This section describes the affected environment and regulatory setting for Tribal Cultural Resources (TCRs) in the project area. The following analysis of the potential environmental impacts related to TCRs is derived primarily from the following sources:

- California Native American Heritage Commission Sacred Lands File Search, June 12, 2017
- Cultural Resource Inventory and Evaluation Report, Calaveras County Water District Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvements Project by Theadora Fuerstenberg (2017)
- Ethnographic overview of the Eastern Miwok by Richard Levy (1978)
- non-AB 52 tribal coordination with the Calaveras Band of Mi-Wuk Indians

4.17.1 Environmental Setting

As stated in Section 4.5 Cultural Resources, the predominant Native American people occupying the region encompassing the project area at the time of European contact in the late 18th century were the Central Sierra Miwok. Prior to the arrival of the Spanish, the Miwok were one of the most geographically extensive native groups in California. They occupied an area extending from the crest of the Sierra, across the Great Valley and Delta Region, to the Coast Range north of San Francisco. The Central Sierra Miwok lived within the foothills and mountainous portions of the Stanislaus and Tuolumne River drainages. They belong to the Sierra Miwok language group, a subset of the Utian language family. Lexicostatistical chronologies suggest that the Miwok ancestors inhabited California's Delta Region for millennia and more recently expanded into the foothills (Levy 1978).

The tribelet was the primary political unit among the Miwok. The tribelet controlled a defined territory and all of the resources within it. Tribelets were composed of several lineages that were each tied to geographical locations. Levy (1978) suggests that the population of Sierra Miwok settlements averaged 25 persons.

Based on mission records, the accounts of early explores and initial attempts at censuses, it has been estimated that the total Miwok population was around 19,500 prior to AD 1800. In 1904, Special Indian Agent C.E. Kelsey estimated the total population at less than 800 (Slagle 2004).

Subsistence activities of the Central Sierra Miwok closely resembled that of other inhabitants of the Sierra foothills. As winter snows thawed, small groups moved out of the village, following deer into higher elevations. At the same time, spring greens were gathered to supplement the stored foods and meat. Seeds of many different plants, particularly grasses, were collected between May and August. Following the annual burning of the underbrush in August, the highly prized digger pine nuts were collected. Digger pine nuts were also occasionally collected before they were ripe in the spring. Fall and early winter was when families would set out to collect and stockpile acorns (Levy 1978). Hunting was a year-round activity for the Central Sierra Miwok.

Acorns from at least seven species of oak were collected and eaten by native Californians. While acorns from the valley oak were most important to the Plains Miwok, Sierra Miwok made the most extensive use of acorns from the interior live oak, blue oak, and black oak. They were usually collected from the ground after they had fallen from the tree, although long sticks were sometimes used to collect acorns that had yet to be released (Levy 1978).

Nuts were also an important element of the Miwok diet and included buckeye, laurel, hazelnut, digger pine, and sugar pine. They also harvested roots like wild onion and "Indian potato," which were eaten raw, steamed, baked, or dried and processed into flour cakes to be stored for winter use. Berries were eaten, although they did not comprise a substantial portion of the diet.

Animals taken by the Central Sierra Miwok included mule deer, black bear, grizzly bear, black tailed jackrabbits, cottontails, beavers, grey and ground squirrels, wood rats, valley quail, and mountain quail. Occasional forays were made down to the valley floor to hunt antelope and tule elk, which were not available in the Sierra foothills (Levy 1978). Fishing was undertaken by the Sierra Miwok, yet it was not a

central part of the diet. Salmon was available in the lower stretches of Sierran rivers, and trout was taken at higher elevations.

Other foods exploited by the Central Sierra Miwok included insects such as grasshoppers and yellow jacket larvae, and shellfish such as river muscles and fresh water clam (Levy 1978). Food taboos were observed by the Sierra Miwok and, as a result, they did not consume dog, coyote, skunk, eagle, great-horned owl, roadrunner, snakes, or frogs (Levy 1978).

The Sierra Miwok constructed a variety of structures for different purposes. The primary house used by the Miwok living in the foothills was the conical bark-slab house. More substantial semi-subterranean houses were occupied during the winter months by those with sufficient resources to construct such a structure. A circular brush structure was used in the summer during times of mourning. Semi-subterranean earth lodges, measuring 40–50 feet in diameter, were used for social or communal gatherings. The Miwok also made use of sweathouses that generally measured 6–15 feet in diameter.

Trade was important with goods generally traveling east to west and vice versa. Items such as *Olivella* spp. and *Haliotis* spp. shells, salmon, and salt traveled east from the coast and valley into the Sierra and beyond. Digger pine nuts, bows, arrows, deer skins, and sugar pine nuts came down from the Sierra to the Great Valley. Precious goods such as salt and obsidian were also traded in from the Great Basin. Basketry moved in both directions in the prehistoric trade networks (Wilson and Towne 1978; Levy 1978).

Primary sources on the aboriginal way of life for Central Sierra Miwok people include Aginsky (1943), Barrett (1919), Barrett and Gifford (1933), Gifford (1917), Kroeber (1925), and Merriam (1910; 1955). Unfortunately, by the time ethnographers began interviewing people and recording aspects of traditional Sierra Miwok life, it had been all but destroyed.

The Spanish made occasional forays into the Central Valley beginning around 1769, with the first written description composed by Pedro Fages in 1772. By 1776, Miwok territory had been explored by José Canizares. In 1808, Miwok territory was again crossed by Gabriel Moraga while he led an expedition to identify appropriate sites for the establishment of new missions and to capture Indians who had fled missionary life. In 1813, a major battle was fought between the Miwok and the Spaniards near the mouth of the Cosumnes River.

Though the Central Sierra Miwok appear to have largely escaped being removed to missions by the Spanish (unlike the Plains Miwok), they were not spared the ravages of European-spread disease. In 1833, an epidemic—probably malaria—raged through the Sacramento Valley, killing an estimated 75 percent of the native population. When John Sutter erected his fort at the future site of Sacramento, he had no problem getting the few native survivors to settle nearby. The discovery of gold in 1848, near the Nisenan village of Colluma (also Coloma), drew thousands of miners into the foothills and led to widespread killing and the virtual destruction of traditional Miwok culture (Levy 1978).

4.17.2 Regulatory Setting

Effective July 1, 2015, Assembly Bill 52 (AB 52) amended CEQA to mandate consultation with California Native American tribes during the CEQA process to determine whether or not the Proposed Project may

have a significant impact on a Tribal Cultural Resource, and that this consideration be made separately from cultural and paleontological resources.

Section 21073 of the Public Resources Code defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the Public Resource Code defines Tribal Cultural Resources for the purpose of CEQA as:

1. Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

    a. included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
    b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
    c. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria a and b also meet the definition of an Historical Resource under CEQA (see Section 4.5 Cultural Resources), a TCR may also require additional consideration as an Historical Resource. Tribal Cultural Resources may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies carry out consultation with tribes at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact on the environment under CEQA, consultation is required to develop appropriate avoidance, impact minimization, and mitigation measures.

Summary of Tribal Consultation

AB 52 consultation requirements went into effect on July 1, 2015 for all projects that have not already published a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND), or published a Notice of Preparation of an EIR (Section 11 [c]). At the time this MND was released for public review, the Calaveras County Water District had not received any written requests from any California Native American Tribes to receive notifications and therefore, the procedures specified in Public Resources Code Sections 21080.3. 1(d) and 21080.3.2 did not apply. No tribes requested consultation on the project under AB 52.

Tribal Cultural Resources

In the absence of tribes wishing to formally consult under AB 52, information about potential impacts to TCRs was drawn from: 1) the results of a search of the Sacred Lands File of the NAHC; 2) existing ethnographic information about prehistoric lifeways and settlement patterns; 3) information on archaeological site records obtained from the California Historical Recourse Information System; and 4) non-AB 52 tribal coordination with the Calaveras Band of Mi-Wuk Indians.

Sacred Lands File Searches

A search of the NAHC Sacred Lands File was requested on June 09, 2017. The NAHC responded that sacred sites were identified in the project area provided. The NAHC suggested to contact Debra Grimes at the Calaveras Band of Mi-wuk Indians for more information about potential TCRs in the project area. Ms. Grimes had been involved in the project from the very early stages, prior to the Sacred Lands File search request. Charles Palmer, District Engineer with Calaveras County Water Agency, requested that Ms. Grimes participate in the field survey. Mr. Palmer emailed Ms. Grimes on May 31, 2017 to invite her to participate in the field survey, and to request the tribe clarify whether the tribe is requesting formal consultation under AB52. Ms. Grimes responded on June 6, 2017 and did not request AB52 consultation or indicate that it is the tribe's request to do so, but mentioned the project will be subject to consultation at the federal level. She coordinated to have members of the tribe participate in the initial field survey and site identification, and prehistoric site testing in areas through which the project was initially proposed before the project area was finalized to avoid these areas. On June 13, tribal representative Eric Miller participated in the initial pedestrian survey, and on July 26 and 27, 2017, tribal representative Ron Grimes was present for test excavation at a site nearby but outside of the project area.

Ethnographic Information

The ethnographic information reviewed for the project, including ethnographic maps, identified several villages, occupational areas, or resource procurement locations in or around the current project area (Levy 1978; Kroeber 1925). Maps of these locations (Levy 1978, adopted form Kroeber 1925) show Newichu in between the town of Murphys and the Stanislaus River; Katuka and Humata northeast of Murphys in the vicinity of the project area between San Domingo Creek and the Stanislaus River; and Yungakatok and Alakani two to three miles further northeast near the project area. Aginsky (1943) indicated in ethnographic notes the Stanislaus River drainage, its tributaries, and the surrounding areas were utilized for fishing and hunting activities. The majority of the project area is situated on a rise between the San Domingo Creek and Angel's Creek within about two miles of the Stanislaus River.

The Natural Resources Conservation Service (NRCS) Web Soil Survey website (NRCS 2017) has some data available for the Project Area. Northeast of Red Apple, soil types located within the Project Area are characterized as well-drained soils. According to Rosenthal and Meyer (2004), the Project Area has a very low potential to contain buried archaeological deposits. Any evidence of prehistoric land use in the project area would have been visible on the surface of the ground, and able to be observed by professional archaeologists during their previous surveys of the project area.

Archaeological Site Records

Near the project area, the majority of prehistoric archaeological sites are represented by surface features such as bedrock milling stations. A prehistoric occupation site with midden soils and extensive artifact deposits is located nearby, outside of the project area. Test excavations in 2017 by ECORP archaeologists and Ron Grimes of the Calaveras Bank of Mi-wuk Indians determined the horizontal boundaries of the site, and it does not extend into the current project area.

Conclusions

The searches of the Sacred Lands File by the NAHC identified TCRs or sacred lands within or immediately adjacent to the project area. The comments provided by tribal members during informal consultation efforts and during the test excavations in 2017 suggest that there is a general sensitivity throughout the region and in the vicinity, but none provided any specific information about Native American cultural resources or TCRs inside the current project area. The ethnographic record for the area indicates that all known village sites and camps were located along or between the major rivers and creeks in the region, which are located near the current project area. There is a likelihood that prehistoric humans walked through the project area during hunting and gathering trips, between sites, or when migrating seasonally. While there is no evidence for TCRs inside the project area, the general vicinity is moderately sensitive for TCRs.

4.17.3 Tribal Cultural Resources (XVIII.) Environmental Checklist and Discussion

a) Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in §21074?	Potentially Significant Impact ☐	Less than Significant With Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

There are no known Tribal Cultural Resources identified (as defined in Section 21074) within the Proposed Project alignment. However, impacts to unknown TCRs may be discovered during Project construction. Implementation of mitigation measures CR-1 and CR-2, above, would reduce any potential impacts to unknown TCRs to a less than significant level.

4.18 Utilities and Service Systems

4.18.1 Environmental Setting

Water Service

As described in Section 2.1 Project Background, CCWD serves roughly 17,000 water and wastewater connections (a permanent resident population of about 20,700) throughout six different water service areas within Calaveras County: Jenny Lind, Copper Cove/Copperopolis, Wallace, Ebbetts Pass, Sheep Ranch and West Point. The service area has a relatively low growth rate of less than one percent per year; 2040 projected permanent population is projected to be just over 25,000 people.

CCWD serves the Ebbetts Pass and Copper Cove/Copperopolis areas with water from the Stanislaus River, and storage in Spicer Reservoir. The storage supplies serving this sub-region were developed as part of the North Fork Hydroelectric Project and New Spicer Reservoir, owned by the District and operated in partnership with Northern California Power Agency. The Ebbetts Pass service area receives water from the North Fork of the Stanislaus River via a diversion in the North Fork Hydroelectric Project's Collierville Tunnel, and Copper Cove/Copperopolis receives water by means of the diversion and re-diversion of upstream storage at Tulloch Reservoir. The Ebbetts Pass system is the District's largest service area, serving about 6,000 connections, while Copper Cove/Copperopolis serves almost 2,600. These service areas together delivered nearly 2,500 AF in 2015, mostly for residential and landscaping use.

Wastewater

Eight public agencies are located within Calaveras County that provide wastewater services. These agencies provide wastewater services to the populated areas of the County. The remaining parts of the County rely on individual septic systems (Calaveras County 2016). CCWD provides wastewater collection, treatment and disposal services to 13 communities in the County. Within the Project site area, on Forest Meadows has wastewater service (provided by CCWD). All other areas are on individual septic systems. The Forest Meadows system provided tertiary treatment, storage, and disposal for 610 residential connections (Calaveras County 2016).

Solid Waste

Calaveras County contracts waste disposal with California Waste Recovery Systems (Cal-Waste). Calaveras County operates seven transfer stations including Avery, Copperopolis, Gambi, Paloma, San Andreas, Red Hill, and Wilseyville. Additionally, Rock Creek Solid Waste Facility is located in Calaveras County and is owned and operated by the County. Rock Creek has a cease operation date of August 30, 2035, a total capacity of 7,651,000 cubic yards and a remaining capacity of 6,624,226 cubic yards (last measured in September 27,2005) (CalRecycle 2017).

4.18.2 Utilities and Service Systems (XIX.) Environmental Checklist and Discussion

a)	Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Proposed Project involves the construction of a replacement water pipeline to increase fire flow and improve the distribution system reliability in the Ebbetts Pass Service Area. Minimal operations and maintenance is required and includes flushing of hydrants on the proposed pipeline alignment and exercising valves occurs once a year. Installation of the proposed water pipeline would not generate an increase in population and therefore, would not exceed wastewater treatment requirements as stipulated by the RWQCB. No impact would occur.

b)	Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

As noted, the Proposed Project involves the construction of a replacement water pipeline to increase flow and improve the distribution system reliability in the Ebbetts Pass Service Area. No new water or wastewater treatment facilities would be required or result from implementation of the Proposed Project. Therefore, the project would have no impact for Item b).

c)	Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

As described in Section 4.9 Hydrology and Water Quality, the project site would be returned to pre-project conditions and no changes to on-site stormwater runoff are anticipated as a result of implementation of the Proposed Project. No construction of new stormwater infrastructure or the expansion of existing infrastructure would be required for project operation. No Impact would occur.

d)	Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

As previously described under discussion items a) and b), the Proposed Project involves the construction of a replacement water pipeline in order to increase flow and improve the distribution system reliability in the Ebbetts Pass Service Area. The Proposed Project would be operated by the CCWD and no new or expanded entitlements are required. Therefore, no impact would occur.

e)	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?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

The Proposed Project would not generate wastewater, and therefore, it would not contribute to existing wastewater systems or facilities. No impact would occur.

f)	Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

As previously described in discussion item a), the Proposed Project would be installed in a trench, with a maximum depth of 10 feet below ground surface and approximately 36 to 48 inches of cover. No recycling or waste disposal would be required for operation and maintenance of the Proposed Project and therefore would not affect landfill capacity because the amount of construction debris requiring disposal would be minor and would only occur during the construction period (e.g., cardboard, wood scraps, plastic straps). CCWD's contractors would be responsible for disposing of construction-related debris in local construction-material dumpsters. A less than significant impact would occur.

4.19 Mandatory Findings of Significance

4.19.1 Mandatory Findings of Significance (XVIII.) Environmental Checklist and Discussion

a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Less than Significant Impact with Mitigation. As stated previously in Section 4.4, Biological Resources, with implementation of Mitigation Measures **BIO-1** through **BIO-7** the Proposed Project would result in a less than significant impact on the habitat of a fish or wildlife species or population, on any plant or animal community, and would not restrict the range of a rare or endangered plant or animal. Furthermore, as stated above in Section 4.5, Cultural Resources, with the implementation of proposed Mitigation Measures (**CR-1** and **CR-2**, and **P-1**), development of the Proposed Project would not result in significant impacts to Cultural or Paleontological Resources.

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)?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

Less than Significant Impact. Project impacts would not be cumulatively considerable. No mitigation is required relevant to potential cumulative impacts.

For natural resource subjects (Aesthetics, Agriculture and Forest Resources, Biological Resources, Cultural Resources, Geology and Soils, Hydrology and Water Quality, and Mineral Resources), there would be no cumulative effects because all impacts would be less than significant or would be reduced to less than significant with mitigation incorporated. The Proposed Project involves the construction of a new water pipeline to increase flow and improve the distribution system reliability. The Project Area would be returned to pre-project conditions after completion of construction. In addition, the project would temporarily involve minimal hazardous materials use associated with construction and would not result in a cumulative effect on the environment.

The nature of the Proposed Project would not induce population growth or result in the development of new housing or employment-generating uses. Therefore, the Proposed Project would not result in a cumulative effect regarding increased demand or expansion for services or utilities. Furthermore, there are no approved or planned projects within proximity to the Proposed Project that would contribute to cumulative effects.

c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☒	Less than Significant Impact ☐	No Impact ☐

Less than Significant Impact with Mitigation. Direct and indirect impacts to human beings would be less than significant with the implementation of mitigation measures listed in this Initial Study.

SECTION 5.0 LIST OF PREPARERS

5.1 Lead Agency, Calaveras County Water District

Charles Palmer, P.E., Project Manager

5.2 KASL Consulting Engineers

Jack Scroggs, P.E., Q.S.D.

5.3 ECORP Consulting, Inc., CEQA Documentation/Biological and Cultural Resources

Chris Stabenfeldt, AICP, Senior Environmental Planner/Project Manager
Mike Martin, Senior Environmental Planner
Amberly Morgan, Senior Environmental Planner
Seth Myers, Air Quality/GHG/Noise Analyst
Lindsay Taylor, Air Quality/GHG/Noise Associate
Rick Hanson, Senior Environmental Planner
Keith Kwan, Senior Avian Ecologist
Marin Meza, Senior Biologist
Dustin Brown, Senior Biologist
Ryan Villanueva, Senior Biologist
Clay DeLong, Staff Biologist
Alyse Yeager, Staff Biologist
Jeremy Adams, Cultural Resources Manager
Thea Fuerstenberg, Senior Archaeologist
Megan Webb, Associate Archaeologist
Jeffrey Swager, GIS Manager
Matt Goolsby, GIS Specialist
Brian Fedrow, Technical Editor/Production Manager
Laura Hesse, Technical Editor/Document Production Specialist

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 6.0 BIBLIOGRAPHY

Aginsky, Burt W.

1943 Culture Element Distributions, XXIV: Central Sierra. *University of California Anthropological Records* 8(4):393-468.

[CCAPCD] Calaveras County Air Pollution Control District

N.D. Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Project.

Barrett, Samuel A.

1919 Myths of Southern Sierra Miwok. *University of California Publications in American Archaeology and Ethnology* 16(1):1-28.

Barrett, Samuel A. and Edward W. Gifford

1933 Miwok Material Culture. *Bulletin of the Public Museum of the City of Milwaukee* 2(4):117-376.

Calaveras County

1996 General Plan. Adopted December 9, 1996.

2016 Calaveras County Planning Commission Recommended General Plan Draft. September 22, 2016. http://planning.calaverasgov.us/GP-Update.

2017 Code of Ordinances

[CAL FIRE] California Department of Forestry and Fire Protection

2007 Fire Hazard Severity Zones in SRA. November 7, 2007. http://www.fire.ca.gov/fire_prevention/fhsz_maps_calaveras

[Caltrans] California Department of Transportation

2004 *Transportation- and Construction-Induced Vibration Guidance Manual*.

2017 California Scenic Highway Mapping System. http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed July 5, 2017.

[CARB] California Air Resources Board

2005 *Air Quality and Land Use Handbook*, April 2014, https://www.arb.ca.gov/ch/handbook.pdf

[CDFW] California Department of Fish and Wildlife

2016 Natural Community Conservation Planning (NCCP). Available at: https://www.wildlife.ca.gov/Conservation/Planning/NCCP. Accessed May 24.

CGS (California Department of Conservation, California Geological Survey).

2002 *California Geomorphic Provinces*. http://www.conservation.ca.gov/cgs/information/publications/cgs_notes/note_36/Documents/note_36.pdf.

2010a Fault Activity Map of California. http://maps.conservation.ca.gov/cgs/fam/.

2010b *An Explanatory Text to Accompany the Fault Activity Map of California*. http://www.conservation.ca.gov/cgs/cgs_history/Documents/FAM_phamplet.pdf.

2015 *CGS Information Warehouse: Regulatory Maps*. http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps.

2016 Earthquake Shaking Potential for California [map]. ftp://ftp.conservation.ca.gov/pub/dmg/pubs/ms/048/MS_048_revised_2016.pdf.

[DTSC] California Department of Toxic Substances Control

2017 Hazardous Waste and Substance Site List http://www.envirostor.dtsc.ca.gov/public/. Accessed July 15, 2017.

[DOC] California Department of Conservation, Division of Land Resource Protection

2013 Calaveras County Williamson Act FY 2012/2013. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/. Accessed June 6, 2017.

2017a Important Farmland Finder. Available at: http://maps.conservation.ca.gov/ciff/ciff.html. Accessed June 6, 2017.

2017b Farmland Mapping and Monitoring Program. http://www.conservation.ca.gov/dlrp/fmmp/Pages/county_info.aspx. Accessed June 6, 2017.

[DOT] California Department of Transportation

2016 California Scenic Highway Mapping System. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed June 8.

[ECORP] ECORP Consulting, Inc.

2017a Biological Resources Assessment, Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project. Date.

2017b Delineation of Waters of the U.S. Calaveras County Water District - Ebbetts Pass Reach 1 Water Transmission Pipeline Project. DATE

2017c Special-Status Plant Survey, Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project. Date.

2017d Cultural Resources Inventory and Evaluation Report, Calaveras County Water District, Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvements Project. June 30.

[EDCAPCD] El Dorado County Air Pollution Control District,

2002 Guide to Air Quality Assessment, February 2002, https://edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx

[EPA] US Environmental Protection Agency

1971 *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*.

2017a *Climate Change – Greenhouse Gas Emissions: Carbon Dioxide*. http://www.epa.gov/climatechange/emissions/co2.html.

2017b *Methane*. https://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html.

2017c *Nitrous Oxide*. https://www3.epa.gov/climatechange/ghgemissions/gases/n2o.html.

[FTA] Federal Transit Administration

2006 Transit Noise and Vibration Impact Assessment.

Kroeber, A. L.

1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington.

Levy, Richard

1978 Eastern Miwok. In *Handbook of North American Indians, Vol. 8, California*, edited by R. F. Heizer, pp. 398-413. Smithsonian Institute, Washington, D.C.

Merriam, C. Hart

1910 *The Dawn of the World: Myths and Weird Tales Told by the Mewan Indians of California*. Arthur C. Clark, Cleveland.

1955 Studies of California Indians. Edited by the Staff of the Department of Anthropology of the University of California. University of California Press, Berkeley.

[Reference] Reference.com,

2017 https://www.reference.com/?qo=contentPageReferenceLogo

{NRCS} Department of Agriculture, Natural Resources Conservation Service

2017a Web Soil Survey web site. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed July 24, 2017.

2017b Soil Data Access Hydric Soils List. https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. Accessed July 24, 2017.

Slagle, Allogan

2004 Miwok. In Encyclopedia of North American Indians. http://college.hmco.com/history/readerscomp/naind/html/na_022900_miwok.htm. Accessed on 2-18-04.

[SMAQMD] Sacramento Metropolitan Air Quality Management District

2016 *Guide to Air Quality Assessment in Sacramento County*, December 2016, http://www.airquality.org/LandUseTransportation/Documents/Ch6GHG%20FINAL12-2016.pdf

[SWQCB] State Water Quality Control Board

2017a Geotracker. http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=avery%2C+ca. Accessed July 15, 2017.

2017b Impaired Water Bodies. http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml

U.S. Census Bureau

2016 Quick Facts. Available at: https://www.census.gov/quickfacts/table/PST045215/00. Accessed May 24.

[USDA] United States Department of Agriculture

2016 Natural Resources Conservation Service Web Soil Survey. Electronic document, http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed 24 May.

[USEPA] United States Environmental Protection Agency

1997 Green Book Nonattainment Areas for Criteria Pollutants, http://www3.epa.gov/airquality/greenbook/

2016 U.S. Environmental Protection Agency, Climate Change Facts: Answers to Common Questions, https://www3.epa.gov/climatechange/basics/facts.html.

2015 Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013, April 2015, http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2015-Main-Text.pdf

[UCMP] University of California Museum of Paleontology

2016 Specimen Search, http://ucmpdb.berkeley.edu/. Accessed September 8, 2017.

SECTION 7.0 LIST OF APPENDICES

Appendix A - Air Quality/Greenhouse Gas Emissions Modeling Results

Appendix B – Biological Resources Assessment

Appendix C – Arborists Tree Inventory and Impacted Tree List

Appendix D – Cultural Resources Inventory Report (CONFIDENTIAL)

Appendix E – Limits of Work

APPENDIX A

Air Quality/Greenhouse Gas Emissions Modeling Results

Ebbetts Pass Reach 1 Pipeline

Calaveras County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	12.80	Acre	12.80	557,568.00	0
Other Asphalt Surfaces	0.03	Acre	0.03	1,306.80	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	61
Climate Zone	1			**Operational Year**	2020
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

Project Characteristics -

Land Use -

Construction Phase - Adjusted per information provided by Applicant.

Off-road Equipment -

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Grading -

Demolition -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	61.00
tblConstructionPhase	NumDays	10.00	26.00
tblConstructionPhase	PhaseEndDate	11/11/2019	9/26/2018
tblConstructionPhase	PhaseEndDate	9/16/2019	6/12/2019
tblConstructionPhase	PhaseEndDate	5/28/2018	9/11/2018
tblConstructionPhase	PhaseEndDate	6/11/2018	6/18/2018
tblConstructionPhase	PhaseStartDate	10/15/2019	8/1/2018
tblConstructionPhase	PhaseStartDate	7/24/2018	5/1/2019
tblConstructionPhase	PhaseStartDate	5/1/2018	6/19/2018
tblConstructionPhase	PhaseStartDate	5/29/2018	5/14/2018
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2020

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	5.00	0.00

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					
2018	0.2293	2.3182	1.4867	3.0800e-003	0.1839	0.1071	0.2911	0.0911	0.0986	0.1897	0.0000	280.5650	280.5650	0.0846	0.0000	282.6790
2019	0.0479	0.4631	0.3377	7.1000e-004	2.8600e-003	0.0215	0.0244	7.6000e-004	0.0198	0.0206	0.0000	64.1960	64.1960	0.0197	0.0000	64.6882
Maximum	**0.2293**	**2.3182**	**1.4867**	**3.0800e-003**	**0.1839**	**0.1071**	**0.2911**	**0.0911**	**0.0986**	**0.1897**	**0.0000**	**280.5650**	**280.5650**	**0.0846**	**0.0000**	**282.6790**

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					
2018	0.2293	2.3182	1.4867	3.0800e-003	0.1839	0.1071	0.2911	0.0911	0.0986	0.1897	0.0000	280.5647	280.5647	0.0846	0.0000	282.6787
2019	0.0479	0.4631	0.3377	7.1000e-004	2.8600e-003	0.0215	0.0244	7.6000e-004	0.0198	0.0206	0.0000	64.1959	64.1959	0.0197	0.0000	64.6881
Maximum	**0.2293**	**2.3182**	**1.4867**	**3.0800e-003**	**0.1839**	**0.1071**	**0.2911**	**0.0911**	**0.0986**	**0.1897**	**0.0000**	**280.5647**	**280.5647**	**0.0846**	**0.0000**	**282.6787**

	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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-1-2018	7-31-2018	0.6286	0.6286
		Highest	0.6286	0.6286

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	0.0556	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.4000e-004
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	**0.0556**	**0.0000**	**1.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.3000e-004**	**2.3000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

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	0.0556	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.4000e-004
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	**0.0556**	**0.0000**	**1.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.3000e-004**	**2.3000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

	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

Ebbetts Pass Reach 1 Pipeline - Calaveras County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	(1) Clearing, Grubbing, Erosion Control, and Grading	Site Preparation	5/14/2018	6/18/2018	5	26	
2	(2) Pipeline Excavation Placement and Initial Backfill	Trenching	6/19/2018	9/11/2018	5	61	
3	(3) Pavement Restoration and Crossings	Demolition	6/19/2018	9/11/2018	5	61	
4	(4) Replace PRV Stations	Trenching	8/1/2018	9/26/2018	5	41	
5	(5) Bore and Case Crossing	Trenching	5/1/2019	6/12/2019	5	31	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 12.83

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

OffRoad Equipment

Ebbetts Pass Reach 1 Pipeline - Calaveras County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
(4) Replace PRV Stations	Air Compressors	0	6.00	78	0.48
(3) Pavement Restoration and Crossings	Excavators	0	8.00	158	0.38
(3) Pavement Restoration and Crossings	Concrete/Industrial Saws	0	8.00	81	0.73
(1) Clearing, Grubbing, Erosion Control, and Grading	Graders	2	8.00	187	0.41
(5) Bore and Case Crossing	Cranes	0	7.00	231	0.29
(5) Bore and Case Crossing	Forklifts	0	8.00	89	0.20
(5) Bore and Case Crossing	Generator Sets	0	8.00	84	0.74
(2) Pipeline Excavation Placement and Initial Backfill	Excavators	2	8.00	158	0.38
(2) Pipeline Excavation Placement and Initial Backfill	Tractors/Loaders/Backhoes	2	8.00	97	0.37
(3) Pavement Restoration and Crossings	Rubber Tired Dozers	0	8.00	247	0.40
(2) Pipeline Excavation Placement and Initial Backfill	Off-Highway Trucks	2	8.00	402	0.38
(5) Bore and Case Crossing	Tractors/Loaders/Backhoes	2	7.00	97	0.37
(3) Pavement Restoration and Crossings	Off-Highway Trucks	1	8.00	402	0.38
(3) Pavement Restoration and Crossings	Tractors/Loaders/Backhoes	1	8.00	97	0.37
(3) Pavement Restoration and Crossings	Other Construction Equipment	1	8.00	172	0.42
(1) Clearing, Grubbing, Erosion Control, and Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
(1) Clearing, Grubbing, Erosion Control, and Grading	Rubber Tired Dozers	2	8.00	247	0.40
(4) Replace PRV Stations	Off-Highway Trucks	1	8.00	402	0.38
(5) Bore and Case Crossing	Welders	0	8.00	46	0.45
(4) Replace PRV Stations	Tractors/Loaders/Backhoes	1	8.00	97	0.37
(4) Replace PRV Stations	Other Construction Equipment	1	8.00	172	0.42
(5) Bore and Case Crossing	Off-Highway Trucks	2	8.00	402	0.38
(5) Bore and Case Crossing	Other Construction Equipment	2	8.00	172	0.42

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
(4) Replace PRV Stations	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(5) Bore and Case Crossing	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(3) Pavement Restoration and Cross	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(2) Pipeline Excavation Placement	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(1) Clearing, Grubbing, Erosion Co	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

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					0.1704	0.0000	0.1704	0.0876	0.0000	0.0876	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0507	0.5797	0.2242	4.8000e-004		0.0267	0.0267		0.0246	0.0246	0.0000	43.4177	43.4177	0.0135	0.0000	43.7556
Total	**0.0507**	**0.5797**	**0.2242**	**4.8000e-004**	**0.1704**	**0.0267**	**0.1971**	**0.0876**	**0.0246**	**0.1121**	**0.0000**	**43.4177**	**43.4177**	**0.0135**	**0.0000**	**43.7556**

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9600e-003	2.3500e-003	0.0218	3.0000e-005	2.4000e-003	3.0000e-005	2.4300e-003	6.4000e-004	2.0000e-005	6.6000e-004	0.0000	2.2761	2.2761	2.0000e-004	0.0000	2.2810
Total	**2.9600e-003**	**2.3500e-003**	**0.0218**	**3.0000e-005**	**2.4000e-003**	**3.0000e-005**	**2.4300e-003**	**6.4000e-004**	**2.0000e-005**	**6.6000e-004**	**0.0000**	**2.2761**	**2.2761**	**2.0000e-004**	**0.0000**	**2.2810**

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					0.1704	0.0000	0.1704	0.0876	0.0000	0.0876	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0507	0.5797	0.2242	4.8000e-004		0.0267	0.0267		0.0246	0.0246	0.0000	43.4176	43.4176	0.0135	0.0000	43.7555
Total	**0.0507**	**0.5797**	**0.2242**	**4.8000e-004**	**0.1704**	**0.0267**	**0.1971**	**0.0876**	**0.0246**	**0.1121**	**0.0000**	**43.4176**	**43.4176**	**0.0135**	**0.0000**	**43.7555**

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9600e-003	2.3500e-003	0.0218	3.0000e-005	2.4000e-003	3.0000e-005	2.4300e-003	6.4000e-004	2.0000e-005	6.6000e-004	0.0000	2.2761	2.2761	2.0000e-004	0.0000	2.2810
Total	**2.9600e-003**	**2.3500e-003**	**0.0218**	**3.0000e-005**	**2.4000e-003**	**3.0000e-005**	**2.4300e-003**	**6.4000e-004**	**2.0000e-005**	**6.6000e-004**	**0.0000**	**2.2761**	**2.2761**	**2.0000e-004**	**0.0000**	**2.2810**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0813	0.8599	0.6004	1.3200e-003		0.0392	0.0392		0.0360	0.0360	0.0000	120.0816	120.0816	0.0374	0.0000	121.0161
Total	**0.0813**	**0.8599**	**0.6004**	**1.3200e-003**		**0.0392**	**0.0392**		**0.0360**	**0.0360**	**0.0000**	**120.0816**	**120.0816**	**0.0374**	**0.0000**	**121.0161**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9500e-003	5.5100e-003	0.0511	6.0000e-005	5.6300e-003	6.0000e-005	5.6900e-003	1.5000e-003	6.0000e-005	1.5600e-003	0.0000	5.3401	5.3401	4.6000e-004	0.0000	5.3517
Total	**6.9500e-003**	**5.5100e-003**	**0.0511**	**6.0000e-005**	**5.6300e-003**	**6.0000e-005**	**5.6900e-003**	**1.5000e-003**	**6.0000e-005**	**1.5600e-003**	**0.0000**	**5.3401**	**5.3401**	**4.6000e-004**	**0.0000**	**5.3517**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0813	0.8599	0.6004	1.3200e-003		0.0392	0.0392		0.0360	0.0360	0.0000	120.0814	120.0814	0.0374	0.0000	121.0160
Total	**0.0813**	**0.8599**	**0.6004**	**1.3200e-003**		**0.0392**	**0.0392**		**0.0360**	**0.0360**	**0.0000**	**120.0814**	**120.0814**	**0.0374**	**0.0000**	**121.0160**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9500e-003	5.5100e-003	0.0511	6.0000e-005	5.6300e-003	6.0000e-005	5.6900e-003	1.5000e-003	6.0000e-005	1.5600e-003	0.0000	5.3401	5.3401	4.6000e-004	0.0000	5.3517
Total	**6.9500e-003**	**5.5100e-003**	**0.0511**	**6.0000e-005**	**5.6300e-003**	**6.0000e-005**	**5.6900e-003**	**1.5000e-003**	**6.0000e-005**	**1.5600e-003**	**0.0000**	**5.3401**	**5.3401**	**4.6000e-004**	**0.0000**	**5.3517**

3.4 (3) Pavement Restoration and Crossings - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0486	0.5178	0.3252	6.9000e-004		0.0246	0.0246		0.0226	0.0226	0.0000	62.6070	62.6070	0.0195	0.0000	63.0943
Total	**0.0486**	**0.5178**	**0.3252**	**6.9000e-004**	**5.3000e-004**	**0.0246**	**0.0251**	**8.0000e-005**	**0.0226**	**0.0227**	**0.0000**	**62.6070**	**62.6070**	**0.0195**	**0.0000**	**63.0943**

3.4 (3) Pavement Restoration and Crossings - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7100e-003	2.9400e-003	0.0272	3.0000e-005	3.0000e-003	3.0000e-005	3.0400e-003	8.0000e-004	3.0000e-005	8.3000e-004	0.0000	2.8481	2.8481	2.5000e-004	0.0000	2.8542
Total	**3.7100e-003**	**2.9400e-003**	**0.0272**	**3.0000e-005**	**3.0000e-003**	**3.0000e-005**	**3.0400e-003**	**8.0000e-004**	**3.0000e-005**	**8.3000e-004**	**0.0000**	**2.8481**	**2.8481**	**2.5000e-004**	**0.0000**	**2.8542**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0486	0.5178	0.3252	6.9000e-004		0.0246	0.0246		0.0226	0.0226	0.0000	62.6070	62.6070	0.0195	0.0000	63.0942
Total	**0.0486**	**0.5178**	**0.3252**	**6.9000e-004**	**5.3000e-004**	**0.0246**	**0.0251**	**8.0000e-005**	**0.0226**	**0.0227**	**0.0000**	**62.6070**	**62.6070**	**0.0195**	**0.0000**	**63.0942**

3.4 (3) Pavement Restoration and Crossings - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7100e-003	2.9400e-003	0.0272	3.0000e-005	3.0000e-003	3.0000e-005	3.0400e-003	8.0000e-004	3.0000e-005	8.3000e-004	0.0000	2.8481	2.8481	2.5000e-004	0.0000	2.8542
Total	**3.7100e-003**	**2.9400e-003**	**0.0272**	**3.0000e-005**	**3.0000e-003**	**3.0000e-005**	**3.0400e-003**	**8.0000e-004**	**3.0000e-005**	**8.3000e-004**	**0.0000**	**2.8481**	**2.8481**	**2.5000e-004**	**0.0000**	**2.8542**

3.5 (4) Replace PRV Stations - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0326	0.3480	0.2186	4.6000e-004		0.0165	0.0165		0.0152	0.0152	0.0000	42.0801	42.0801	0.0131	0.0000	42.4076
Total	**0.0326**	**0.3480**	**0.2186**	**4.6000e-004**		**0.0165**	**0.0165**		**0.0152**	**0.0152**	**0.0000**	**42.0801**	**42.0801**	**0.0131**	**0.0000**	**42.4076**

3.5 (4) Replace PRV Stations - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4900e-003	1.9800e-003	0.0183	2.0000e-005	2.0200e-003	2.0000e-005	2.0400e-003	5.4000e-004	2.0000e-005	5.6000e-004	0.0000	1.9143	1.9143	1.7000e-004	0.0000	1.9184
Total	**2.4900e-003**	**1.9800e-003**	**0.0183**	**2.0000e-005**	**2.0200e-003**	**2.0000e-005**	**2.0400e-003**	**5.4000e-004**	**2.0000e-005**	**5.6000e-004**	**0.0000**	**1.9143**	**1.9143**	**1.7000e-004**	**0.0000**	**1.9184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0326	0.3480	0.2186	4.6000e-004		0.0165	0.0165		0.0152	0.0152	0.0000	42.0801	42.0801	0.0131	0.0000	42.4076
Total	**0.0326**	**0.3480**	**0.2186**	**4.6000e-004**		**0.0165**	**0.0165**		**0.0152**	**0.0152**	**0.0000**	**42.0801**	**42.0801**	**0.0131**	**0.0000**	**42.4076**

3.5 (4) Replace PRV Stations - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4900e-003	1.9800e-003	0.0183	2.0000e-005	2.0200e-003	2.0000e-005	2.0400e-003	5.4000e-004	2.0000e-005	5.6000e-004	0.0000	1.9143	1.9143	1.7000e-004	0.0000	1.9184
Total	**2.4900e-003**	**1.9800e-003**	**0.0183**	**2.0000e-005**	**2.0200e-003**	**2.0000e-005**	**2.0400e-003**	**5.4000e-004**	**2.0000e-005**	**5.6000e-004**	**0.0000**	**1.9143**	**1.9143**	**1.7000e-004**	**0.0000**	**1.9184**

3.6 (5) Bore and Case Crossing - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0445	0.4606	0.3142	6.9000e-004		0.0215	0.0215		0.0198	0.0198	0.0000	61.5552	61.5552	0.0195	0.0000	62.0421
Total	**0.0445**	**0.4606**	**0.3142**	**6.9000e-004**		**0.0215**	**0.0215**		**0.0198**	**0.0198**	**0.0000**	**61.5552**	**61.5552**	**0.0195**	**0.0000**	**62.0421**

3.6 (5) Bore and Case Crossing - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3200e-003	2.5300e-003	0.0235	3.0000e-005	2.8600e-003	3.0000e-005	2.8900e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.6408	2.6408	2.1000e-004	0.0000	2.6461
Total	**3.3200e-003**	**2.5300e-003**	**0.0235**	**3.0000e-005**	**2.8600e-003**	**3.0000e-005**	**2.8900e-003**	**7.6000e-004**	**3.0000e-005**	**7.9000e-004**	**0.0000**	**2.6408**	**2.6408**	**2.1000e-004**	**0.0000**	**2.6461**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0445	0.4606	0.3142	6.9000e-004		0.0215	0.0215		0.0198	0.0198	0.0000	61.5551	61.5551	0.0195	0.0000	62.0420
Total	**0.0445**	**0.4606**	**0.3142**	**6.9000e-004**		**0.0215**	**0.0215**		**0.0198**	**0.0198**	**0.0000**	**61.5551**	**61.5551**	**0.0195**	**0.0000**	**62.0420**

3.6 (5) Bore and Case Crossing - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3200e-003	2.5300e-003	0.0235	3.0000e-005	2.8600e-003	3.0000e-005	2.8900e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.6408	2.6408	2.1000e-004	0.0000	2.6461
Total	**3.3200e-003**	**2.5300e-003**	**0.0235**	**3.0000e-005**	**2.8600e-003**	**3.0000e-005**	**2.8900e-003**	**7.6000e-004**	**3.0000e-005**	**7.9000e-004**	**0.0000**	**2.6408**	**2.6408**	**2.1000e-004**	**0.0000**	**2.6461**

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		
Other Non-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
Other Non-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 Non-Asphalt Surfaces	0.516006	0.044648	0.180857	0.134235	0.053517	0.009035	0.022022	0.026033	0.002482	0.000650	0.006411	0.001624	0.002478
Other Asphalt Surfaces	0.516006	0.044648	0.180857	0.134235	0.053517	0.009035	0.022022	0.026033	0.002482	0.000650	0.006411	0.001624	0.002478

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
Other Non-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
Other Non-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
Other Non-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
Other Non-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	0.0556	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.4000e-004
Unmitigated	0.0556	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.4000e-004

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	0.0194					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0361					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.4000e-004
Total	**0.0556**	**0.0000**	**1.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.3000e-004**	**2.3000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

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	0.0194					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0361					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.4000e-004
Total	**0.0556**	**0.0000**	**1.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.3000e-004**	**2.3000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

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
Other Non-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
Other Non-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
Other Non-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
Other Non-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

Ebbetts Pass Reach 1 Pipeline

Calaveras County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	12.80	Acre	12.80	557,568.00	0
Other Asphalt Surfaces	0.03	Acre	0.03	1,306.80	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	61
Climate Zone	1			**Operational Year**	2020
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

Ebbetts Pass Reach 1 Pipeline - Calaveras County, Summer

Project Characteristics -

Land Use -

Construction Phase - Adjusted per information provided by Applicant.

Off-road Equipment -

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Grading -

Demolition -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	61.00
tblConstructionPhase	NumDays	10.00	26.00
tblConstructionPhase	PhaseEndDate	11/11/2019	9/26/2018
tblConstructionPhase	PhaseEndDate	9/16/2019	6/12/2019
tblConstructionPhase	PhaseEndDate	5/28/2018	9/11/2018
tblConstructionPhase	PhaseEndDate	6/11/2018	6/18/2018
tblConstructionPhase	PhaseStartDate	10/15/2019	8/1/2018
tblConstructionPhase	PhaseStartDate	7/24/2018	5/1/2019
tblConstructionPhase	PhaseStartDate	5/1/2018	6/19/2018
tblConstructionPhase	PhaseStartDate	5/29/2018	5/14/2018
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37

Ebbetts Pass Reach 1 Pipeline - Calaveras County, Summer

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2020

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	5.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2018	6.3576	62.4786	44.9393	0.0925	13.2963	2.9003	15.3540	6.7858	2.6683	8.6789	0.0000	9,301.0857	9,301.0857	2.7982	0.0000	9,371.0411
2019	3.1038	29.8579	21.9962	0.0463	0.1916	1.3889	1.5805	0.0508	1.2778	1.3286	0.0000	4,582.8401	4,582.8401	1.4019	0.0000	4,617.8865
Maximum	**6.3576**	**62.4786**	**44.9393**	**0.0925**	**13.2963**	**2.9003**	**15.3540**	**6.7858**	**2.6683**	**8.6789**	**0.0000**	**9,301.0857**	**9,301.0857**	**2.7982**	**0.0000**	**9,371.0411**

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	lb/day										lb/day					
2018	6.3576	62.4786	44.9393	0.0925	13.2963	2.9003	15.3540	6.7858	2.6683	8.6789	0.0000	9,301.0857	9,301.0857	2.7982	0.0000	9,371.0411
2019	3.1038	29.8579	21.9962	0.0463	0.1916	1.3889	1.5805	0.0508	1.2778	1.3286	0.0000	4,582.8401	4,582.8401	1.4019	0.0000	4,617.8865
Maximum	**6.3576**	**62.4786**	**44.9393**	**0.0925**	**13.2963**	**2.9003**	**15.3540**	**6.7858**	**2.6683**	**8.6789**	**0.0000**	**9,301.0857**	**9,301.0857**	**2.7982**	**0.0000**	**9,371.0411**

	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3045	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
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
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
Total	**0.3045**	**1.0000e-005**	**1.3200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**3.0000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3045	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
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
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
Total	**0.3045**	**1.0000e-005**	**1.3200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**3.0000e-003**

	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	(1) Clearing, Grubbing, Erosion Control, and Grading	Site Preparation	5/14/2018	6/18/2018	5	26	
2	(2) Pipeline Excavation Placement and Initial Backfill	Trenching	6/19/2018	9/11/2018	5	61	
3	(3) Pavement Restoration and Crossings	Demolition	6/19/2018	9/11/2018	5	61	
4	(4) Replace PRV Stations	Trenching	8/1/2018	9/26/2018	5	41	
5	(5) Bore and Case Crossing	Trenching	5/1/2019	6/12/2019	5	31	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 12.83

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

OffRoad Equipment

Ebbetts Pass Reach 1 Pipeline - Calaveras County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
(4) Replace PRV Stations	Air Compressors	0	6.00	78	0.48
(3) Pavement Restoration and Crossings	Excavators	0	8.00	158	0.38
(3) Pavement Restoration and Crossings	Concrete/Industrial Saws	0	8.00	81	0.73
(1) Clearing, Grubbing, Erosion Control, and Grading	Graders	2	8.00	187	0.41
(5) Bore and Case Crossing	Cranes	0	7.00	231	0.29
(5) Bore and Case Crossing	Forklifts	0	8.00	89	0.20
(5) Bore and Case Crossing	Generator Sets	0	8.00	84	0.74
(2) Pipeline Excavation Placement and Initial Backfill	Excavators	2	8.00	158	0.38
(2) Pipeline Excavation Placement and Initial Backfill	Tractors/Loaders/Backhoes	2	8.00	97	0.37
(3) Pavement Restoration and Crossings	Rubber Tired Dozers	0	8.00	247	0.40
(2) Pipeline Excavation Placement and Initial Backfill	Off-Highway Trucks	2	8.00	402	0.38
(5) Bore and Case Crossing	Tractors/Loaders/Backhoes	2	7.00	97	0.37
(3) Pavement Restoration and Crossings	Off-Highway Trucks	1	8.00	402	0.38
(3) Pavement Restoration and Crossings	Tractors/Loaders/Backhoes	1	8.00	97	0.37
(3) Pavement Restoration and Crossings	Other Construction Equipment	1	8.00	172	0.42
(1) Clearing, Grubbing, Erosion Control, and Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
(1) Clearing, Grubbing, Erosion Control, and Grading	Rubber Tired Dozers	2	8.00	247	0.40
(4) Replace PRV Stations	Off-Highway Trucks	1	8.00	402	0.38
(5) Bore and Case Crossing	Welders	0	8.00	46	0.45
(4) Replace PRV Stations	Tractors/Loaders/Backhoes	1	8.00	97	0.37
(4) Replace PRV Stations	Other Construction Equipment	1	8.00	172	0.42
(5) Bore and Case Crossing	Off-Highway Trucks	2	8.00	402	0.38
(5) Bore and Case Crossing	Other Construction Equipment	2	8.00	172	0.42

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
(4) Replace PRV Stations	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(5) Bore and Case Crossing	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(3) Pavement Restoration and Cross	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(2) Pipeline Excavation Placement	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(1) Clearing, Grubbing, Erosion Co	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.1047	0.0000	13.1047	6.7350	0.0000	6.7350			0.0000			0.0000
Off-Road	3.9005	44.5892	17.2436	0.0366		2.0557	2.0557		1.8912	1.8912		3,681.5209	3,681.5209	1.1461		3,710.1736
Total	**3.9005**	**44.5892**	**17.2436**	**0.0366**	**13.1047**	**2.0557**	**15.1603**	**6.7350**	**1.8912**	**8.6262**		**3,681.5209**	**3,681.5209**	**1.1461**		**3,710.1736**

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2456	0.1593	1.9020	2.1400e-003	0.1916	2.0600e-003	0.1937	0.0508	1.9000e-003	0.0527		210.8561	210.8561	0.0185		211.3196
Total	**0.2456**	**0.1593**	**1.9020**	**2.1400e-003**	**0.1916**	**2.0600e-003**	**0.1937**	**0.0508**	**1.9000e-003**	**0.0527**		**210.8561**	**210.8561**	**0.0185**		**211.3196**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.1047	0.0000	13.1047	6.7350	0.0000	6.7350			0.0000			0.0000
Off-Road	3.9005	44.5892	17.2436	0.0366		2.0557	2.0557		1.8912	1.8912	0.0000	3,681.5209	3,681.5209	1.1461		3,710.1736
Total	**3.9005**	**44.5892**	**17.2436**	**0.0366**	**13.1047**	**2.0557**	**15.1603**	**6.7350**	**1.8912**	**8.6262**	**0.0000**	**3,681.5209**	**3,681.5209**	**1.1461**		**3,710.1736**

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2456	0.1593	1.9020	2.1400e-003	0.1916	2.0600e-003	0.1937	0.0508	1.9000e-003	0.0527		210.8561	210.8561	0.0185		211.3196
Total	**0.2456**	**0.1593**	**1.9020**	**2.1400e-003**	**0.1916**	**2.0600e-003**	**0.1937**	**0.0508**	**1.9000e-003**	**0.0527**		**210.8561**	**210.8561**	**0.0185**		**211.3196**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6656	28.1941	19.6839	0.0431		1.2836	1.2836		1.1810	1.1810		4,339.9102	4,339.9102	1.3511		4,373.6870
Total	**2.6656**	**28.1941**	**19.6839**	**0.0431**		**1.2836**	**1.2836**		**1.1810**	**1.1810**		**4,339.9102**	**4,339.9102**	**1.3511**		**4,373.6870**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2456	0.1593	1.9020	2.1400e-003	0.1916	2.0600e-003	0.1937	0.0508	1.9000e-003	0.0527		210.8561	210.8561	0.0185		211.3196
Total	**0.2456**	**0.1593**	**1.9020**	**2.1400e-003**	**0.1916**	**2.0600e-003**	**0.1937**	**0.0508**	**1.9000e-003**	**0.0527**		**210.8561**	**210.8561**	**0.0185**		**211.3196**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6656	28.1941	19.6839	0.0431		1.2836	1.2836		1.1810	1.1810	0.0000	4,339.9102	4,339.9102	1.3511		4,373.6870
Total	**2.6656**	**28.1941**	**19.6839**	**0.0431**		**1.2836**	**1.2836**		**1.1810**	**1.1810**	**0.0000**	**4,339.9102**	**4,339.9102**	**1.3511**		**4,373.6870**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2456	0.1593	1.9020	2.1400e-003	0.1916	2.0600e-003	0.1937	0.0508	1.9000e-003	0.0527		210.8561	210.8561	0.0185		211.3196
Total	**0.2456**	**0.1593**	**1.9020**	**2.1400e-003**	**0.1916**	**2.0600e-003**	**0.1937**	**0.0508**	**1.9000e-003**	**0.0527**		**210.8561**	**210.8561**	**0.0185**		**211.3196**

3.4 (3) Pavement Restoration and Crossings - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0174	0.0000	0.0174	2.6300e-003	0.0000	2.6300e-003			0.0000			0.0000
Off-Road	1.5922	16.9777	10.6623	0.0225		0.8062	0.8062		0.7417	0.7417		2,262.7032	2,262.7032	0.7044		2,280.3134
Total	**1.5922**	**16.9777**	**10.6623**	**0.0225**	**0.0174**	**0.8062**	**0.8236**	**2.6300e-003**	**0.7417**	**0.7443**		**2,262.7032**	**2,262.7032**	**0.7044**		**2,280.3134**

3.4 (3) Pavement Restoration and Crossings - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1310	0.0850	1.0144	1.1400e-003	0.1022	1.1000e-003	0.1033	0.0271	1.0100e-003	0.0281		112.4566	112.4566	9.8900e-003		112.7038
Total	**0.1310**	**0.0850**	**1.0144**	**1.1400e-003**	**0.1022**	**1.1000e-003**	**0.1033**	**0.0271**	**1.0100e-003**	**0.0281**		**112.4566**	**112.4566**	**9.8900e-003**		**112.7038**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0174	0.0000	0.0174	2.6300e-003	0.0000	2.6300e-003			0.0000			0.0000
Off-Road	1.5922	16.9777	10.6623	0.0225		0.8062	0.8062		0.7417	0.7417	0.0000	2,262.7032	2,262.7032	0.7044		2,280.3134
Total	**1.5922**	**16.9777**	**10.6623**	**0.0225**	**0.0174**	**0.8062**	**0.8236**	**2.6300e-003**	**0.7417**	**0.7443**	**0.0000**	**2,262.7032**	**2,262.7032**	**0.7044**		**2,280.3134**

3.4 (3) Pavement Restoration and Crossings - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1310	0.0850	1.0144	1.1400e-003	0.1022	1.1000e-003	0.1033	0.0271	1.0100e-003	0.0281		112.4566	112.4566	9.8900e-003		112.7038
Total	**0.1310**	**0.0850**	**1.0144**	**1.1400e-003**	**0.1022**	**1.1000e-003**	**0.1033**	**0.0271**	**1.0100e-003**	**0.0281**		**112.4566**	**112.4566**	**9.8900e-003**		**112.7038**

3.5 (4) Replace PRV Stations - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5922	16.9777	10.6623	0.0225		0.8062	0.8062		0.7417	0.7417		2,262.7032	2,262.7032	0.7044		2,280.3134
Total	**1.5922**	**16.9777**	**10.6623**	**0.0225**		**0.8062**	**0.8062**		**0.7417**	**0.7417**		**2,262.7032**	**2,262.7032**	**0.7044**		**2,280.3134**

3.5 (4) Replace PRV Stations - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1310	0.0850	1.0144	1.1400e-003	0.1022	1.1000e-003	0.1033	0.0271	1.0100e-003	0.0281		112.4566	112.4566	9.8900e-003		112.7038
Total	**0.1310**	**0.0850**	**1.0144**	**1.1400e-003**	**0.1022**	**1.1000e-003**	**0.1033**	**0.0271**	**1.0100e-003**	**0.0281**		**112.4566**	**112.4566**	**9.8900e-003**		**112.7038**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5922	16.9777	10.6623	0.0225		0.8062	0.8062		0.7417	0.7417	0.0000	2,262.7032	2,262.7032	0.7044		2,280.3134
Total	**1.5922**	**16.9777**	**10.6623**	**0.0225**		**0.8062**	**0.8062**		**0.7417**	**0.7417**	**0.0000**	**2,262.7032**	**2,262.7032**	**0.7044**		**2,280.3134**

3.5 (4) Replace PRV Stations - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1310	0.0850	1.0144	1.1400e-003	0.1022	1.1000e-003	0.1033	0.0271	1.0100e-003	0.0281		112.4566	112.4566	9.8900e-003		112.7038
Total	**0.1310**	**0.0850**	**1.0144**	**1.1400e-003**	**0.1022**	**1.1000e-003**	**0.1033**	**0.0271**	**1.0100e-003**	**0.0281**		**112.4566**	**112.4566**	**9.8900e-003**		**112.7038**

3.6 (5) Bore and Case Crossing - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8728	29.7141	20.2698	0.0442		1.3870	1.3870		1.2760	1.2760		4,377.6127	4,377.6127	1.3850		4,412.2384
Total	**2.8728**	**29.7141**	**20.2698**	**0.0442**		**1.3870**	**1.3870**		**1.2760**	**1.2760**		**4,377.6127**	**4,377.6127**	**1.3850**		**4,412.2384**

3.6 (5) Bore and Case Crossing - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2310	0.1438	1.7265	2.0800e-003	0.1916	1.9600e-003	0.1936	0.0508	1.8100e-003	0.0526		205.2274	205.2274	0.0168		205.6481
Total	**0.2310**	**0.1438**	**1.7265**	**2.0800e-003**	**0.1916**	**1.9600e-003**	**0.1936**	**0.0508**	**1.8100e-003**	**0.0526**		**205.2274**	**205.2274**	**0.0168**		**205.6481**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8728	29.7141	20.2698	0.0442		1.3870	1.3870		1.2760	1.2760	0.0000	4,377.6127	4,377.6127	1.3850		4,412.2384
Total	**2.8728**	**29.7141**	**20.2698**	**0.0442**		**1.3870**	**1.3870**		**1.2760**	**1.2760**	**0.0000**	**4,377.6127**	**4,377.6127**	**1.3850**		**4,412.2384**

3.6 (5) Bore and Case Crossing - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2310	0.1438	1.7265	2.0800e-003	0.1916	1.9600e-003	0.1936	0.0508	1.8100e-003	0.0526		205.2274	205.2274	0.0168		205.6481
Total	**0.2310**	**0.1438**	**1.7265**	**2.0800e-003**	**0.1916**	**1.9600e-003**	**0.1936**	**0.0508**	**1.8100e-003**	**0.0526**		**205.2274**	**205.2274**	**0.0168**		**205.6481**

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	lb/day										lb/day					
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
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

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		
Other Non-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
Other Non-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 Non-Asphalt Surfaces	0.516006	0.044648	0.180857	0.134235	0.053517	0.009035	0.022022	0.026033	0.002482	0.000650	0.006411	0.001624	0.002478
Other Asphalt Surfaces	0.516006	0.044648	0.180857	0.134235	0.053517	0.009035	0.022022	0.026033	0.002482	0.000650	0.006411	0.001624	0.002478

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	lb/day										lb/day					
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
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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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	lb/day										lb/day					
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
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**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	lb/day										lb/day					
Mitigated	0.3045	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
Unmitigated	0.3045	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1980					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2000e-004	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
Total	**0.3045**	**1.0000e-005**	**1.3200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.8100e-003**	**2.8100e-003**	**1.0000e-005**		**3.0000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1980					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2000e-004	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
Total	**0.3045**	**1.0000e-005**	**1.3200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.8100e-003**	**2.8100e-003**	**1.0000e-005**		**3.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Ebbetts Pass Reach 1 Pipeline

Calaveras County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	12.80	Acre	12.80	557,568.00	0
Other Asphalt Surfaces	0.03	Acre	0.03	1,306.80	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	61
Climate Zone	1			**Operational Year**	2020
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

Project Characteristics -

Land Use -

Construction Phase - Adjusted per information provided by Applicant.

Off-road Equipment -

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Off-road Equipment - Adjusted per information provided by Applicant.

Grading -

Demolition -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	61.00
tblConstructionPhase	NumDays	10.00	26.00
tblConstructionPhase	PhaseEndDate	11/11/2019	9/26/2018
tblConstructionPhase	PhaseEndDate	9/16/2019	6/12/2019
tblConstructionPhase	PhaseEndDate	5/28/2018	9/11/2018
tblConstructionPhase	PhaseEndDate	6/11/2018	6/18/2018
tblConstructionPhase	PhaseStartDate	10/15/2019	8/1/2018
tblConstructionPhase	PhaseStartDate	7/24/2018	5/1/2019
tblConstructionPhase	PhaseStartDate	5/1/2018	6/19/2018
tblConstructionPhase	PhaseStartDate	5/29/2018	5/14/2018
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2018	2020

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	5.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2018	6.3760	62.5520	44.4577	0.0920	13.2963	2.9003	15.3540	6.7858	2.6683	8.6789	0.0000	9,253.5803	9,253.5803	2.7940	0.0000	9,323.4304
2019	3.1123	29.8899	21.7798	0.0461	0.1916	1.3889	1.5805	0.0508	1.2778	1.3286	0.0000	4,560.4126	4,560.4126	1.4000	0.0000	4,595.4119
Maximum	**6.3760**	**62.5520**	**44.4577**	**0.0920**	**13.2963**	**2.9003**	**15.3540**	**6.7858**	**2.6683**	**8.6789**	**0.0000**	**9,253.5803**	**9,253.5803**	**2.7940**	**0.0000**	**9,323.4304**

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	lb/day										lb/day					
2018	6.3760	62.5520	44.4577	0.0920	13.2963	2.9003	15.3540	6.7858	2.6683	8.6789	0.0000	9,253.5803	9,253.5803	2.7940	0.0000	9,323.4304
2019	3.1123	29.8899	21.7798	0.0461	0.1916	1.3889	1.5805	0.0508	1.2778	1.3286	0.0000	4,560.4126	4,560.4126	1.4000	0.0000	4,595.4119
Maximum	**6.3760**	**62.5520**	**44.4577**	**0.0920**	**13.2963**	**2.9003**	**15.3540**	**6.7858**	**2.6683**	**8.6789**	**0.0000**	**9,253.5803**	**9,253.5803**	**2.7940**	**0.0000**	**9,323.4304**

	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3045	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
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
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
Total	**0.3045**	**1.0000e-005**	**1.3200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**3.0000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3045	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
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
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
Total	**0.3045**	**1.0000e-005**	**1.3200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.8100e-003**	**2.8100e-003**	**1.0000e-005**	**0.0000**	**3.0000e-003**

	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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	(1) Clearing, Grubbing, Erosion Control, and Grading	Site Preparation	5/14/2018	6/18/2018	5	26	
2	(2) Pipeline Excavation Placement and Initial Backfill	Trenching	6/19/2018	9/11/2018	5	61	
3	(3) Pavement Restoration and Crossings	Demolition	6/19/2018	9/11/2018	5	61	
4	(4) Replace PRV Stations	Trenching	8/1/2018	9/26/2018	5	41	
5	(5) Bore and Case Crossing	Trenching	5/1/2019	6/12/2019	5	31	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 12.83

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

OffRoad Equipment

Ebbetts Pass Reach 1 Pipeline - Calaveras County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
(4) Replace PRV Stations	Air Compressors	0	6.00	78	0.48
(3) Pavement Restoration and Crossings	Excavators	0	8.00	158	0.38
(3) Pavement Restoration and Crossings	Concrete/Industrial Saws	0	8.00	81	0.73
(1) Clearing, Grubbing, Erosion Control, and Grading	Graders	2	8.00	187	0.41
(5) Bore and Case Crossing	Cranes	0	7.00	231	0.29
(5) Bore and Case Crossing	Forklifts	0	8.00	89	0.20
(5) Bore and Case Crossing	Generator Sets	0	8.00	84	0.74
(2) Pipeline Excavation Placement and Initial Backfill	Excavators	2	8.00	158	0.38
(2) Pipeline Excavation Placement and Initial Backfill	Tractors/Loaders/Backhoes	2	8.00	97	0.37
(3) Pavement Restoration and Crossings	Rubber Tired Dozers	0	8.00	247	0.40
(2) Pipeline Excavation Placement and Initial Backfill	Off-Highway Trucks	2	8.00	402	0.38
(5) Bore and Case Crossing	Tractors/Loaders/Backhoes	2	7.00	97	0.37
(3) Pavement Restoration and Crossings	Off-Highway Trucks	1	8.00	402	0.38
(3) Pavement Restoration and Crossings	Tractors/Loaders/Backhoes	1	8.00	97	0.37
(3) Pavement Restoration and Crossings	Other Construction Equipment	1	8.00	172	0.42
(1) Clearing, Grubbing, Erosion Control, and Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
(1) Clearing, Grubbing, Erosion Control, and Grading	Rubber Tired Dozers	2	8.00	247	0.40
(4) Replace PRV Stations	Off-Highway Trucks	1	8.00	402	0.38
(5) Bore and Case Crossing	Welders	0	8.00	46	0.45
(4) Replace PRV Stations	Tractors/Loaders/Backhoes	1	8.00	97	0.37
(4) Replace PRV Stations	Other Construction Equipment	1	8.00	172	0.42
(5) Bore and Case Crossing	Off-Highway Trucks	2	8.00	402	0.38
(5) Bore and Case Crossing	Other Construction Equipment	2	8.00	172	0.42

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
(4) Replace PRV Stations	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(5) Bore and Case Crossing	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(3) Pavement Restoration and Cross	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(2) Pipeline Excavation Placement	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
(1) Clearing, Grubbing, Erosion Co	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.1047	0.0000	13.1047	6.7350	0.0000	6.7350			0.0000			0.0000
Off-Road	3.9005	44.5892	17.2436	0.0366		2.0557	2.0557		1.8912	1.8912		3,681.5209	3,681.5209	1.1461		3,710.1736
Total	**3.9005**	**44.5892**	**17.2436**	**0.0366**	**13.1047**	**2.0557**	**15.1603**	**6.7350**	**1.8912**	**8.6262**		**3,681.5209**	**3,681.5209**	**1.1461**		**3,710.1736**

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2545	0.1948	1.6689	1.9000e-003	0.1916	2.0600e-003	0.1937	0.0508	1.9000e-003	0.0527		187.8696	187.8696	0.0165		188.2822
Total	**0.2545**	**0.1948**	**1.6689**	**1.9000e-003**	**0.1916**	**2.0600e-003**	**0.1937**	**0.0508**	**1.9000e-003**	**0.0527**		**187.8696**	**187.8696**	**0.0165**		**188.2822**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.1047	0.0000	13.1047	6.7350	0.0000	6.7350			0.0000			0.0000
Off-Road	3.9005	44.5892	17.2436	0.0366		2.0557	2.0557		1.8912	1.8912	0.0000	3,681.5209	3,681.5209	1.1461		3,710.1736
Total	**3.9005**	**44.5892**	**17.2436**	**0.0366**	**13.1047**	**2.0557**	**15.1603**	**6.7350**	**1.8912**	**8.6262**	**0.0000**	**3,681.5209**	**3,681.5209**	**1.1461**		**3,710.1736**

3.2 (1) Clearing, Grubbing, Erosion Control, and Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2545	0.1948	1.6689	1.9000e-003	0.1916	2.0600e-003	0.1937	0.0508	1.9000e-003	0.0527		187.8696	187.8696	0.0165		188.2822
Total	**0.2545**	**0.1948**	**1.6689**	**1.9000e-003**	**0.1916**	**2.0600e-003**	**0.1937**	**0.0508**	**1.9000e-003**	**0.0527**		**187.8696**	**187.8696**	**0.0165**		**188.2822**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6656	28.1941	19.6839	0.0431		1.2836	1.2836		1.1810	1.1810		4,339.9102	4,339.9102	1.3511		4,373.6870
Total	**2.6656**	**28.1941**	**19.6839**	**0.0431**		**1.2836**	**1.2836**		**1.1810**	**1.1810**		**4,339.9102**	**4,339.9102**	**1.3511**		**4,373.6870**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2545	0.1948	1.6689	1.9000e-003	0.1916	2.0600e-003	0.1937	0.0508	1.9000e-003	0.0527		187.8696	187.8696	0.0165		188.2822
Total	**0.2545**	**0.1948**	**1.6689**	**1.9000e-003**	**0.1916**	**2.0600e-003**	**0.1937**	**0.0508**	**1.9000e-003**	**0.0527**		**187.8696**	**187.8696**	**0.0165**		**188.2822**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6656	28.1941	19.6839	0.0431		1.2836	1.2836		1.1810	1.1810	0.0000	4,339.9102	4,339.9102	1.3511		4,373.6870
Total	**2.6656**	**28.1941**	**19.6839**	**0.0431**		**1.2836**	**1.2836**		**1.1810**	**1.1810**	**0.0000**	**4,339.9102**	**4,339.9102**	**1.3511**		**4,373.6870**

3.3 (2) Pipeline Excavation Placement and Initial Backfill - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2545	0.1948	1.6689	1.9000e-003	0.1916	2.0600e-003	0.1937	0.0508	1.9000e-003	0.0527		187.8696	187.8696	0.0165		188.2822
Total	**0.2545**	**0.1948**	**1.6689**	**1.9000e-003**	**0.1916**	**2.0600e-003**	**0.1937**	**0.0508**	**1.9000e-003**	**0.0527**		**187.8696**	**187.8696**	**0.0165**		**188.2822**

3.4 (3) Pavement Restoration and Crossings - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0174	0.0000	0.0174	2.6300e-003	0.0000	2.6300e-003			0.0000			0.0000
Off-Road	1.5922	16.9777	10.6623	0.0225		0.8062	0.8062		0.7417	0.7417		2,262.7032	2,262.7032	0.7044		2,280.3134
Total	**1.5922**	**16.9777**	**10.6623**	**0.0225**	**0.0174**	**0.8062**	**0.8236**	**2.6300e-003**	**0.7417**	**0.7443**		**2,262.7032**	**2,262.7032**	**0.7044**		**2,280.3134**

3.4 (3) Pavement Restoration and Crossings - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1357	0.1039	0.8901	1.0200e-003	0.1022	1.1000e-003	0.1033	0.0271	1.0100e-003	0.0281		100.1971	100.1971	8.8000e-003		100.4172
Total	**0.1357**	**0.1039**	**0.8901**	**1.0200e-003**	**0.1022**	**1.1000e-003**	**0.1033**	**0.0271**	**1.0100e-003**	**0.0281**		**100.1971**	**100.1971**	**8.8000e-003**		**100.4172**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0174	0.0000	0.0174	2.6300e-003	0.0000	2.6300e-003			0.0000			0.0000
Off-Road	1.5922	16.9777	10.6623	0.0225		0.8062	0.8062		0.7417	0.7417	0.0000	2,262.7032	2,262.7032	0.7044		2,280.3134
Total	**1.5922**	**16.9777**	**10.6623**	**0.0225**	**0.0174**	**0.8062**	**0.8236**	**2.6300e-003**	**0.7417**	**0.7443**	**0.0000**	**2,262.7032**	**2,262.7032**	**0.7044**		**2,280.3134**

3.4 (3) Pavement Restoration and Crossings - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1357	0.1039	0.8901	1.0200e-003	0.1022	1.1000e-003	0.1033	0.0271	1.0100e-003	0.0281		100.1971	100.1971	8.8000e-003		100.4172
Total	**0.1357**	**0.1039**	**0.8901**	**1.0200e-003**	**0.1022**	**1.1000e-003**	**0.1033**	**0.0271**	**1.0100e-003**	**0.0281**		**100.1971**	**100.1971**	**8.8000e-003**		**100.4172**

3.5 (4) Replace PRV Stations - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5922	16.9777	10.6623	0.0225		0.8062	0.8062		0.7417	0.7417		2,262.7032	2,262.7032	0.7044		2,280.3134
Total	**1.5922**	**16.9777**	**10.6623**	**0.0225**		**0.8062**	**0.8062**		**0.7417**	**0.7417**		**2,262.7032**	**2,262.7032**	**0.7044**		**2,280.3134**

3.5 (4) Replace PRV Stations - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1357	0.1039	0.8901	1.0200e-003	0.1022	1.1000e-003	0.1033	0.0271	1.0100e-003	0.0281		100.1971	100.1971	8.8000e-003		100.4172
Total	**0.1357**	**0.1039**	**0.8901**	**1.0200e-003**	**0.1022**	**1.1000e-003**	**0.1033**	**0.0271**	**1.0100e-003**	**0.0281**		**100.1971**	**100.1971**	**8.8000e-003**		**100.4172**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5922	16.9777	10.6623	0.0225		0.8062	0.8062		0.7417	0.7417	0.0000	2,262.7032	2,262.7032	0.7044		2,280.3134
Total	**1.5922**	**16.9777**	**10.6623**	**0.0225**		**0.8062**	**0.8062**		**0.7417**	**0.7417**	**0.0000**	**2,262.7032**	**2,262.7032**	**0.7044**		**2,280.3134**

3.5 (4) Replace PRV Stations - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.1357	0.1039	0.8901	1.0200e-003	0.1022	1.1000e-003	0.1033	0.0271	1.0100e-003	0.0281		100.1971	100.1971	8.8000e-003		100.4172
Total	**0.1357**	**0.1039**	**0.8901**	**1.0200e-003**	**0.1022**	**1.1000e-003**	**0.1033**	**0.0271**	**1.0100e-003**	**0.0281**		**100.1971**	**100.1971**	**8.8000e-003**		**100.4172**

3.6 (5) Bore and Case Crossing - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8728	29.7141	20.2698	0.0442		1.3870	1.3870		1.2760	1.2760		4,377.6127	4,377.6127	1.3850		4,412.2384
Total	**2.8728**	**29.7141**	**20.2698**	**0.0442**		**1.3870**	**1.3870**		**1.2760**	**1.2760**		**4,377.6127**	**4,377.6127**	**1.3850**		**4,412.2384**

3.6 (5) Bore and Case Crossing - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2395	0.1758	1.5101	1.8500e-003	0.1916	1.9600e-003	0.1936	0.0508	1.8100e-003	0.0526		182.8000	182.8000	0.0149		183.1735
Total	**0.2395**	**0.1758**	**1.5101**	**1.8500e-003**	**0.1916**	**1.9600e-003**	**0.1936**	**0.0508**	**1.8100e-003**	**0.0526**		**182.8000**	**182.8000**	**0.0149**		**183.1735**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8728	29.7141	20.2698	0.0442		1.3870	1.3870		1.2760	1.2760	0.0000	4,377.6127	4,377.6127	1.3850		4,412.2384
Total	**2.8728**	**29.7141**	**20.2698**	**0.0442**		**1.3870**	**1.3870**		**1.2760**	**1.2760**	**0.0000**	**4,377.6127**	**4,377.6127**	**1.3850**		**4,412.2384**

3.6 (5) Bore and Case Crossing - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Worker	0.2395	0.1758	1.5101	1.8500e-003	0.1916	1.9600e-003	0.1936	0.0508	1.8100e-003	0.0526		182.8000	182.8000	0.0149		183.1735
Total	**0.2395**	**0.1758**	**1.5101**	**1.8500e-003**	**0.1916**	**1.9600e-003**	**0.1936**	**0.0508**	**1.8100e-003**	**0.0526**		**182.8000**	**182.8000**	**0.0149**		**183.1735**

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	lb/day										lb/day					
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
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

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		
Other Non-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
Other Non-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 Non-Asphalt Surfaces	0.516006	0.044648	0.180857	0.134235	0.053517	0.009035	0.022022	0.026033	0.002482	0.000650	0.006411	0.001624	0.002478
Other Asphalt Surfaces	0.516006	0.044648	0.180857	0.134235	0.053517	0.009035	0.022022	0.026033	0.002482	0.000650	0.006411	0.001624	0.002478

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	lb/day										lb/day					
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
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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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	lb/day										lb/day					
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
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**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	lb/day										lb/day					
Mitigated	0.3045	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
Unmitigated	0.3045	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1980					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2000e-004	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
Total	**0.3045**	**1.0000e-005**	**1.3200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.8100e-003**	**2.8100e-003**	**1.0000e-005**		**3.0000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1980					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2000e-004	1.0000e-005	1.3200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.8100e-003	2.8100e-003	1.0000e-005		3.0000e-003
Total	**0.3045**	**1.0000e-005**	**1.3200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.8100e-003**	**2.8100e-003**	**1.0000e-005**		**3.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

Biological Resources Assessment

Biological Resources Assessment

Ebbetts Pass
Reach 1 Water Transmission Pipeline Capital Improvement Project

Calaveras County, California

Prepared for:

Calaveras County Water District

October 31, 2017

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

AWWA	American Water Works Association
BA	biological assessment
BO	biological opinion

LIST OF ACRONYMS AND ABBREVIATIONS

BRA	biological resources assessment
CCWD	Calaveras County Water District
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
HCP	habitat conservation plan
HUC	Hydrologic Unit Code
MBTA	Migratory Bird Treaty Act
MSL	mean sea level
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NSF	National Science Foundation
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Project	Ebbetts Pass Reach 1 Water Transmission Pipeline Project
PRV	Pressure Reducing Valves
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WTP	Water Treatment Plant
WBWG	Western Bat Working Group

1.0 INTRODUCTION

On behalf of the Calaveras County Water District (CCWD), ECORP Consulting, Inc. has conducted a biological resources assessment (BRA) for the proposed Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvement Project (Project) located in Calaveras County, California. The purpose of the assessment was to collect information on the biological resources present within the Project area and to determine any potential biological constraints to Project activities.

1.1 Project Location

The ±25.3-acre Project alignment begins north of Hunter Dam Road to the west of the Hunter Dam Water Treatment Plant, continues southwesterly along State Route 4 (SR-4) through Hathaway Pines, Red Apple Ranch and Forest Meadows, terminating approximately 6,700 feet southwest of Forest Meadows Drive. The Project alignment corresponds to portions of Sections 24-27, Township 4 North, Range 14 East, and Sections 18-19, Township 4 North, Range 15 East (MDBM) of the "Murphys, California" and "Stanislaus, California" 7.5-minute quadrangles (USGS 1948a and 1948b, respectively) (Figure 1. Project Location and Vicinity). The approximate center of the Project alignment is located at latitude 38.179066° and longitude -120.389424° within the Upper Calaveras (Hydrologic Unit Code [HUC] #18040111) and Upper Stanislaus (HUC #18040010) Watersheds (NRCS, USGS, and EPA 2016).

1.2 Project Description

The proposed Project is to replace an existing water transmission pipeline and associated facilities (pressure reducing valve (PRV) stations, air relief valves, blow-off valves, main line valves, and fire hydrants).

The existing 8-inch diameter Ebbetts Pass Reach 1 pipeline is owned and operated by the CCWD. The existing pipeline was constructed in 1965 and delivers water treated from the CCWD's Hunter Dam Water Treatment Plant (WTP) to CCWD customers located along the SR-4 corridor from Avery, south and west, to services located approximately 4,000 feet west of Forest Meadows Drive.

1.2.1 Pipeline

The existing pipeline requires replacement due to age, poor condition and frequent repairs. Approximately 24,000 lineal feet of new 10- or 12-inch diameter ductile iron pipe will be used to replace the existing pipeline. The Project construction will be sequenced such that existing CCWD customers will not be subjected to unusual or prolonged service outages with the placement of the proposed Project.

Project Boundary - 25.3 acres

Calaveras County, California
§24, 25, 26, and 27, T.04N, R.14E, and
§18 and 19, T.04N, R.15E MDBM
Latitude (NAD83): 38.179066°
Longitude (NAD83): -120.389424°
Watershed: Upper Calaveras California (18040011) and Upper Stanislaus (18040010)

Scale in Feet
0 2,000

Murphys (1948, NAD 27) and Stanislaus (1948, NAD 27)
CA 7.5-minute Topographic Quadrangle
US Geological Survey.

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Location Vicinity\CCWDEP_LnV_20170929.mxd (MRG) mgoolsby 9/29/2017

Map Date: 9/29/2017

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 1. Project Location and Vicinity

2017-108 CCWD Ebbetts Pass

The pipeline is typically installed in an approximately a 30-inch wide trench with 36 to 48-inches of cover over the top of the pipe. The trench is 5 to 6 feet deep on average but the depth varies and can be as much as 7-10 feet deep in some locations. The new pipeline may be located near the top of slope, near the toe of slope or near the existing SR-4 road shoulder. Between Commercial Way and Darby Russel Road and parallel to the existing pipeline, there is also underground PG&E power improvements. Ideally, the new pipeline will be placed between the existing pipeline and existing underground power trench. Where this is not possible, the new pipeline will be placed between the existing pipeline and SR-4 shoulder. If it cannot be avoided, the worst case is for the existing pipeline to be excavated and removed on some sections of the Project so that the new pipeline can be installed in exactly the same location.

Where existing pipelines that cross SR-4 need to be replaced, they will be replaced with bore and case construction requiring no open cut construction across SR-4. In a few cases, there are existing service connections within the Project area that are provided without PRVs and are typically located in the upper elevations of the Project.

All construction of the new pipeline will be performed in conformance with the most current industry standards including National Science Foundation (NSF) 60/61, American Water Works Association (AWWA) and State of California Waterworks standards assuring the public health and safety. The pipeline will be used for the transmission of potable water for domestic use as well as supply fire flow for communities along SR-4. The new pipeline will be fully disinfected and pass bacteriological tests before sections of new piping are placed into service.

1.2.2 Pressure Reducing Valve Stations

The existing and proposed pipeline will operate at pressures up to 250 pounds per square inch gauge (psig)[1]. Per the District's Standards, pressures delivered to CCWD customers should not exceed a maximum of 120 psig and ideally should be around 50-70 psi for household use. To reduce water pressures delivered to their customers, CCWD has installed 12 PRV Stations within the proposed Project area. PRVs consist of a large buried concrete vault approximately 7 x 9 feet plan dimensions by 6 feet deep and the various pressure control valves, surge relief valves and isolation valves are placed inside this vault. The existing PRV Station located near the intersection with Tahoe Drive has recently been constructed and will not be replaced with the proposed Project improvements. The PRV's serving Red Apple Ranch subdivision at Rome Court and Red Apple Drive are recent additions and are to be reused, as well. The remaining PRVs located within the proposed Project will likely be replaced or relocated as part of the scope of improvements.

[1] PSI and PSIG are both units of measurement for describing the amount of pressure a gas or fluid is exerting. However, PSIG specifies what the measurement is relative to, whereas PSI does not. In both units, the letters "psi" is an abbreviation for "pounds per square inch. PSIG stands for "pounds per square inch gauge," or gage. PSIG units are relative to atmospheric pressure (USDE 2013).

1.2.3 Fire Hydrants and Pipeline Valves

Existing fire hydrants along SR-4 now served directly by the existing pipeline will be removed and new hydrants will be installed and connected to the replacement pipeline. Additional hydrants may also be placed with the new pipeline.

Air relief valves will be placed at all high spots in the elevation of the pipeline where any air accumulating in the pipeline may collect and be vented. These valves also vent air during filling and draining of the pipeline, such as during construction or subsequent draining for maintenance or repair of the pipeline. Most of the air relief valve assembly is buried underground with only vent pipe and small insulating cover typically extending approximately 18-inches above ground.

There are currently blow-off valves at isolated low points along the existing pipeline route. The blow-offs valves are placed at low points along the pipeline alignment for long term maintenance to be able to drain the line in the case of an emergency repair. These will be removed and replaced with current CCWD blow-off standard and reconnected to the new pipeline.

Existing main line valves located along the pipeline will also be replaced with the new pipeline improvements. Additional main line valves will be placed with the Reach 1 improvements to provide for better maintenance and isolation and the valves will be utilized in the event of a future water leak/repair. The valves are typically resilient seat gate valves in accordance with applicable AWWA industry standards for water systems.

1.2.3.1 Temporary Staging / Laydown Areas

The proposed Project includes up to five staging/laydown areas along the pipeline route. These areas may temporarily stage equipment and materials in the designated work zones as necessary to perform daily work. Also, up to two of the staging areas would be used for the construction trailer, parking equipment and vehicles, storing materials, storage containers, etc. that is outside the SR-4 right-of-way on a larger property. The District will attempt to identify potential staging areas in its assessments.

1.2.3.2 Construction Duration and Phasing

The Project would be constructed in one phase. Construction is estimated to take place in the summer of 2018 from June 1 to September 30.

1.2.3.3 Construction Access

The Project would be accessed from and constructed within the public right-of-way of SR-4. The water lines would be installed either within existing roadway rights-of-way, within the existing shoulder, or within existing utility easements as the conditions warrant for avoidance of resources.

1.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the Project area. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of the available literature and Project reconnaissance.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- Are identified as a species of special concern by the California Department of Fish and Wildlife (CDFW);
- Are birds identified as birds of conservation concern by the U.S. Fish and Wildlife Service (USFWS);
- Are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2);
- Plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);
- Are plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code, § 1900 et seq.); or
- Are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above listed groups were considered for this assessment.

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by USFWS and the National Marine Fisheries Service (NMFS). Section 9 of ESA prohibits the taking of listed wildlife, where take is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on nonfederal land in knowing violation of state law (16 U.S. Code [USC] 1538). Under Section 7 of ESA, federal agencies are required to consult with USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its Critical Habitat. Through consultation and the issuance of a biological opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan (HCP) is developed.

2.1.1.1 Section 7

Section 7 of ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. If direct and/or indirect effects will occur to critical habitat that appreciably diminish the value of critical habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

2.1.1.2 Section 10

When no discretionary action is being taken by a federal agency but a project may result in the take of listed species, an incidental take permit under Section 10 of ESA is necessary. The purpose of the incidental take permit is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an incidental take permit under section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

2.1.1.3 Critical Habitat and Essential Habitat

Critical Habitat is defined in Section 3 of ESA as (1) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For inclusion in a critical habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior
- Food, water, air, light, minerals, or other nutritional or physiological requirements
- Cover or shelter
- Areas for breeding, reproduction, or rearing (or development) of offspring
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species

Excluded Essential Habitat is defined as areas that were found to be essential habitat for the survival of a species and assumed to contain at least one of the primary constituent elements for the species but were excluded from the Critical Habitat designation. The USFWS has stated that any action within the excluded Essential Habitat that triggers a federal nexus will be required to undergo the Section 7(a)(1) process, and the species covered under the specific Critical Habitat designation would be afforded protection under Section 7(a)(2) of ESA.

2.1.1.4 Essential Fish Habitat

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), federal agencies are required to consult with NMFS for activities that may affect Essential Fish Habitat (EFH). EFH are the waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity, and include several important components: adequate substrate; water quality; water quantity, depth, and velocity; channel gradient and stability; food; cover and habitat complexity; space; access and passage; and habitat connectivity (Pacific Fishery Management Council 2000).

2.1.2 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3 Federal Clean Water Act

The federal Clean Water Act's (CWA) purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the United States (U.S.) without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "*that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that*

under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The USEPA also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

The alteration of a USACE federally authorized civil works project requires a permit pursuant to Section 408 (33 USC 408, Section 14 of the Rivers and Harbors Act of 1899). Projects with minimal impacts require approval by the USACE Sacramento District Construction Operations Group; however projects with more substantial impacts may require USACE Headquarters review. Coordination with the Central Valley Flood Protection Board, who serve as the nonfederal sponsor, is required as a part of the process of obtaining a Section 408 permit.

2.2 State or Local Regulations

2.2.1 California Fish and Game Code

2.2.1.1 California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) generally parallels the main provisions of ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as "hunt*, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill*." the California ESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

2.2.1.2 Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

2.2.1.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 was created with the intent to "*preserve, protect and enhance rare and endangered plants in this State*." The NPPA is administered by CDFW and provided in 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code §§ 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.1.4 Birds of Prey

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, § 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting raptors.

2.2.1.5 Section 1600

Through Sections 1600 to 1616 of the California Fish and Game Code, CDFW regulates projects that propose to (1) divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, (2) use material from the streambeds designated by the department, or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake designated by the department. If an existing fish or wildlife resource may be substantially adversely affected by that construction, CDFW shall notify the governmental agency or public utility of the existence of the fish or wildlife resource together with a description thereof and shall propose reasonable modifications in the proposed construction that will allow for the protection and continuance of the fish or wildlife resource, including procedures to review the operation of those protective measures. CDFW jurisdiction includes the definable bed, bank, or channel, areas that support periodic or intermittent flows, perennial flows, subsurface flows, support fish or other aquatic life and areas that support riparian or hydrophytic vegetation in association with a streambed. Projects that affect the CDFW jurisdictional areas must submit a Notification of Lake or Streambed Alteration to their local office of the CDFW for processing.

2.2.2 Species of Special Concern

Species of Special Concern (SSC) are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal or California ESAs, or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role;
- The species is listed as federally (but not state) threatened or endangered, or meets the state definition of threatened or endangered but has not formally been listed;
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status;
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.
- SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state-threatened or endangered species are considered "significant" under CEQA.

2.2.3 California Rare Plant Ranks

The CNPS maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2017), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, nongovernmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened / moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (<20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known)

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; differences in Threat Ranks do not constitute additional or different protection (CNPS 2017). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines § 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

2.2.4 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "*discharging waste, or proposing to discharge waste, with any region that could affect the water of the state"* (Water Code 13260(a)). Waters of the State are defined as "*any surface water or groundwater, including saline waters, within the boundaries of the state*" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

2.2.5 California Environmental Quality Act

In accordance with CEQA Guidelines § 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in federal and/or California ESAs, and §§ 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either USFWS or CDFW.

2.2.5.1 CEQA Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant and are particularly relevant to SSC. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant and require lead agencies to prepare an Environmental Impact Report to thoroughly analyze and evaluate the impacts. Assessment of "impact significance" to populations of non-listed species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Specifically, § 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on federally protected Waters of the U.S. including wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.2.6 Local Plans and Ordinances

2.2.6.1 Calaveras County General Plan

The Calaveras County General Plan (Calaveras County 2016) is currently being updated. The Conservation and Open Space Element of the current draft of the County General Plan contains several goals related to the protection and conservation of biological resources as listed below.

- Goal V-1: Preserve and enhance the County's significant wildlife and botanical habitats.
- Goal V-2: Protect streams, rivers and lakes from excessive sedimentation due to development and grading.
- Goal V-3: Protect and preserve riparian habitat along streams and rivers in the County.

2.2.6.2 Avery-Hathaway Pines Community Plan

The Avery-Hathaway Pines Community Plan (Calaveras County 1998) was developed as part of the Calaveras County General Plan in 1998. The Open Space Element of the Community Plan contains several goals and policies related to the protection and conservation of biological resources as listed below.

- Goal 9: Preserve open space and the quality of the scenic forested environment within the community plan area. Policy 9B: Protect wetland and riparian habitat.
- Goal 10: Provide for a system of wildlife corridors within the community plan area.

2.2.6.3 Calaveras County Voluntary Oak Woodland Management Plan

The Calaveras County Voluntary Oak Woodland Management Plan (Calaveras County 2007) provides a set of voluntary oak protection guidelines for oak woodlands throughout the County. It contains two goals related to the protection and conservation of oak woodlands as listed below.

- Support and encourage voluntary, long-term private stewardship and conservation of Calaveras' oak woodlands.
- Encourage local land use planning that is consistent with the preservation of oak woodlands, particularly special oak woodlands habitat.

3.0 METHODS

3.1 Literature Review

The following resources were reviewed to determine the special-status species that had been documented within or in the vicinity of the Project area or that otherwise had the potential to occur within the Project. The results of the species searches listed below are included as attachment A.

- CDFW CNDDB data for the "Murphys, California" and "Stanislaus, California" 7.5-minute quadrangles, as well as the 10 surrounding USGS quadrangles (CDFW 2017);
- USFWS Information, Planning, and Consultation System Resource Report List for the Project Area (USFWS 2017);; and
- CNPS' electronic Inventory of Rare and Endangered Plants of California query for the "Murphys, California" and "Stanislaus, California" 7.5-minute quadrangles and the 10 surrounding USGS quadrangles (CNPS 2017).

3.2 Project Reconnaissance

ECORP Biologists Keith Kwan and Clay DeLong conducted the Project reconnaissance visits on May 24 and 25, June 15 and 16, and July 12 and 13, 2017. The Project area was systematically surveyed on foot using a Trimble Global Positioning System unit with sub-meter accuracy, topographic maps, and aerial imagery to ensure total Project coverage. Special attention was given to identifying those portions of the Project area with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring within the Project were characterized and the following biological resource information was collected:

- Potential wetlands and other Waters of the U.S.
- Animal species directly observed
- Active raptor nest locations
- Burrows and any other special habitat features
- Habitat and vegetation types
- Representative Project photographs, provided as Attachment B

3.3 Additional Surveys Conducted

In addition to the reconnaissance surveys conducted for the Project area, the following additional surveys were conducted for the Project area.

3.3.1 Delineation of Waters of the U.S.

ECORP biologists conducted a delineation of Waters of the U.S. for the Project area on June 15 and 16, and July 12 and 13, 2017; however, the boundaries of the potential wetlands and other Waters of the U.S. have not been verified by USACE. Preliminary results of the delineation of Waters of the U.S. are discussed in Section 4.3.

3.3.2 Special-Status Plant Surveys

Guideline-level special-status plant surveys (early and late season) for the Project area were conducted by ECORP biologist Clay DeLong in accordance with guidelines promulgated by USFWS (USFWS 2000), CDFW (CDFG 2009), and CNPS (CNPS 2017) on May 24 and 25, and July 12 and 13, 2017. The surveys included visits to local reference populations for target species, if available, to confirm appropriate phenological conditions for identification. The results of the guideline-level special-status plant surveys are discussed in Section 4.7.

3.4 Special-Status Species Considered for the Project

Based on species occurrence information from the literature review and observations in the field, a list of special-status plant and animal species that have the potential to occur within the Project area was generated (Table 2). Each of these species potential to occur within the Project area was assessed based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the Project area based on documented occurrences within the CNDDB or other literature
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Project area
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Project area based on CNDDB records and other available documentation
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Project area based on CNDDB records and other documentation

4.0 RESULTS

4.1 Project Characteristics and Land Use

The Project area is located within mountainous terrain situated at an elevational range of approximately 2,900 to 3,400 feet above mean sea level in the High Sierra Nevada Subregion of the Sierra Nevada floristic region of California (Baldwin et. al. 2012). Between 1981 and 2010, the average daily mean temperatures ranged from 36°F (December) to 67.1°F (July). Average annual precipitation is 57 inches at Calaveras Big Trees State Park, which is approximately six miles northeast of the Project (NOAA 2017).

The Project area is primarily composed of portions of a two-lane roadway (SR-4) and roadside habitat. The roadsides are a mixture of ruderal, undeveloped and developed land. Vegetation communities found within the ruderal and undeveloped portions of the Project area include annual forb meadow, annual grassland, ponderosa pine forest, and California black oak forest.

Annual forb meadows are located in the central portion of the Project alignment northeast of Forest Meadows Drive, and at the northeastern end of the Project alignment. The dominant plants found in the annual forb meadows include Ramm's madia (*Jensia rammii*), white-tip clover (*Trifolium variegatum*), white meadowfoam (*Limnanthes alba* ssp. *alba*), American bird's foot trefoil (*Acmispon americanus*), soft brome (*Bromus hordeaceus*), and medusahead grass (*Elymus caput-medusae*).

Annual grasslands are located in small patches throughout the Project alignment, primarily at disturbed locations. This plant community is dominated by non-native grasses and forbs, including medusahead grass, soft brome, ripgut brome (*Bromus diandrus*), hairy vetch (*Vicia hirsuta*), yellow star-thistle (*Centaurea solstitialis*), and white sweetclover (*Melilotus albus*).

Ponderosa pine forest is the dominant vegetation community within the Project area. Ponderosa pine forest within the Project area is characterized by an open to dense canopy dominated by ponderosa pine (*Pinus ponderosa*), incense cedar (*Calocedrus decurrens*), sugar pine (*Pinus lambertiana*), and black oak (*Quercus kelloggii*), with an understory dominated by mountain misery (*Chamaebatia foliolosa*) and whiteleaf manzanita (*Arctostaphylos viscida*). Pine forest is intermixed in some locations with California black oak forest. California black oak forest within the Project area is made up of an open canopy of black oak and Oregon oak (*Quercus garryana*), with an understory of birch leaf

mountain mahogany (*Cercocarpus betuloides*), pink honeysuckle (*Lonicera hispidula*), and buck brush (*Ceanothus cuneatus*).

4.2 Potential Waters of the U.S.

A total of 0.184 acre of potential Waters of the U.S. were mapped within the Project area. Potential Waters of the U.S. mapped within the Project area include wetlands and other waters (Table 1. *Potential Waters of the U.S.*, Figure 2. *Wetland Delineation*). Wetlands consist of seeps and a seasonal wetland swale. Other waters include intermittent drainages, ephemeral drainages, and ditches.

Table 1. Potential Waters of the U.S.

Type	Acreage[1]
Wetlands	
Seasonal wetland swale	0.045
Seep	0.056
Other Waters	
Intermittent drainage	0.017
Ephemeral drainage	0.021
Ditch	0.045
Total	0.184

[1]Acreages represent a calculated estimation and are subject to modification following the USACE verification process.

Seasonal Wetland Swale

Seasonal wetland swales are generally linear wetland features that convey precipitation runoff and support a predominance of hydrophytic vegetation, but do not exhibit an ordinary high water mark (OHWM). These are typically inundated for short periods during and immediately after rain events, but usually maintain soil saturation for longer periods during the wet season. One seasonal wetland swale occurs in the central portion of the Project area east of Red Apple Drive. This seasonal wetland swale is a roadside drainage feature dominated by Baltic rush (*Juncus balticus*), clustered field sedge (*Carex praegracilis*), arroyo willow (*Salix lasiolepis*), and Himalayan blackberry (*Rubus armeniacus*).

Seep

Seeps are typically found on sloped terrain where subsurface water reaches the surface. They may form small pools where the topography is relatively flat, but are more commonly characterized by saturated soil, either seasonally or perennially. Two seeps occur in the central portion of the Project area east of Forest Meadows Drive within the annual forb meadow. These features are dominated by Himalayan blackberry, Baltic rush, common large monkey-flower (*Mimulus guttatus*), and white meadowfoam.

Ditch

Ditches are linear features constructed to convey stormwater along roadsides. Ditches occur scattered throughout the Project area. The ditches are primarily unvegetated due to the scouring of fast-moving water during precipitation events.

Ephemeral Drainage

Ephemeral drainages are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. Ephemeral drainages within the Project area are sparsely vegetated.

Intermittent Drainage

Intermittent drainages are linear features that exhibit a bed and bank, OHWM, and flow for longer duration than ephemeral drainages, typically for weeks or months following rainfall events. The intermittent drainages mapped within the Project area tend to be sparsely vegetated due to the absence of soil, presence of bedrock and/or cobble, and the scouring effects of flowing water. Vegetated portions of intermittent drainages within the Project area are dominated by common large monkey-flower, clustered field sedge, and Baltic rush.

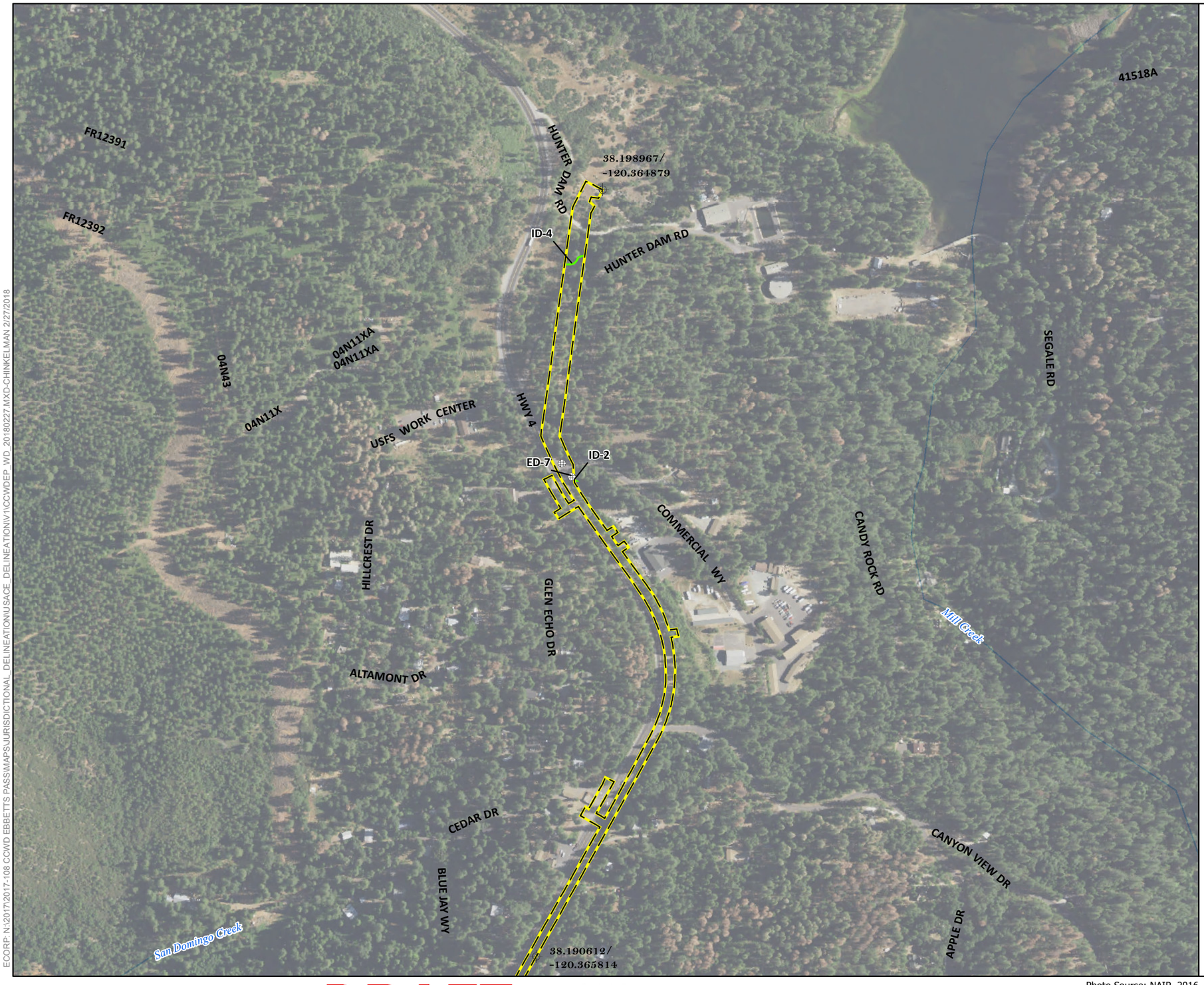
4.3 Soils

According to the Web Soil Survey (NRCS 2017a), six soil units, or types, have been mapped within the Project area (Figure 3. *Natural Resources Conservation Service Soil Types*). These are:

- 152 – Josephine family, deep, 35 to 50 percent slopes
- 153 – Josephine family, deep-moderately deep complex, 5 to 35 percent slopes
- 155 – Josephine-Sites families association, deep, 5 to 35 percent slopes
- 175 – Lithic Xerumbrepts-Rock outcrop-McCarthy family, moderately deep complex, 5 to 60 percent slopes
- Jp-Mh-CE – Josephine-Mariposa association, 5 to 30 percent slopes
- Ms-Ir-CE – McCarthy-Iron Mountain association, 5 to 30 percent slopes

None of these soils are considered hydric soils (NRCS 2017b).

Figure 2. Wetland Delineation



Map Features

- Project Boundary - 25.1 acres
- Culvert
- Reference Coordinate (NAD83)

Three Criteria Sample Points

- Upland Point
- Waters Point

Waters of the U.S. (0.184 acres) [1] *

Wetlands (0.101 acres)

- Seasonal Wetland Swale (0.045 acres)
- Seep (0.056 acres)

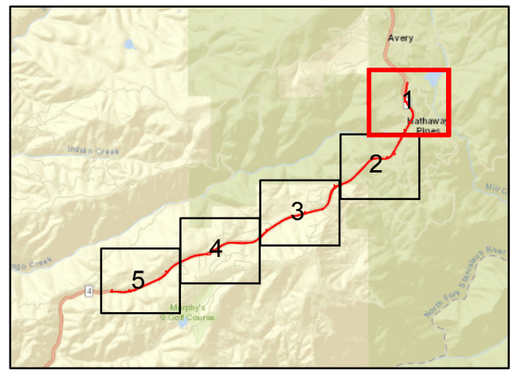
Other Waters (0.083 acres)

- Intermittent Drainage (0.017 acres)
- Ephemeral Drainage (0.021 acres)
- Ditch (0.045 acres)

[1] *Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.*

** The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP: N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\JURISDICTIONAL_DELINEATION\USACE_DELINEATION\V1\CCWDEP_WD_20180227.MXD-CHINKELMAN 2/27/2018

2017-108 CCWD Ebbetts Pass

DRAFT

Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Delineator(s): K. Kwan
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

Figure 2. Wetland Delineation

Map Features

- Project Boundary - 25.1 acres
- Culvert
- Reference Coordinate (NAD83)

Three Criteria Sample Points

- Upland Point
- Waters Point

Waters of the U.S. (0.184 acres) [1] *

Wetlands (0.101 acres)

- Seasonal Wetland Swale (0.045 acres)
- Seep (0.056 acres)

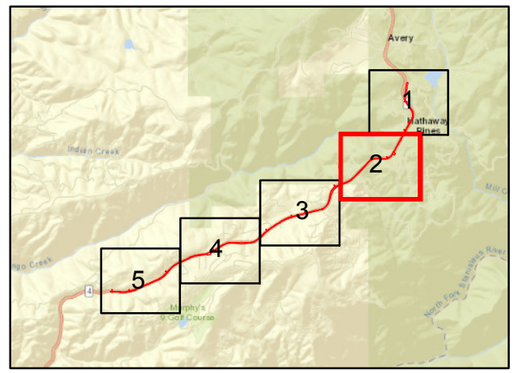
Other Waters (0.083 acres)

- Intermittent Drainage (0.017 acres)
- Ephemeral Drainage (0.021 acres)
- Ditch (0.045 acres)

[1] *Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.*

** The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP: N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\JURISDICTIONAL_DELINEATION\V1\CCWDEP_WD_20180227.MXD-CHINKELMAN 2/27/2018

2017-108 CCWD Ebbetts Pass

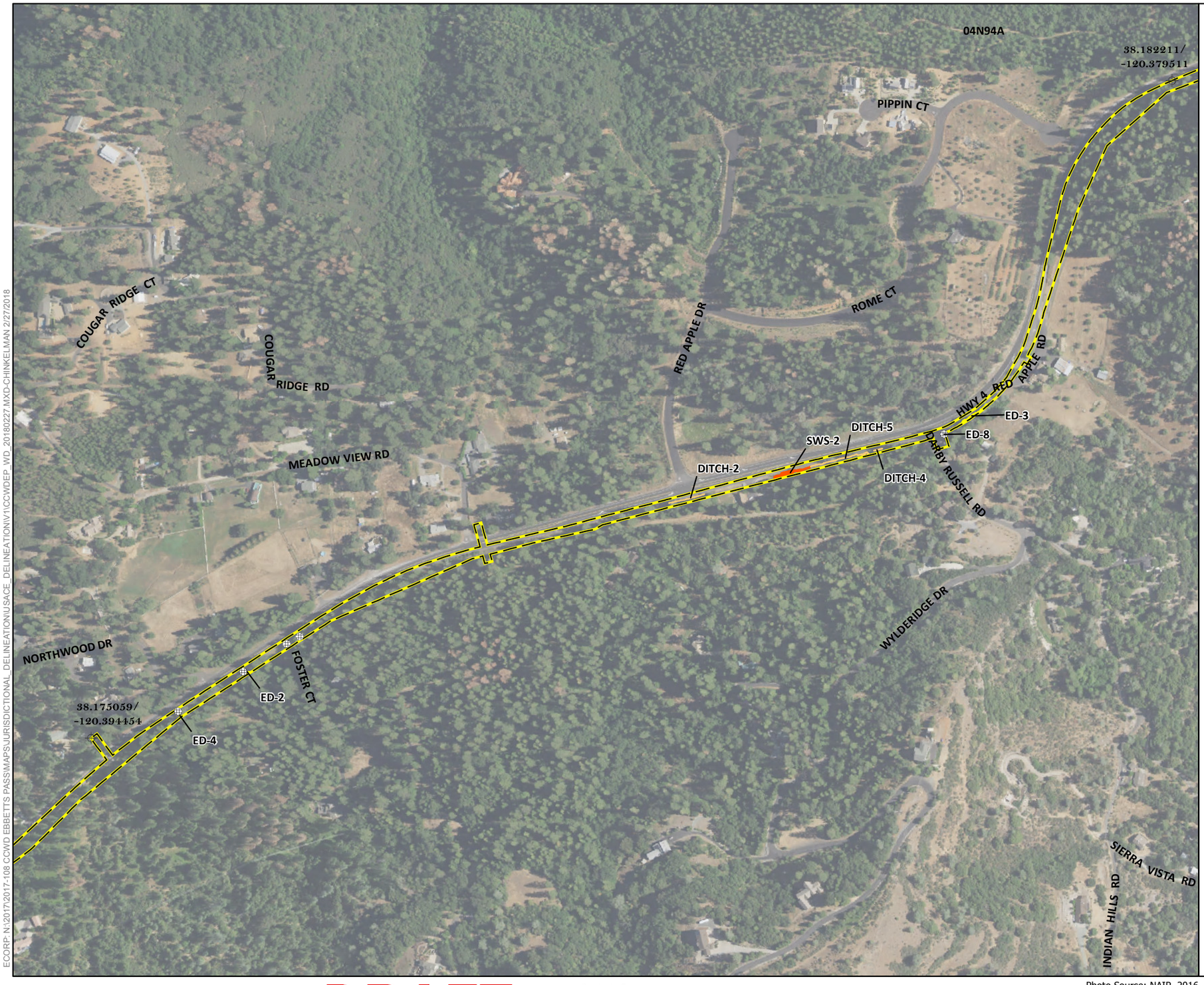
DRAFT

Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Delineator(s): K. Kwan
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

Figure 2. Wetland Delineation



Map Features

- Project Boundary - 25.1 acres
- Culvert
- Reference Coordinate (NAD83)

Three Criteria Sample Points

- Upland Point
- Waters Point

Waters of the U.S. (0.184 acres) [1] *

Wetlands (0.101 acres)

- Seasonal Wetland Swale (0.045 acres)
- Seep (0.056 acres)

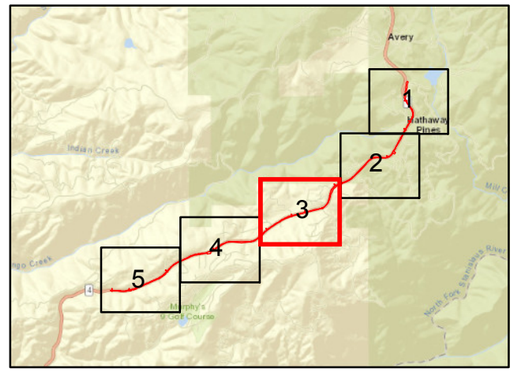
Other Waters (0.083 acres)

- Intermittent Drainage (0.017 acres)
- Ephemeral Drainage (0.021 acres)
- Ditch (0.045 acres)

[1] *Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.*

** The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP: N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\JURISDICTIONAL_DELINEATION\USACE_DELINEATION\V1\CCWDEP_WD_20180227.MXD-CHINKELMAN 2/27/2018

2017-108 CCWD Ebbetts Pass

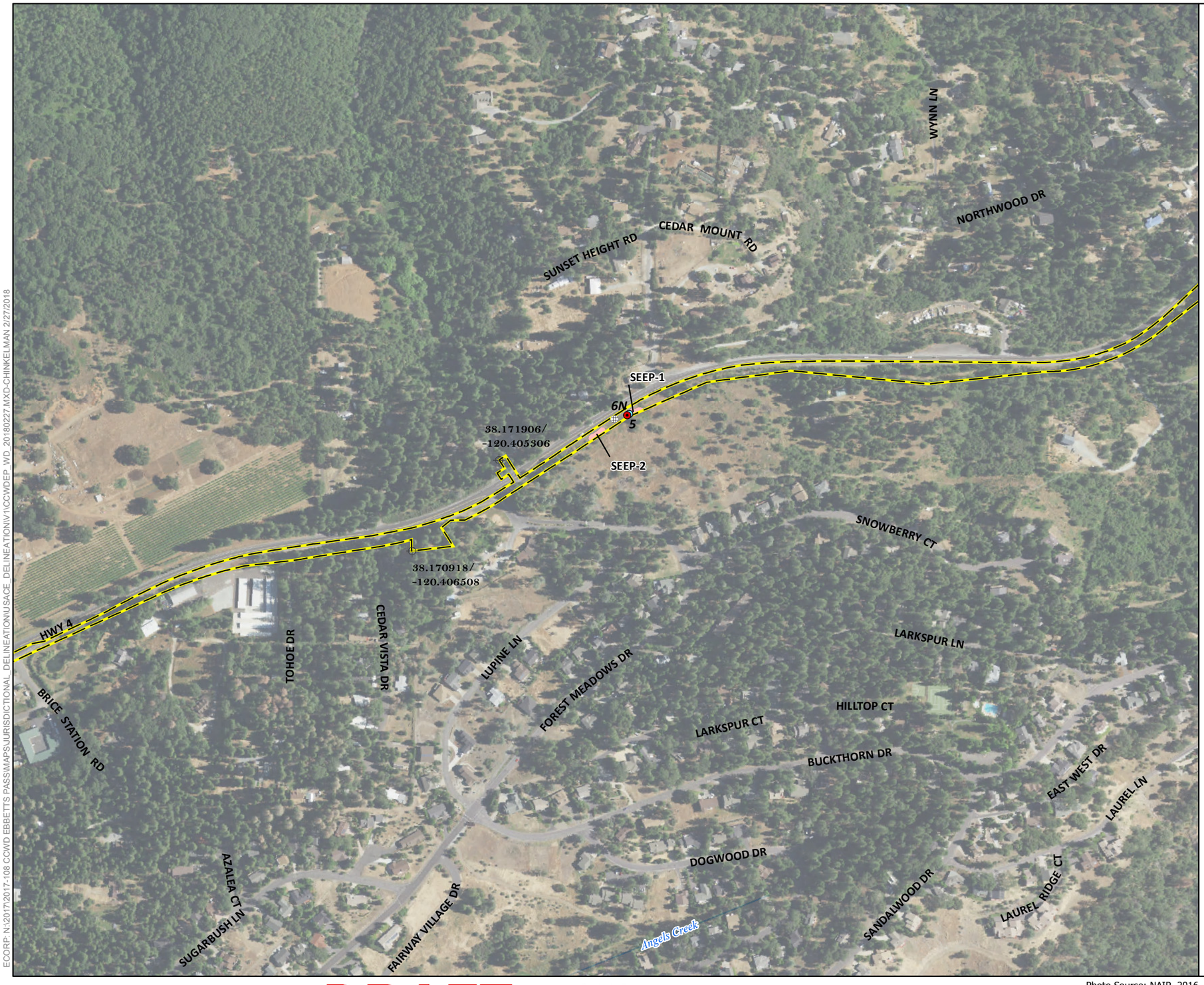
DRAFT

Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Delineator(s): K. Kwan
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

Figure 2. Wetland Delineation



Map Features

- Project Boundary - 25.1 acres
- Culvert
- Reference Coordinate (NAD83)

Three Criteria Sample Points

- Upland Point
- Waters Point

Waters of the U.S. (0.184 acres) [1] *

Wetlands (0.101 acres)

- Seasonal Wetland Swale (0.045 acres)
- Seep (0.056 acres)

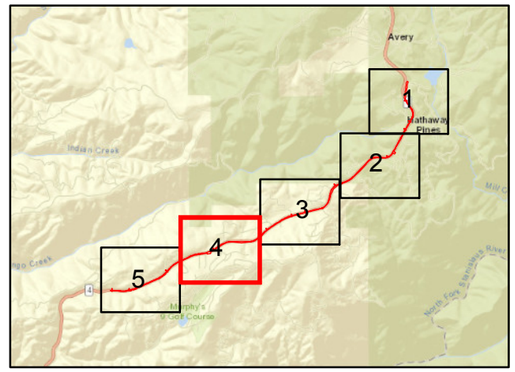
Other Waters (0.083 acres)

- Intermittent Drainage (0.017 acres)
- Ephemeral Drainage (0.021 acres)
- Ditch (0.045 acres)

[1] *Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.*

** The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

DRAFT

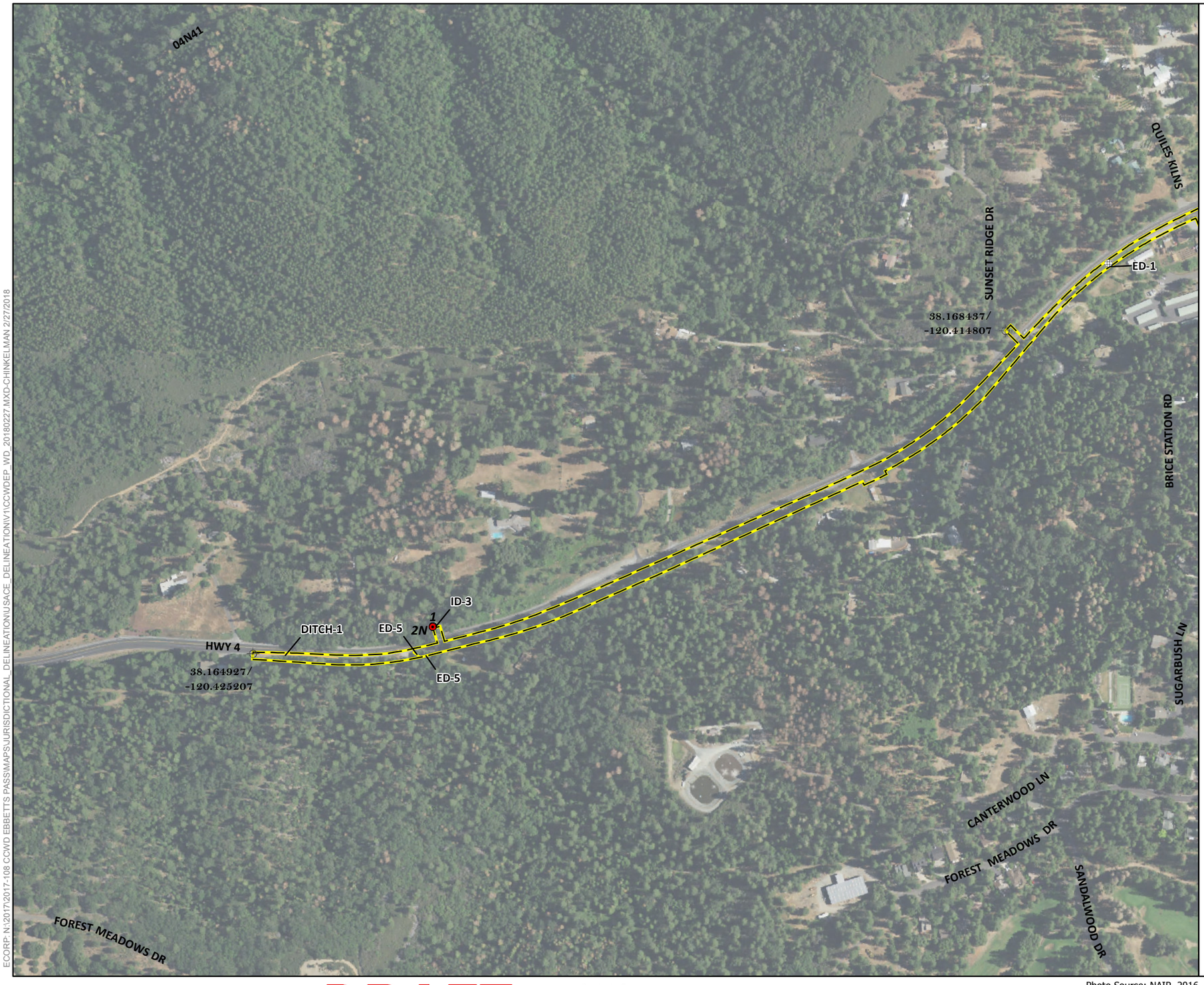
Scale in Feet
0
400

Photo Source: NAIP, 2016
Boundary Source: KASL
Delineator(s): K. Kwan
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

ECORP: N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\JURISDICTIONAL_DELINEATION\USACE_DELINEATION\V1\CCWDEP_WD_20180227.MXD-CHINKELMAN 2/27/2018

Figure 2. Wetland Delineation



Map Features

- Project Boundary - 25.1 acres
- Culvert
- Reference Coordinate (NAD83)

Three Criteria Sample Points

- Upland Point
- Waters Point

Waters of the U.S. (0.184 acres) [1] *

Wetlands (0.101 acres)

- Seasonal Wetland Swale (0.045 acres)
- Seep (0.056 acres)

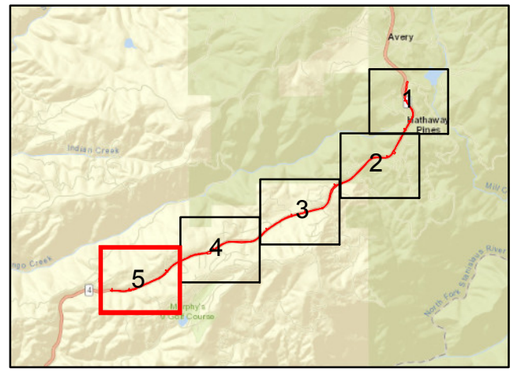
Other Waters (0.083 acres)

- Intermittent Drainage (0.017 acres)
- Ephemeral Drainage (0.021 acres)
- Ditch (0.045 acres)

[1] *Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.*

** The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP: N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\JURISDICTIONAL_DELINEATION\USACE_DELINEATION\V1\CCWDEP_WD_20180227.MXD-CHINKELMAN 2/27/2018

2017-108 CCWD Ebbetts Pass

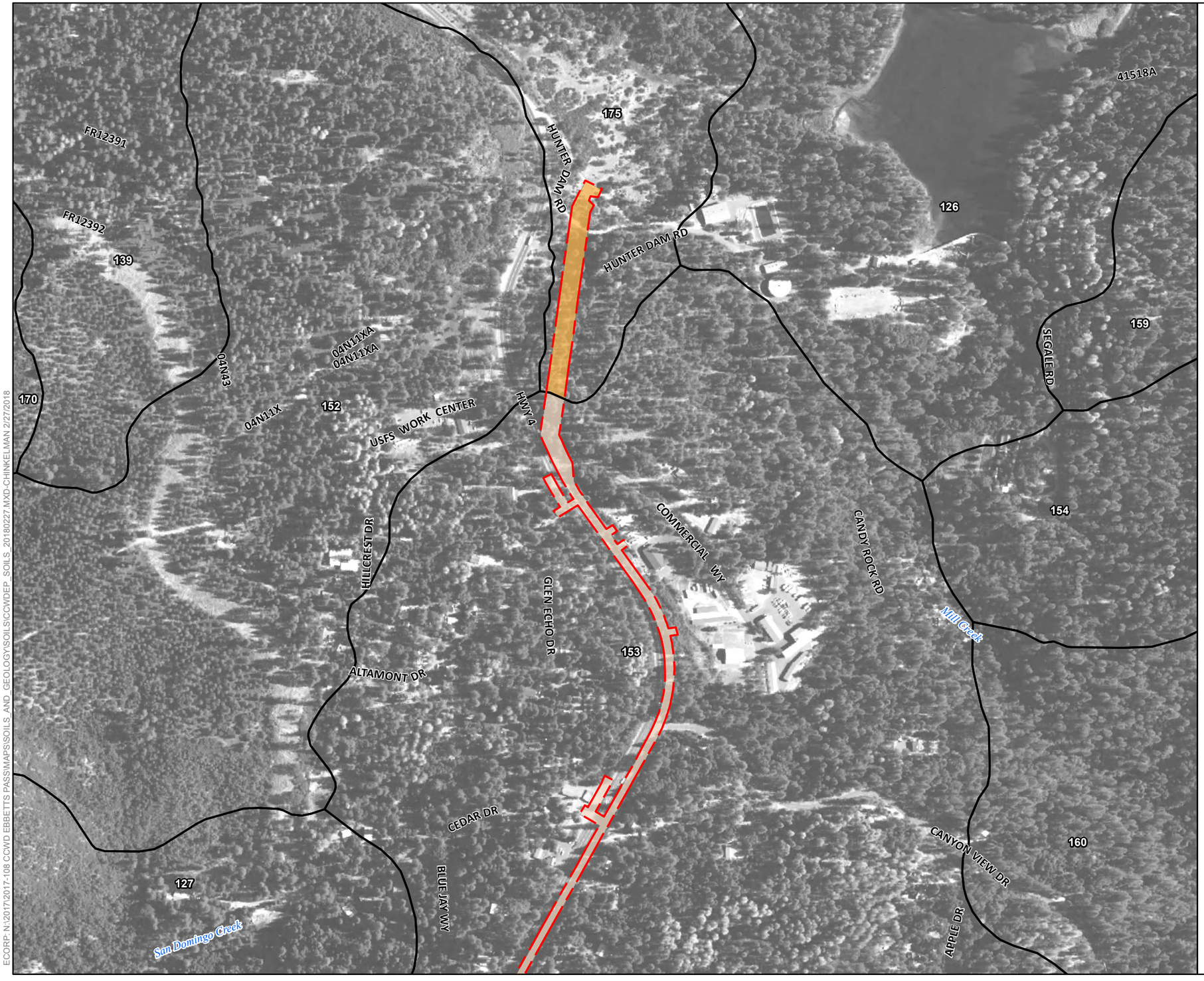
DRAFT

Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Delineator(s): K. Kwan
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

Figure 3. Natural Resources Conservation Service Soil Types
Page 1 of 5



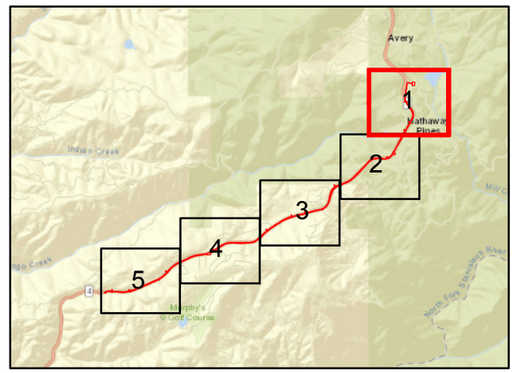
Map Features

- Project Boundary - 25.1 acres

Series Number - Series Name

- 152 - Josephine family, deep, 35 to 50 percent slopes
- 153 - Josephine family, deep-Moderately deep complex, 5 to 35 slopes
- 155 - Josephine-Sites families association, deep, 5 to 35 per cent slopes
- 175 - Lithic Xerumbrepts-Rock outcrop-McCarthy family, modera tely deep complex, 5 to 60 percent slopes
- Jp-Mh-CE - Josephine-Mariposa association, 5 to 30 percent slopes
- Ms-Ir-CE - McCarthy-Iron Mountain association, 5 to 30 percent slopes

Natural Resources Conservation Service (NRCS)
Soil Survey Geographic (SSURGO) Database for
Stanislaus National Forest, CA, 2014
and
General Soil Map for Calaveras County, June 1966



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

DRAFT

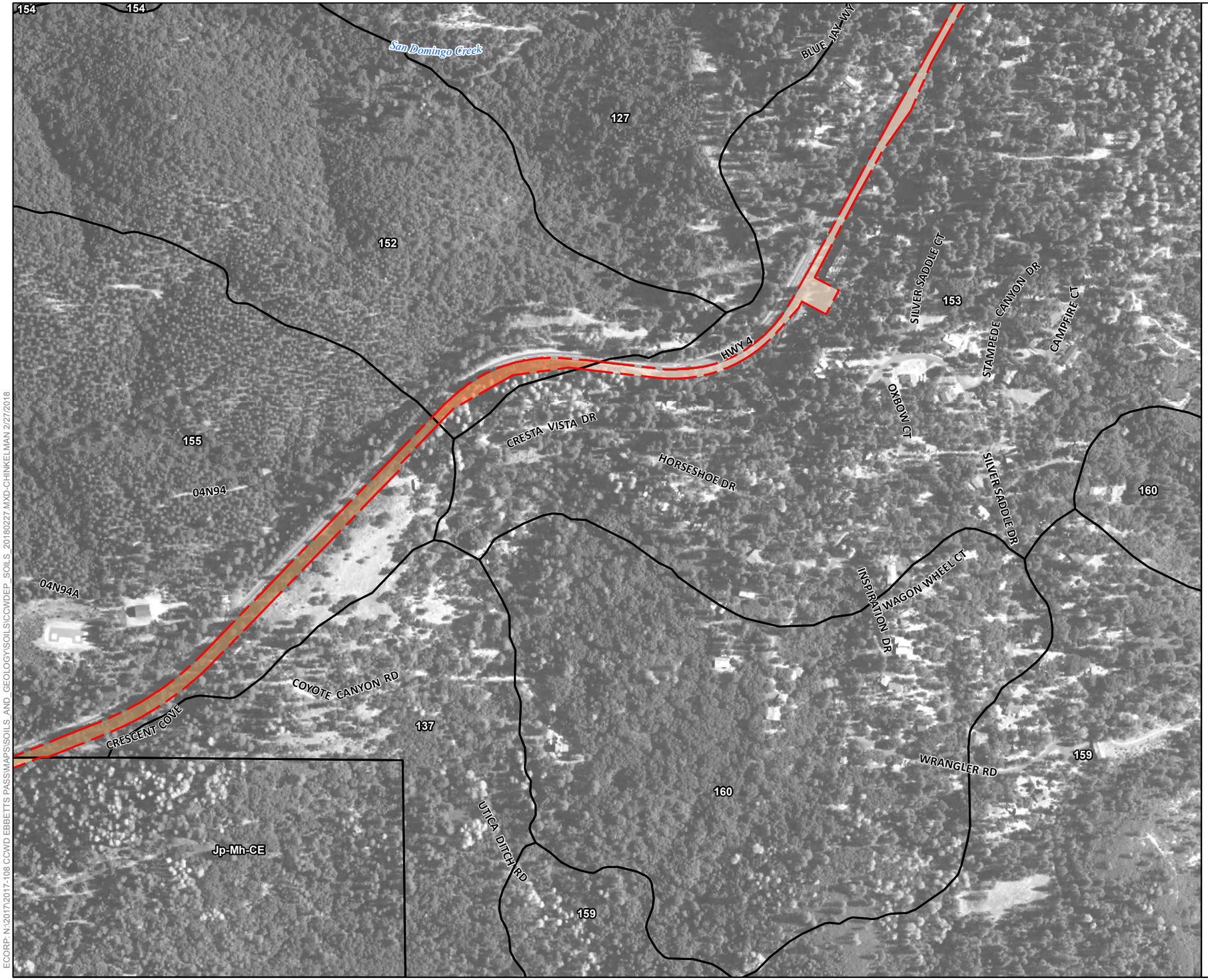
Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

ECORP: N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\SOILS_AND_GEOLOGY\SOILS\CCWDEP_SOILS_20180227.MXD-CHINKELMAN 2/27/2018

Figure 3. Natural Resources Conservation Service Soil Types
Page 2 of 5



Map Features

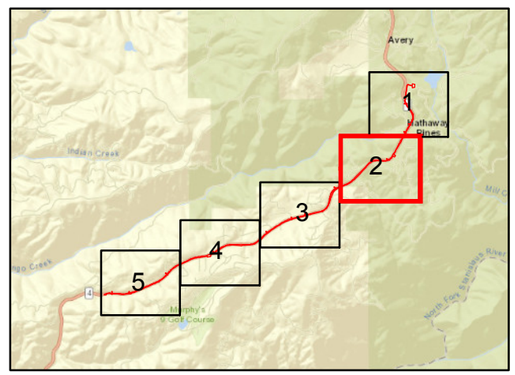
- Project Boundary - 25.1 acres

Series Number - Series Name

- 152 - Josephine family, deep, 35 to 50 percent slopes
- 153 - Josephine family, deep-Moderately deep complex, 5 to 35 slopes
- 155 - Josephine-Sites families association, deep, 5 to 35 per cent slopes
- 175 - Lithic Xerumbrepts-Rock outcrop-McCarthy family, modera tely deep complex, 5 to 60 percent slopes
- Jp-Mh-CE - Josephine-Mariposa association, 5 to 30 percent slopes
- Ms-Ir-CE - McCarthy-Iron Mountain association, 5 to 30 percent slopes

Natural Resources Conservation Service (NRCS)
Soil Survey Geographic (SSURGO) Database for
Stanislaus National Forest, CA, 2014
and
General Soil Map for Calaveras County, June 1966

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\SOILS_AND_GEOLOGY\SOILS\CCWDEP_SOILS_20180227.MXD CHINKELMAN 2/27/2018

2017-108 CCWD Ebbetts Pass

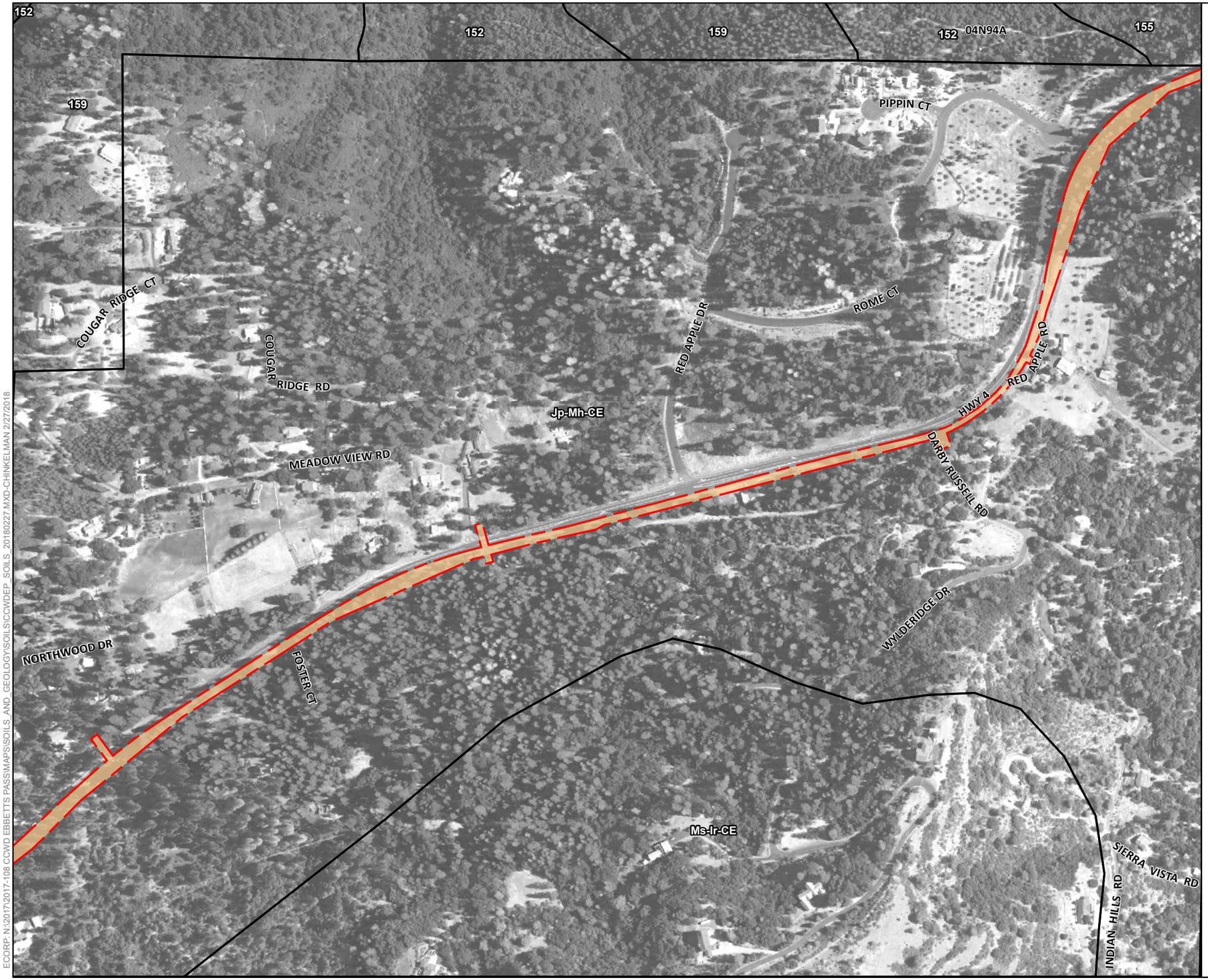
DRAFT

Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

Figure 3. Natural Resources Conservation Service Soil Types
Page 3 of 5



Map Features

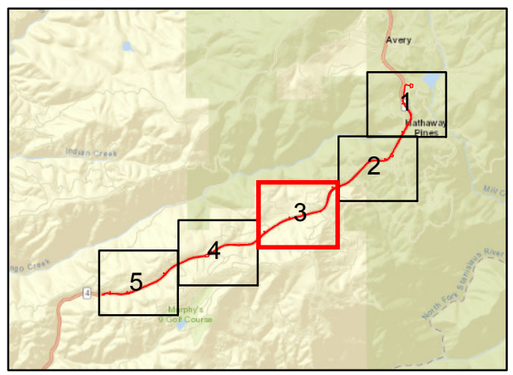
- Project Boundary - 25.1 acres

Series Number - Series Name

- 152 - Josephine family, deep, 35 to 50 percent slopes
- 153 - Josephine family, deep-Moderately deep complex, 5 to 35 slopes
- 155 - Josephine-Sites families association, deep, 5 to 35 per cent slopes
- 175 - Lithic Xerumbrepts-Rock outcrop-McCarthy family, modera tely deep complex, 5 to 60 percent slopes
- Jp-Mh-CE - Josephine-Mariposa association, 5 to 30 percent slopes
- Ms-Ir-CE - McCarthy-Iron Mountain association, 5 to 30 percent slopes

Natural Resources Conservation Service (NRCS)
Soil Survey Geographic (SSURGO) Database for
Stanislaus National Forest, CA, 2014
and
General Soil Map for Calaveras County, June 1966

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP- N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\SOILS_AND_GEOLOGY\SOILS\CCWDEP_SOILS_20180227.MXD-CHINKELMAN 2/27/2018

2017-108 CCWD Ebbetts Pass

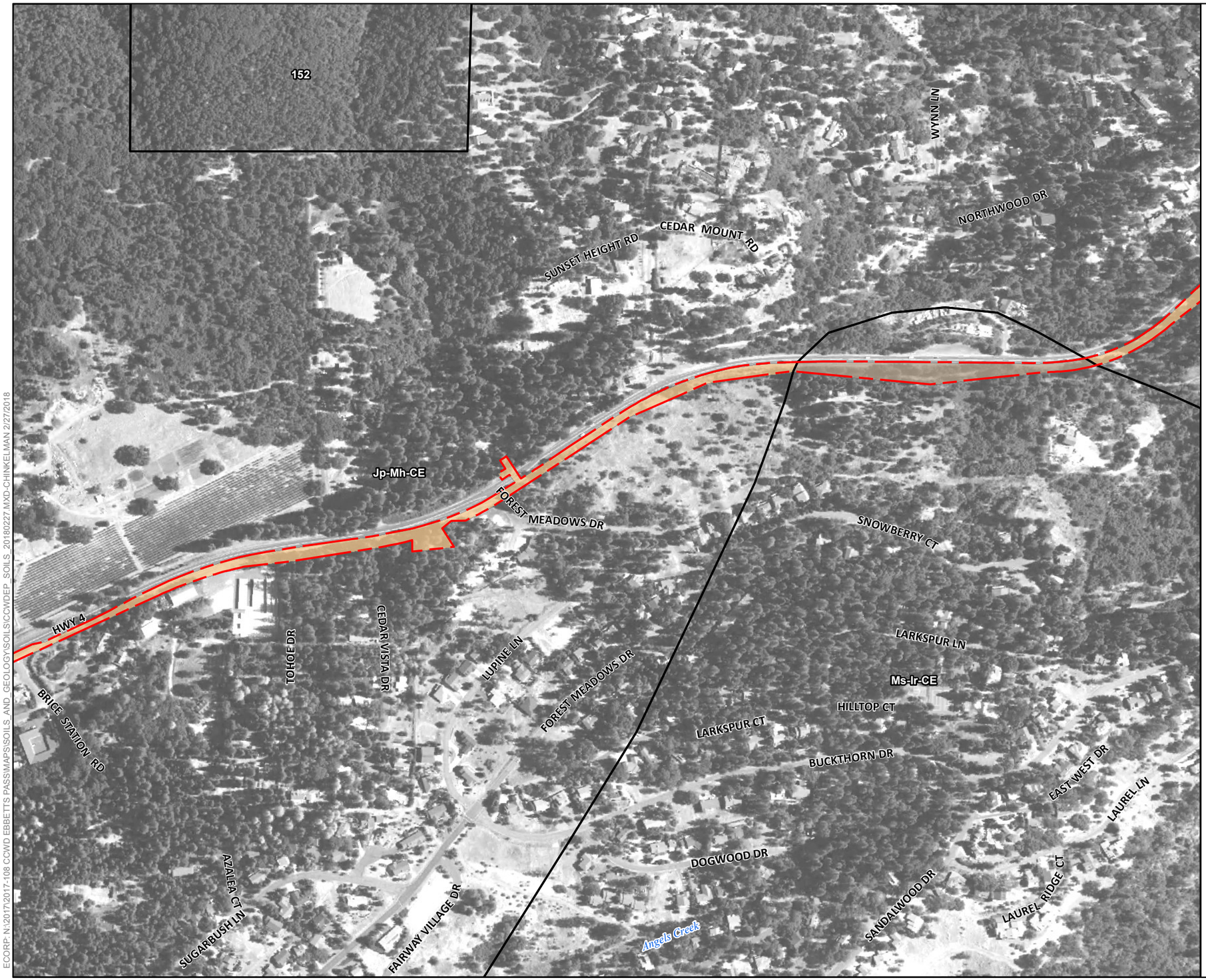
DRAFT

Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

Figure 3. Natural Resources Conservation Service Soil Types
Page 4 of 5



Map Features

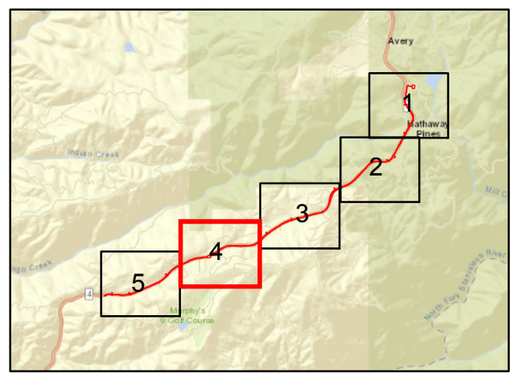
- Project Boundary - 25.1 acres

Series Number - Series Name

- 152 - Josephine family, deep, 35 to 50 percent slopes
- 153 - Josephine family, deep-Moderately deep complex, 5 to 35 slopes
- 155 - Josephine-Sites families association, deep, 5 to 35 per cent slopes
- 175 - Lithic Xerumbrepts-Rock outcrop-McCarthy family, modera tely deep complex, 5 to 60 percent slopes
- Jp-Mh-CE - Josephine-Mariposa association, 5 to 30 percent slopes
- Ms-Ir-CE - McCarthy-Iron Mountain association, 5 to 30 percent slopes

Natural Resources Conservation Service (NRCS)
Soil Survey Geographic (SSURGO) Database for
Stanislaus National Forest, CA, 2014
and
General Soil Map for Calaveras County, June 1966

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), Mapmyindia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\SOILS_AND_GEOLOGY\SOILS\CCWDEP_SOILS_20180227.MXD-CHINKELMAN 2/27/2018

2017-108 CCWD Ebbetts Pass

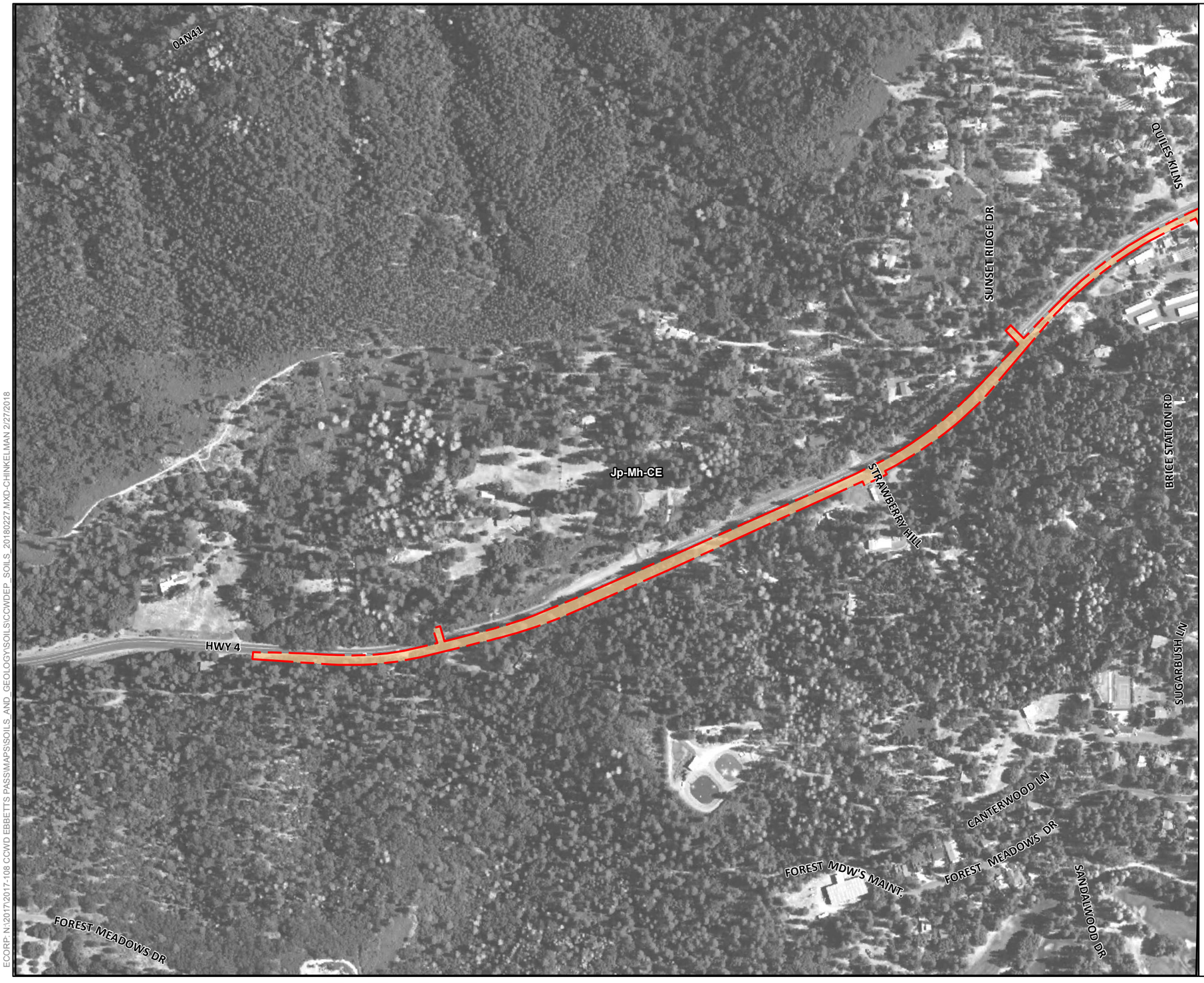
DRAFT

Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

Figure 3. Natural Resources Conservation Service Soil Types
Page 5 of 5



Map Features

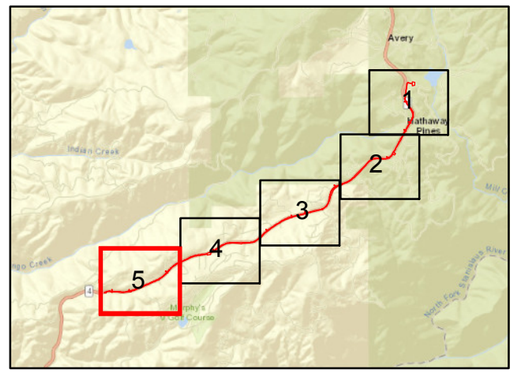
Project Boundary - 25.1 acres

Series Number - Series Name

- 152 - Josephine family, deep, 35 to 50 percent slopes
- 153 - Josephine family, deep-Moderately deep complex, 5 to 35 slopes
- 155 - Josephine-Sites families association, deep, 5 to 35 per cent slopes
- 175 - Lithic Xerumbrepts-Rock outcrop-McCarthy family, modera tely deep complex, 5 to 60 percent slopes
- Jp-Mh-CE - Josephine-Mariposa association, 5 to 30 percent slopes
- Ms-Ir-CE - McCarthy-Iron Mountain association, 5 to 30 percent slopes

Natural Resources Conservation Service (NRCS)
Soil Survey Geographic (SSURGO) Database for
Stanislaus National Forest, CA, 2014
and
General Soil Map for Calaveras County, June 1966

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

DRAFT

Scale in Feet
0 400

Photo Source: NAIP, 2016
Boundary Source: KASL
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

Map Date: 2/27/2018

ECORP: N:\2017\2017-108 CCWD EBBETTS PASS\MAPS\SOILS_AND_GEOLOGY\SOILS\CCWDEP_SOILS_20180227.MXD-CHINKELMAN 2/27/2018

4.4 Wildlife

Wildlife species observed within the Project area during the 2017 site visits included western fence lizard (*Sceloporus occidentalis*), and a variety of common birds such as hairy woodpecker (*Picoides villosus*), western wood-pewee (*Contopus sordidulus*), Steller's jay (*Cyanocitta stelleri*), California scrub-jay (*Aphelocoma californica*), mountain chickadee (*Poecile gambeli*), and American robin (*Turdus migratorius*). Mammals observed on-site included western gray squirrel (*Sciurus griseus*), Douglas' squirrel (*Tamiasciurus douglasii*) and mule deer (*Odocoileus hemionus*).

4.5 Evaluation of Species Identified in the Literature Search

Table 2 lists all of the special-status plant and wildlife species identified in the literature search as potentially occurring within the Project area. Included in this table are the listing status for each species, a brief habitat description, and a determination of the potential to occur in the study area. Following the table is a brief description of each species determined to have potential to occur within the Project area.

Several species and sensitive habitat types came up in the database and literature searches (Attachment A), but are not included in Table 2. These species and habitat types were not included in Table 2 because the species have been formally delisted or are only tracked by the CNDDB and possess no special-status, or because the identified sensitive habitats are not located within the Project area. They are not discussed further in this report.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Plants						
Sanborn's onion *(Allium sanbornii* var. *sanbornii)*	-	-	4.2	Chaparral, cismontane woodland, and lower montane coniferous forests, usually with gravelly, serpentinite soils (853 feet – 4,954 feet).	May - September	Low potential to occur. Marginally suitable habitat present on-site; no documented occurrences in vicinity.
Three-bracted onion *(Allium tribracteatum)*	-	-	1B.2	Volcanic soils in chaparral, lower montane coniferous forests, and upper montane coniferous forests (3,609 feet - 9,843 feet).	April - August	Potential to occur. Suitable habitat present.
Ione manzanita *(Arctostaphylos myrtifolia)*	FT	-	1B.2	Chaparral and cismontane woodlands associated with very acidic, nutrient-poor, coarse soils typical of the Ione Formation (196 feet - 1,903 feet).	November - March	Absent. Outside of elevational range.
Sierra bolandra *(Bolandra californica)*	-	-	4.3	Mesic areas with rocky soils in lower montane coniferous forests, upper montane coniferous forests (3,200 feet – 8,040 feet).	June-July	Low potential to occur. Suitable habitat present but no documented occurrences in vicinity.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Scalloped moonwort *(Botrychium crenulatum)*	-	-	2B.2	Bogs and fens, lower montane coniferous forests, meadows and seeps, freshwater marshes and swamps, and upper montane coniferous forests (4,160 feet - 10,760 feet).	June- September	Absent. Outside of elevational range.
Mingan moonwort *(Botrychium minganense)*	-	-	2B.2	Mesic soils in bogs and fens, lower montane coniferous forests, edges of meadows and seeps, and upper montane coniferous forests (4,770 feet - 7,150 feet).	July - September	Absent. Outside of elevational range.
Western goblin *(Botrychium montanum)*	-	-	2B.1	Mesic soils in lower montane coniferous forests, meadows and seeps, and upper montane coniferous forests (4,805 feet - 7,150 feet).	July - September	Absent. Outside of elevational range.
Pleasant Valley mariposa-lily *(Calochortus clavatus* var. *avius)*	-	-	1B.2	Josephine silt loam and volcanic soils in lower montane coniferous forests (1,000 feet - 5,905 feet).	May- July	Potential to occur. Suitable habitat present.
Davy's sedge *(Carex davyi)*	-	-	1B.3	Subalpine coniferous forests and upper montane coniferous forests (4,920 feet - 10,500 feet).	May - August	Absent. Outside of elevational range.
Fresno ceanothus *(Ceanothus fresnensis)*	-	-	4.3	Cismontane woodland openings and lower montane coniferous forests (2,953 feet – 6,900 feet).	May-July	Low potential to occur. Suitable habitat present but no documented occurrences in vicinity.
Red Hills soaproot *(Chlorogalum grandiflorum)*	-	-	1B.2	Serpentinite or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest (804 feet - 5,545 feet).	May - June	Low potential to occur. Marginally suitable habitat present on-site.
Small's southern clarkia *(Clarkia australis)*	-	-	1B.2	Cismontane woodland, lower montane coniferous forest (2,624 feet – 6,808 feet).	May - August	Potential to occur. Suitable habitat present.
Mariposa clarkia *(Clarkia biloba* ssp. *australis)*	-	-	1B.2	Serpentinite soils in chaparral and cismontane woodland (984 feet – 4,790 feet).	April - June	Low potential to occur. Marginally suitable habitat present on-site; no documented occurrences in vicinity.
Sierra clarkia *(Clarkia virgata)*	-	-	4.3	Cismontane woodland and lower montane coniferous forest (1,312 feet – 5,299 feet).	May - August	Low potential to occur. Suitable habitat present but no documented occurrences in vicinity.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Streambank spring beauty *(Claytonia parviflora* ssp. *grandiflora)*	-	-	4.2	Rocky areas within cismontane woodland (820 feet - 3,937 feet).	February - May	Low potential to occur. Suitable habitat present but no documented occurrences in vicinity.
Great Basin claytonia *(Claytonia umbellata)*	-	-	2B.3	Subalpine coniferous forest (5,590 feet - 11,485 feet).	May - August	Absent. Outside of elevational range.
Red Hills cryptantha *(Cryptantha spithamaea)*	-	-	1B.3	Serpentinite soils in chaparral and cismontane woodland, sometimes within streambeds or openings (902 feet – 1,509 feet).	April - May	Absent. Outside of elevational range.
Mountain lady's slipper *(Cypripedium montanum)*	-	-	4.2	Broadleaf upland forest, cismontane woodland, lower montane coniferous forest, and North Coast coniferous forest (606 feet – 7,300 feet).	March - August	Low potential to occur. Suitable habitat present but no documented occurrences in vicinity.
Yellow-lip pansy monkeyflower *(Diplacus pulchellus)*	-	-	1B.2	Vernally mesic, often disturbed areas with clay soils within lower montane coniferous forest and meadows and seeps (1,968 feet – 6,562 feet).	April - June	Potential to occur. Suitable habitat present.
Jepson's coyote thistle *(Eryngium jepsonii)*	-	-	1B.2	Clay soils in Valley and foothill grassland and vernal pools (10 feet - 984 feet).	April - August	Absent. Outside of elevational range.
Tuolumne button-celery *(Eryngium pinnatisectum)*	-	-	1B.2	Vernal pools and other mesic conditions in cismontane woodland and lower montane coniferous forests (230 feet - 3,002 feet).	May - August	Low potential to occur. Marginally suitable habitat present on-site.
Stanislaus monkeyflower *(Erythranthe marmorata*)	-	-	1B.1	Cismontane woodland and lower montane coniferous forest (328 feet – 2,953 feet).	March - May	Potential to occur. Suitable habitat present.
Tuolumne fawn lily *(Erythronium tuolumnense)*	-	-	1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest (1,673 feet – 4,478 feet).	March - June	Potential to occur. Suitable habitat present.
Parry's horkelia *(Horkelia parryi)*	-	-	1B.2	Ione and other soil formations in chaparral and cismontane woodlands (242 feet - 3,510 feet).	April - September	Potential to occur. Suitable habitat present.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Tuolumne iris *(Iris hartwegii* ssp. *columbiana)*	-	-	1B.2	Cismontane woodland and lower montane coniferous forest (1,394 feet – 4,593 feet).	May - June	Potential to occur. Suitable habitat present.
Dubious pea *(Lathyrus sulphureus* var. *argillaceus)*	-	-	3	Cismontane woodland, lower montane coniferous forests, upper montane coniferous forests (490 feet – 3,050 feet).	April - May	Low potential to occur. Suitable habitat present but no documented occurrences in vicinity.
Humboldt lily *(Lilium humboldtii* ssp. *humboldtii)*	-	-	4.2	Occurs in openings within chaparral, cismontane woodland, and lower montane coniferous forests (295 feet - 4,199 feet).	May - August	Low potential to occur. Suitable habitat present but no documented occurrences in vicinity.
Stebbins' lomatium (*Lomatium stebbinsii*)	-	-	1B.1	Gravelly, volcanic clay soils in chaparral and lower montane coniferous forest (4,084 feet – 7,792 feet).	March - May	Low potential to occur. Marginally suitable habitat present on-site.
Patterson's navarretia *(Navarretia paradoxiclara)*	-	-	1B.1	Vernally mesic openings with serpentinite soils in meadows and seeps, often in drainages (492 feet - 1,411 feet).	May – July	Absent. Outside of elevational range.
Western waterfan lichen *(Peltigera gowardii)*	-	-	4.2	On rocks in cold water creeks with little or no sediment or disturbance in riparian forests (3,494 feet – 8,596 feet).	N/A	Absent. No suitable habitat present on-site.
Coleman's rein orchid *(Piperia colemanii)*	-	-	4.2	Sandy soils in chaparral and lower montane coniferous forest (3,935 feet – 7,545 feet).	June - August	Low potential to occur. Marginally suitable habitat present on-site; no documented occurrences in vicinity.
Invertebrates						
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	-	-	Elderberry shrubs.	Any season	Absent. No suitable habitat present on-site; outside of elevational range.
Fishes						
Delta smelt (*Hypomesus transpacificus*)	FT	CE	-	Inhabits open waters of bays, tidal rivers, channels, and sloughs; it rarely occurs in water with salinity of more than 10-12 ppt; when not spawning, it tends to concentrate where salt water and freshwater mix (salinity about 2 ppt) and zooplankton populations are dense (USFWS 1996).	Any Season	Absent. No suitable habitat present on-site.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Steelhead (*Oncorhynchus* (=*Salmo*) *mykiss*)	FT	-	SSC	Inhabits both freshwater and marine habitats. Migrates to freshwater streams for spawning. Spawning habitat consists of gravel-bottomed, fast-flowing, well-oxygenated rivers and streams, free of excessive silt.	Any Season	Absent. No suitable habitat present on-site.
Amphibians						
Foothill yellow-legged frog (*Rana boylii*))	-	-	SSC	Uses sunny to partially-shaded shallow streams and creeks with a rocky or cobble substrate. Needs cobble as egg-laying substrate, and larvae (with adaptations for high velocity water) need at least 15 weeks to reach metamorphosis. Occurs from sea level to 6000 feet.	April - September	Absent. No suitable habitat present on-site. Drainages within the Project are relatively narrow, shallow, and ephemeral/intermittent.
California red-legged frog (*Rana draytonii*)	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1-November 1	Absent. No suitable habitat present on-site. Drainages within the Project are relatively narrow, shallow, and ephemeral/intermittent.
Sierra Nevada yellow-legged frog (*Rana sierrae*)	FT	CE	WL	Inhabits lakes, ponds, meadow streams, isolated pools, and sunny riverbanks in the Sierra Nevada Mountains. Rarely found further than 1 meter from water. Occurs at high elevations from 984 to over 12,000 feet above mean sea level.	May- August	Absent. No suitable habitat present on-site. Drainages within the Project are relatively narrow, shallow, and ephemeral/intermittent.
Reptiles						
Western pond turtle (*Emys marmorata*)	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April - October	Absent. No suitable habitat present on-site. Drainages within the Project are relatively narrow, shallow, and ephemeral/intermittent.
Birds						
Western grebe (wintering) *(Aechmophorus occidentalis)*	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Nests on freshwater lakes and marshes with open water bordered by emergent vegetation.	June-August (breeding)	Absent. No suitable habitat present on-site.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Swainson's hawk (nesting) (*Buteo swainsoni*)	-	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures.	March-August	Absent. No suitable habitat present on-site.
Osprey (nesting) *(Pandion haliaetus)*	-	-	WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. The nest in large trees, snags, cliffs, transmission/communication towers, artificial nest platforms, channel markers/buoys.	March-September	Low potential to occur. Close proximity to existing development reduces likelihood of nesting within the Project.
Bald eagle (nesting and wintering) (*Haliaeetus leucocephalus)*	DEL	CE	FP, BCC	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g. rivers, lakes), wetlands, flooded agricultural fields, open grasslands.	February – September (nesting); October-March (wintering)	Absent. No suitable habitat present on-site.
Northern goshawk (nesting) (*Accipiter gentilis*)	-	-	SSC	Nesting occurs in mature to old-growth forests composed primarily of large trees with high canopy closure. In California, nests are built primarily in conifer trees in the Sierra Nevada, Cascade and northwestern coastal Ranges.	April-August	Low potential to occur. Close proximity to existing development reduces likelihood of nesting within the Project.
American peregrine falcon (nesting) *(Falco peregrinus anatum)*	DEL	DEL	BCC, FP	In California, breeds in coastal region, northern California, and Sierra Nevada. Nesting habitat includes cliff ledges and human-made ledges on towers and buildings. Wintering habitat includes areas where there are large concentrations of shorebirds, waterfowl, pigeons or doves.	CA Residents nest in February-June	Absent. No suitable habitat present on-site.
Short-eared owl (nesting) (*Asio flammeus*)	-	-	SSC	Nests in large expanses of prairie, coastal grasslands, heathlands, shrub-steppe, tundra, and agricultural areas.	March-July (breeding); August-March (wintering in Central Valley)	Absent. No suitable habitat present on-site.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Burrowing owl (burrow sites) (*Athene cunicularia*)	-	-	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g. prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Absent. No suitable habitat present on-site.
Flammulated owl (*Otus flammeolus*)	-	-	BCC	In California, breeding range includes Cascades, Sierra Nevada, interior coast ranges, Transverse and Peninsular Ranges. Nests in tree cavities within dry montane conifer or aspen forests, often with oak, dense saplings, or other brushy understory.	May-August	Low potential to occur. Close proximity to existing development reduces likelihood of nesting within the Project.
Great gray owl (nesting) (*Strix nebulosi*)	-	CE	-	Found in the Cascade and Sierra Nevada Ranges south to Fresno County. Nesting occurs in deciduous and coniferous forests adjacent to meadows (in California, at elevations between 750-2250 meters). Nest in broken-topped dead trees, old raptor nests, mistletoe brooms, or human-made platforms.	April-July	Absent. No suitable habitat present on-site.
California spotted owl (*Strix occidentalis occidentalis*)	-	-	BCC, SSC	Found in the southern Cascade Range and northern Sierra Nevada from Pit River, Shasta Co. south to Tehachapi Mountains, Kern Co, in the coastal ranges from Monterey Co. to Santa Barbara Co., in Transverse and Peninsular Ranges south to northern Baja California. At lower elevations, they breed in hardwood forests and coniferous forests at higher elevations. They use forests with greater complexity and structure.	March-September (breeding)	Low potential to occur. Close proximity to existing development reduces likelihood of nesting within the Project.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Western snowy plover (nesting) *(Charadrius nivosus nivosus)*	FT	-	BCC, SSC	Nests on the ground, on open sandy coastal beaches, barrier islands, barrens shores of inland saline lakes, on river bars, and man-made ponds such as wastewater ponds, dredge spoils, and salt evaporation ponds.	March-September	Absent. No suitable habitat present on-site.
Costa's hummingbird (*Calypte costae*)	-	-	BCC	In California, breeds in coastal scrub and chaparral communities from Santa Barbara Co. south into Baja California; from Mexico north into Mojave desert scrub of Eastern Sierra Nevada.	February-June	Absent. No suitable habitat present on-site.
Rufous hummingbird (nesting) *(Selasphorus rufus)*	-	-	BCC	Breeds in extreme northwestern California north into British Columbia and Alaska. Winters in coastal Southern California south into Mexico. Nesting habitat includes secondary succession communities and openings, mature forests, parks and residential area. Does not nest in Sierra Nevada, but migrates through foothills during spring and from lower conifer to alpine zones during fall (Beedy, Pandalfino and Hansen 2013).	April-July	Potential to occur.
Calliope hummingbird *(Selasphorus calliope)*			BCC	In California, breeds in Cascade-Sierra Nevada region (1200-3400 meters); winters in Mexico; nesting habitat includes shrub-sapling and late shrub-sapling seral stage aspen thickets, often near streams, and open montane forests.	April-August	Potential to occur.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Lewis' woodpecker (nesting) (*Melanerpes lewis*)	-	-	BCC	In California, breeds in Siskiyou and Modoc Counties, Warmer Mountains, inner coast ranges from Tehama to San Luis Obispo Counties, San Bernardino Mountains, and Big Pine Mountain (Inyo Co.); nesting habitat includes open ponderosa pine forest, open riparian woodland, logged/burned forest, and oak woodlands. Does not breed on the west side of Sierran crest (Beedy, Pandalfino and Hansen 2013).	April-September (breeding); September-March (winter in Central Valley).	Potential to occur.
White-headed woodpecker *(Picoides albolarvatus)*	-	-	BCC	Requires montane coniferous forests dominated by pines. Found year-round in Ponderosa pine woodland, black oak woodland, mixed coniferous forest, Jeffrey pine woodland, and red fir forests. Uses snags for nesting.	April-August (breeding)	Potential to occur.
Williamson's sapsucker (*Sphyrapicus thyroideus*)	-	-	BCC	In California, breeds in the Cascade-Sierra Nevada region; with disjunct breeding populations in San Gabriel, San Bernardino, and San Jacinto Mountains; Siskiyou, Trinity and Warner Mountains; East Warner Mountains, Sweetwater and Carson Range. Breeding occurs in middle to high elevation conifer and mixed conifer-deciduous forests. Nesting habitat cavities excavated in western larch, Douglas fir, ponderosa pine, montane spruce, and quaking aspen.	May-July	Potential to occur.
Olive-sided flycatcher *(Contopus cooperi)*	-	-	SSC, BCC	Nests in montane and northern coniferous forests, in forest openings, forest edges, semi open forest stands. In California, nests in coastal forests, Cascade and Sierra Nevada region. Winters in Central to South America.	May-August	Potential to occur.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Willow flycatcher (nesting) *(Empidonax traillii)*	-	CE	BCC	In California, breeding range includes Cascade-Sierra Nevada region (*brewsteri* subspecies); *extimus* subspecies found in southern California; nesting habitat includes moist, shrubby riparian willow thickets, often with standing or running water. Winters in Central and South America.	May-June	Absent. No suitable habitat present on-site.
Loggerhead shrike (*Lanius ludovicianus*)	-	-	BCC, SSC	Found throughout California in open county with short vegetation, pastures, old orchards, grasslands, agricultural areas, open woodlands. Not found in heavily forested habitats.	March-July	Absent. No suitable habitat present on-site.
Yellow-billed magpie (nesting) (*Pica nuttallii*)	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County.; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings.	April-June	Absent. No suitable habitat present on-site.
Oak titmouse (*Baeolophus inornatus*)			BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree).	March-July	Potential to occur.
Green-tailed towhee *(Pipilo chlorurus)*	-	-	BCC	Breeds at middle to high elevation between 750 and 3,700 meters above sea level. Nesting habitat includes low brush cover, dry shrub-steppe, post disturbance shrubby second growth vegetation.	May-August	Absent. No suitable habitat present on-site.
Rufous-crowned sparrow *(Aimophila ruficeps)*	-	-	BCC	Breeds in moderate to steep, dry, rocky, south- or west-facing slopes vegetated with scattered scrub cover interspersed with patches of grasses and forbs or rock outcrops in grassy shrublands, open woodlands moderate to steep rocky hillsides and canyons (Collins 1999).	March-September	Absent. No suitable habitat present on-site.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Fox sparrow (wintering) (*Passerella iliaca*)	-	-	BCC	"Large-billed" fox sparrow, *megarhyncha* group, breeds in SW Oregon south the central Northern California (Del Norte/Siskiyou Cos.) and Sierra Nevada south to Fresno/Inyo Cos. Several additional subspecies winter throughout California. Wintering habitat includes riparian with thick cover and underbrush, chaparral with thick, tall vegetation.	May-July (breeding), September-April (wintering)	Potential to occur.
Black-chinned sparrow (nesting) (*Spizella atrogularis*)	-	-	BCC	In California, breeds in inner Coast Ranges, Transverse Range, and Peninsular Range, west slope of Sierra Nevada from Kern Co. to Mariposa Co. and mountains of southeastern California. Nesting habitat includes moderately dense tall brush on rugged mountain slopes with rocky outcrops and scattered large trees. Prefers young stands with openings.	April-August	Absent. No suitable habitat present on-site.
Tricolored blackbird (nesting colony) (*Agelaius tricolor*)	-	-	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta Cos south to San Bernardino, Riverside and San Diego Counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen Counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Absent. No suitable habitat present on-site.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Mammals						
Western red bat (*Lasiurus blossevillii*)	-	-	SSC	Roosts in foliage of trees or shrubs; Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (WBWG 2015).	April-September	Potential to occur.
Spotted bat *(Euderma maculatum)*	-	-	SSC	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Roosts primarily in cracks and crevices in cliffs, but sometimes found in caves or buildings near cliffs.	April-September	Absent. No suitable habitat present on-site.
Townsend's big-eared bat *(Corynorhinus townsendii)*	-	-	SSC	Caves, mines, buildings, rock crevices, trees.	April-September	Low potential to occur. Caves and mines absent from the Project site.
Pallid bat (*Antrozous pallidus*)	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g. basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (WBWG 2005).	April-September	Potential to occur.
Western mastiff bat (*Eumops perotis californicus*)	-	-	SSC	Primarily a cliff-dwelling species, found in similar crevices in large boulders and buildings (WBWG 2015).	April-September	Absent. No suitable habitat present on-site.
California wolverine (*Gulo gulo*)	FC	CT	FP	Found near a water source and occupies a wide variety of high elevation habitats. Historically occurred in the north coast mountains and the Sierra Nevada.	March - May	Absent. No suitable habitat present on-site.

Status Codes[1]:

FT ESA listed, Threatened.
FC Candidate for ESA listing as Threatened or Endangered.
FP CDFW Fully Protected
WL CDFW Watch List

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status[1]			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			

CE	CESA or NPPA listed, Endangered.
CT	CESA or NPPA listed, Threatened.
CR	CESA or NPPA listed, Rare.
SSC	CDFW Species of Special Concern
BCC	USFWS Bird of Conservation Concern
1B	CRPR /Rare or Endangered in California and elsewhere.
2B	Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3	CRPR /Plants About Which More Information is Needed - A Review List.
4	CRPR /Plants of Limited Distribution - A Watch List.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)
DEL	Formally Delisted (delisted ESA species are monitored for 5 years).

4.5.1 Plants

Thirty-one special-status plant species were identified as having the potential to occur within the Project area based on the literature review (Table 3). Upon further analysis and site reconnaissance, 10 species were determined to be absent from the Project area due to the lack of suitable habitat or because the Project area is outside of the species elevational range. No further discussion of these species is provided in this assessment. Brief descriptions of the remaining 21 species that have the potential to occur within the Project area are presented below. In addition, one special-status plant species not present in the literature review, small-flowered monkeyflower (*Erythranthe inconspicua*), was observed adjacent to the Project alignment, and is also described below.

Sanborn's Onion

Sanborn's onion (*Allium sanbornii* var. *sanbornii*) is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is a bulbiferous, herbaceous perennial that occurs in chaparral, cismontane woodland, and lower montane coniferous forest, usually on gravelly serpentinite soils (CNPS 2017). Sanborn's onion blooms from May through September and is known to occur at elevations ranging from 853 to 4,954 feet above mean sea level (MSL) (CNPS 2107). The current range of this species in California includes Butte, Calaveras, El Dorado, Nevada, Placer, Plumas, Shasta, Tehama, Tuolumne, and Yuba counties (CNPS 2017).

While there are no occurrences of Sanborn's onion within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide marginally suitable habitat for this species. Sanborn's onion was not observed during the special-status plant surveys conducted by ECORP in 2017.

Three-Bracted Onion

Three-bracted onion (*Allium tribracteatum*) is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a bulbiferous, herbaceous perennial that occurs on volcanic soils in chaparral, lower montane coniferous forest and upper montane coniferous forest

(CNPS 2017). Three-bracted onion blooms from April through August and is known to occur at elevations ranging from 3,609 to 9,843 feet above MSL (CNPS 2107). Three-bracted onion is endemic to California; the current range of this species includes Alpine, Amador, Calaveras, El Dorado, and Tuolumne counties (CNPS 2017).

There are six CNDDB documented occurrences of three-bracted onion within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Three-bracted onion was not observed during the special-status plant surveys conducted by ECORP in 2017.

Sierra Bolandra

Sierra bolandra (*Bolandra californica*) is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is an herbaceous perennial that occurs on mesic, rocky soils in lower montane coniferous forest and upper montane coniferous forest (CNPS 2017). Sierra bolandra blooms from June through July and is known to occur at elevations ranging from 3,195 to 8,040 feet above MSL (CNPS 2107). Sierra bolandra is endemic to California; the current range of this species includes Alpine, Amador, Calaveras, El Dorado, Mariposa, Stanislaus and Tuolumne counties (CNPS 2017).

While there are no documented occurrences of Sierra bolandra within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Sierra bolandra was not observed during the special-status plant surveys conducted by ECORP in 2017.

Pleasant Valley Mariposa-Lily

Pleasant Valley mariposa-lily (*Calochortus clavatus* var. *avius*) is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a bulbiferous, herbaceous perennial that occurs on Josephine silt loam and volcanic soils in lower montane coniferous forest (CNPS 2017). Pleasant Valley mariposa-lily blooms from May through July and is known to occur at elevations ranging from 1,000 to 5,905 feet above MSL (CNPS 2017). Pleasant Valley mariposa-lily is endemic to California; the current range of this species includes Amador, Calaveras, El Dorado, Mariposa, and Placer counties (CNPS 2017).

There are two CNDDB documented occurrences of Pleasant Valley mariposa-lily within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Pleasant Valley mariposa-lily was not observed during the special-status plant surveys conducted by ECORP in 2017.

Fresno Ceanothus

Fresno ceanothus (*Ceanothus fresnensis*) is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is an evergreen, perennial shrub that occurs in cismontane woodland and lower montane coniferous forest (CNPS 2017). Fresno ceanothus blooms from May through July and is known to occur at elevations ranging from 2,953 to 6,900 feet above MSL (CNPS 2107). Fresno ceanothus is endemic to California; the current range of this species includes Calaveras, El Dorado, Fresno, Madera, Mariposa, Placer, Tulare, and Tuolumne counties (CNPS 2017).

While there are no documented occurrences of Fresno ceanothus within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Fresno ceanothus was not observed during the special-status plant surveys conducted by ECORP in 2017.

Red Hills Soaproot

Red Hills soaproot (*Chlorogalum grandiflorum*) is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a bulbiferous, perennial herb that occurs on serpentinite, gabbroic, and other soils in chaparral, cismontane woodland and lower montane coniferous forest (CNPS 2017). Red Hills soaproot blooms from May through June and is known to occur at elevations ranging from 804 to 5,545 feet above MSL (CNPS 2107). Red Hills soaproot is endemic to California; the current range of this species includes Amador, Butte, Calaveras, El Dorado, Placer, and Tuolumne counties (CNPS 2017).

There are four CNDDB documented occurrences of Red Hills soaproot within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide marginally suitable habitat for this species. Red Hills soaproot was not observed during the special-status plant surveys conducted by ECORP in 2017.

Small's Southern Clarkia

Small's southern clarkia (*Clarkia australis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in cismontane woodland and lower montane coniferous forest (CNPS 2017). Small's southern clarkia blooms from May through August and is known to occur at elevations ranging from 2,624 to 6,808 feet above MSL (CNPS 2017). Small's southern clarkia is endemic to California; the current range of this species includes Calaveras, Madera, Mariposa, and Tuolumne counties (CNPS 2017).

There are 21 CNDDB documented occurrences of Small's southern clarkia within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Small's southern clarkia was not observed during the special-status plant surveys conducted by ECORP in 2017.

Mariposa Clarkia

Mariposa clarkia (*Clarkia biloba* ssp. *australis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 plant. This species is an herbaceous annual that occurs on serpentinite soils in chaparral and cismontane woodlands (CNPS 2017). Mariposa clarkia blooms from April through July and is known to occur at elevations ranging from 984 to 4,790 feet above MSL. Mariposa clarkia is endemic to California; the current range of this species includes Mariposa and Tuolumne counties (CNPS 2017).

While there are no documented occurrences of Mariposa clarkia within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide marginally suitable habitat for this species. Mariposa clarkia was not observed during the special-status plant surveys conducted by ECORP in 2017.

Sierra Clarkia

Sierra clarkia (*Clarkia virgata*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 plant. This species is an herbaceous annual that occurs in cismontane woodlands and lower montane coniferous forest (CNPS 2017). Sierra clarkia blooms from May through August and is known to occur at elevations ranging from 1,312 to 5,299 feet above MSL. Sierra clarkia is endemic to California; the current range of this species includes Amador, Calaveras, El Dorado, Mariposa, Plumas, and Tuolumne counties (CNPS 2017).

While there are no occurrences of Sierra clarkia within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Sierra clarkia was not observed during the special-status plant surveys conducted by ECORP in 2017.

Streambank Spring Beauty

Streambank spring beauty (*Claytonia parviflora* ssp. *grandiflora*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in rocky areas within cismontane woodlands (CNPS 2017). Streambank spring beauty blooms from February through May and is known to occur at elevations ranging from 820 to 3,937 feet above MSL (CNPS 2017). Streambank spring beauty is endemic to California; the current range of this species includes Amador, Butte, Calaveras, El Dorado, Fresno, Kern, Placer, Tulare, and Tuolumne counties (CNPS 2017).

While there are no documented occurrences of streambank spring beauty within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Streambank spring beauty was not observed during the special-status plant surveys conducted by ECORP in 2017.

Mountain Lady's Slipper

Mountain lady's slipper (*Cypripedium montanum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is a perennial, rhizomatous herb that occurs in broadleafed upland forest, cismontane woodland, lower montane coniferous forest, and North Coast coniferous forest (CNPS 2017). Mountain lady's slipper blooms between March and August and is known to occur at elevations ranging from 606 to 7,300 feet above MSL (CNPS 2017). The current range of this species in California includes Del Norte, Glen, Humboldt, Madera, Mendocino, Modoc, Mariposa, Plumas, Shasta, Sierra, Siskiyou, San Mateo, Sonoma, Tehama, Trinity, and Tuolumne counties (CNPS 2017). It is presumed extirpated from Santa Cruz County (CNPS 2017).

While there are no documented occurrences of mountain lady's slipper within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Mountain lady's slipper was not observed during the special-status plant surveys conducted by ECORP in 2017.

Yellow-Lip Pansy Monkeyflower

Yellow-lip pansy monkeyflower (*Diplacus pulchellus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in vernally mesic areas with clay soils within lower montane coniferous forests and meadows and seeps, often in disturbed sites (CNPS 2017). Yellow-lip pansy monkeyflower blooms from April through June and is known to occur at elevations ranging from 1,968 to 6,562 feet above MSL (CNPS 2017). Yellow-lip pansy monkeyflower is endemic to California; its current range includes Calaveras, Mariposa, and Tuolumne counties (CNPS 2017).

There are 34 CNDDB documented occurrences of yellow-lip pansy monkeyflower within ten miles of the Project area (CDFW 2017). This species was observed at two locations just outside the Project alignment; approximately 90 individuals were observed adjacent to the Project alignment between Northwood Drive and Forest Meadows Drive, and approximately 70 individuals were observed adjacent to the Project alignment north of Hunter Dam Road (Figure 4. *Special-Status Plant Locations*). These observations roughly correspond with two previously documented CNDDB occurrences (CNDDB Occurrence #2 and Occurrence #65, respectively; CDFW 2017). The annual forb meadows, annual grasslands, ponderosa pine forests, and California black oak forests within the Project area provide suitable habitat for this species. Yellow-lip pansy monkey flower was not observed within the Project area during the special-status plant surveys conducted by ECORP in 2017.

Tuolumne Button-Celery

Tuolumne button-celery (*Eryngium pinnatisectum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in mesic areas and vernal pools within cismontane woodland and lower montane coniferous forests (CNPS 2017). Tuolumne button-celery blooms from May through August and is known to occur at elevations ranging from 230 to 3,002 feet above MSL (CNPS 2017). Tuolumne button-celery is endemic to California; its current range includes Amador, Calaveras, Sacramento, Sonoma, and Tuolumne counties (CNPS 2017).

There are two CNDDB documented occurrences of Tuolumne button-celery within ten miles of the Project area (CDFW 2017). The seeps, seasonal wetland swale, ditches, ponderosa pine forests, California black oak forests, and annual forb meadows within the Project area provide marginally suitable habitat for this species. Tuolumne button-celery was not observed during the special-status plant surveys conducted by ECORP in 2017.

Small-Flowered Monkeyflower

Small-flowered monkeyflower is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is an herbaceous annual that occurs in mesic sites within chaparral, cismontane woodland and lower montane coniferous forest (CNPS 2017). Small-flowered monkeyflower blooms from May through June and is known to occur at elevations ranging from 900 to 2,493 feet above MSL (CNPS 2017). Small-flowered monkeyflower is endemic to California; its current range includes Amador, Butte, Calaveras, Fresno, Mariposa, and Tuolumne counties (CNPS 2017).

While there are no documented occurrences of small-flowered monkeyflower within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Small-flowered monkeyflower was not identified during the literature review as having potential to occur within the Project area. However, approximately 20 individuals of this species were observed adjacent to the Project alignment between Northwood Drive and Forest Meadows Drive. Small-flowered monkeyflower was not observed within the Project area during the special-status plant surveys conducted by ECORP in 2017.

Figure 4. Special-Status Plant Locations Page 1 of 5

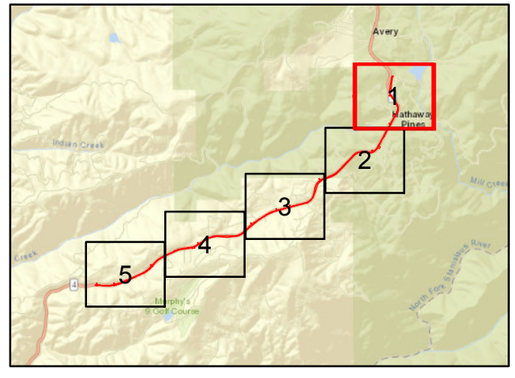
Map Features

Project Boundary - 25.1 acres

Rare Plant Sighting

yellow-lip pansy monkeyflower (*Diplacus pulchellus*)

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\SSS_Survey_and_Mapping\Rare_Plants\CCWDEP_RarePlants_20180227.mxd (MRG)-chinkelman 2/27/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 400

DRAFT

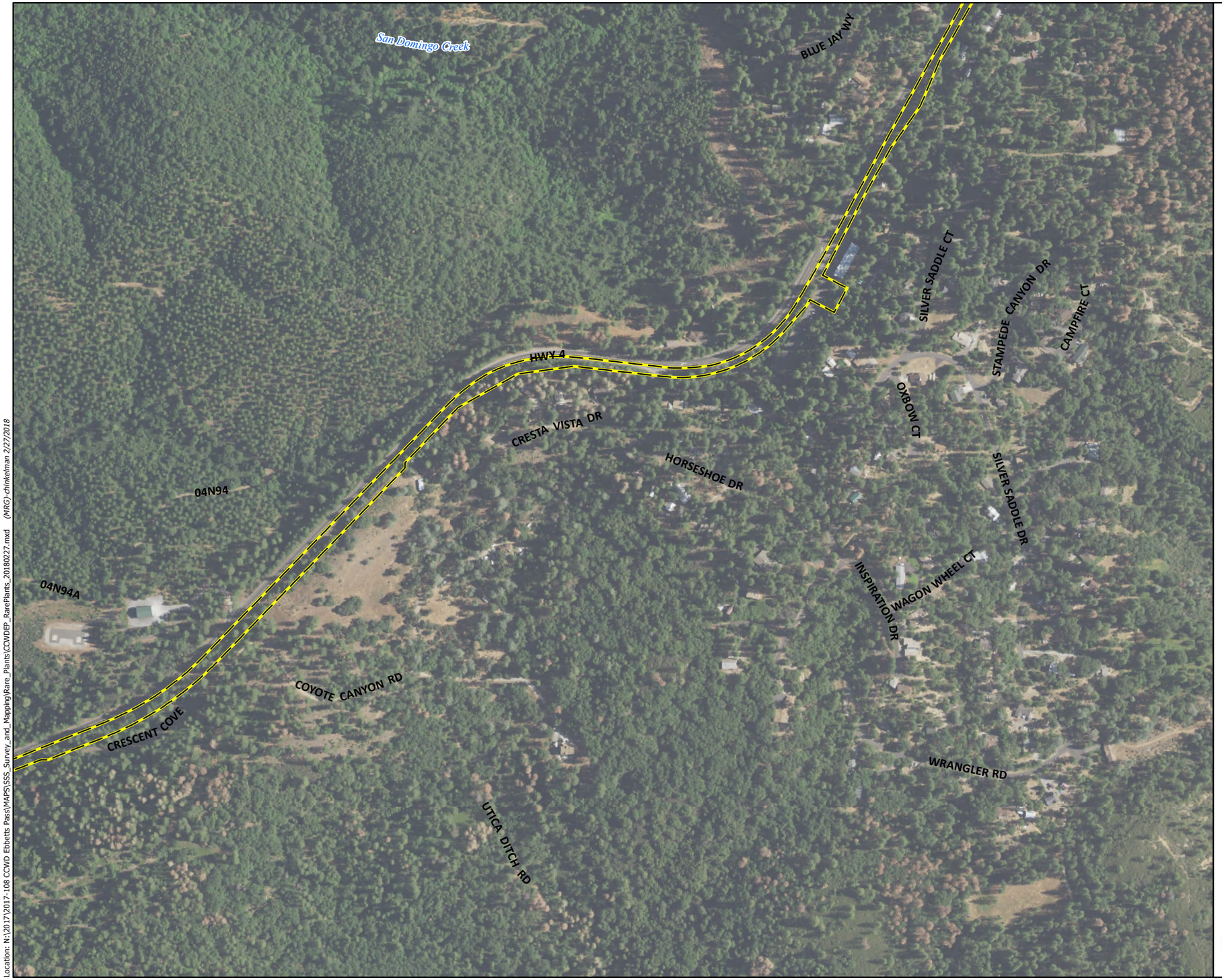
Photo Source: NAIP, 2016

Map Date: 2/27/2018

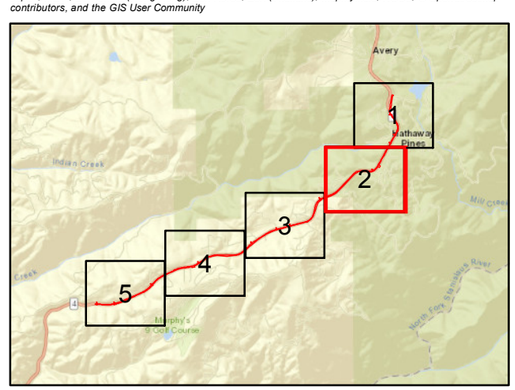
Figure 4. Special-Status Plant Locations Page 2 of 5

Map Features

Project Boundary - 25.1 acres



Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 400

DRAFT

Photo Source: NAIP, 2016

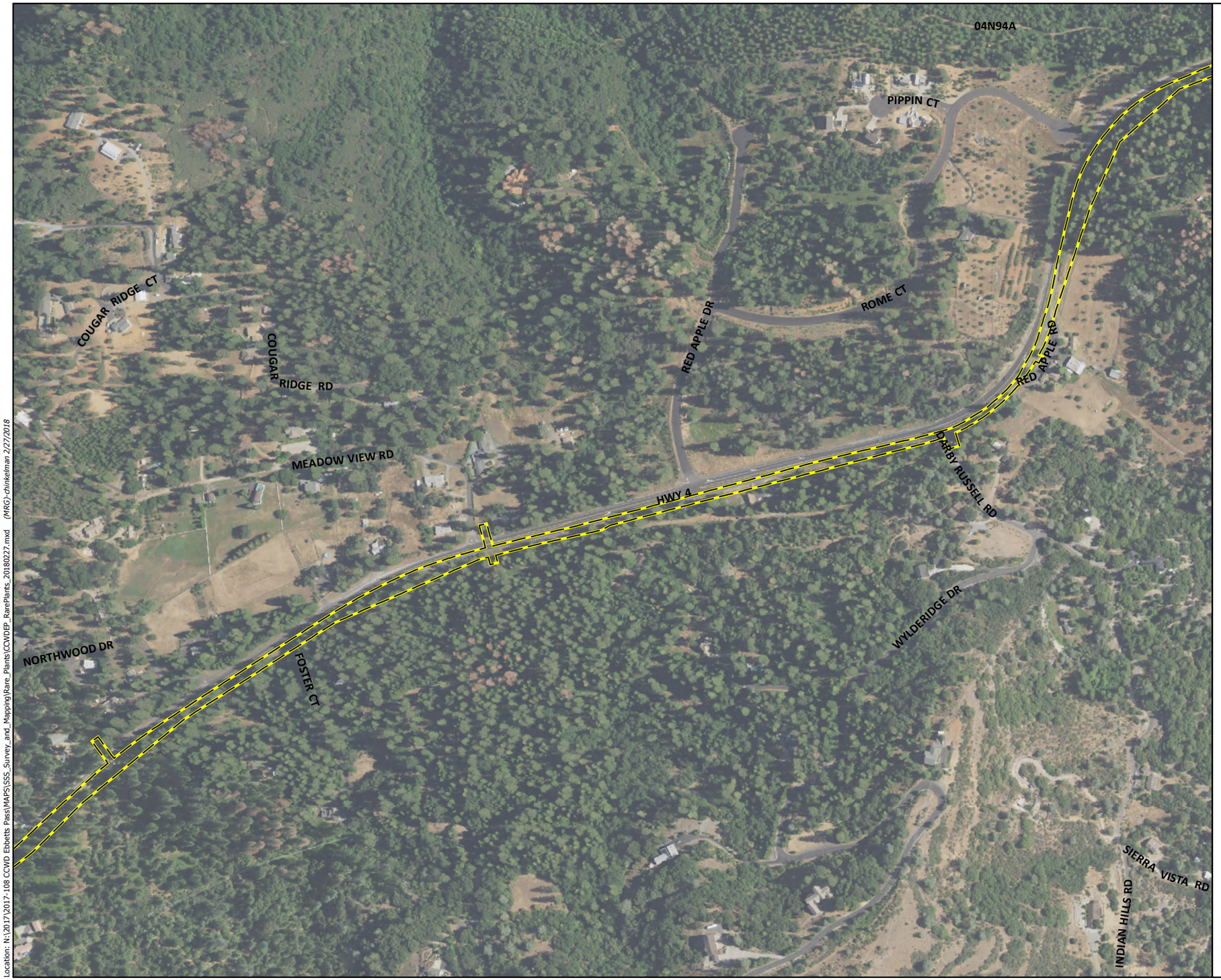
Map Date: 2/27/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\SSS_Survey_and_Mapping\Rare_Plants\CCWDEP_RarePlants_20180227.mxd (MRG)-chinkelman 2/27/2018

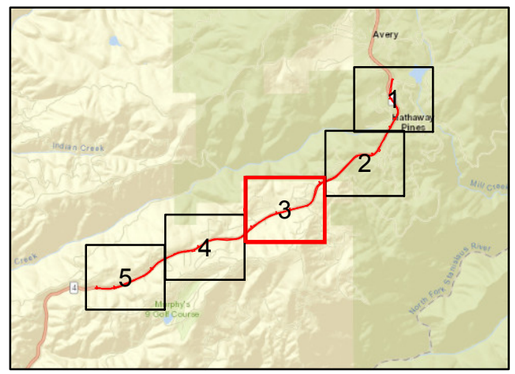
Figure 4. Special-Status Plant Locations Page 3 of 5

Map Features

Project Boundary - 25.1 acres



Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\SSS_Survey_and_Mapping\Rare_Plants\CCWDEP_RarePlants_20180227.mxd (MRG)-chinkelman 2/27/2018

2017-108 CCWD Ebbetts Pass

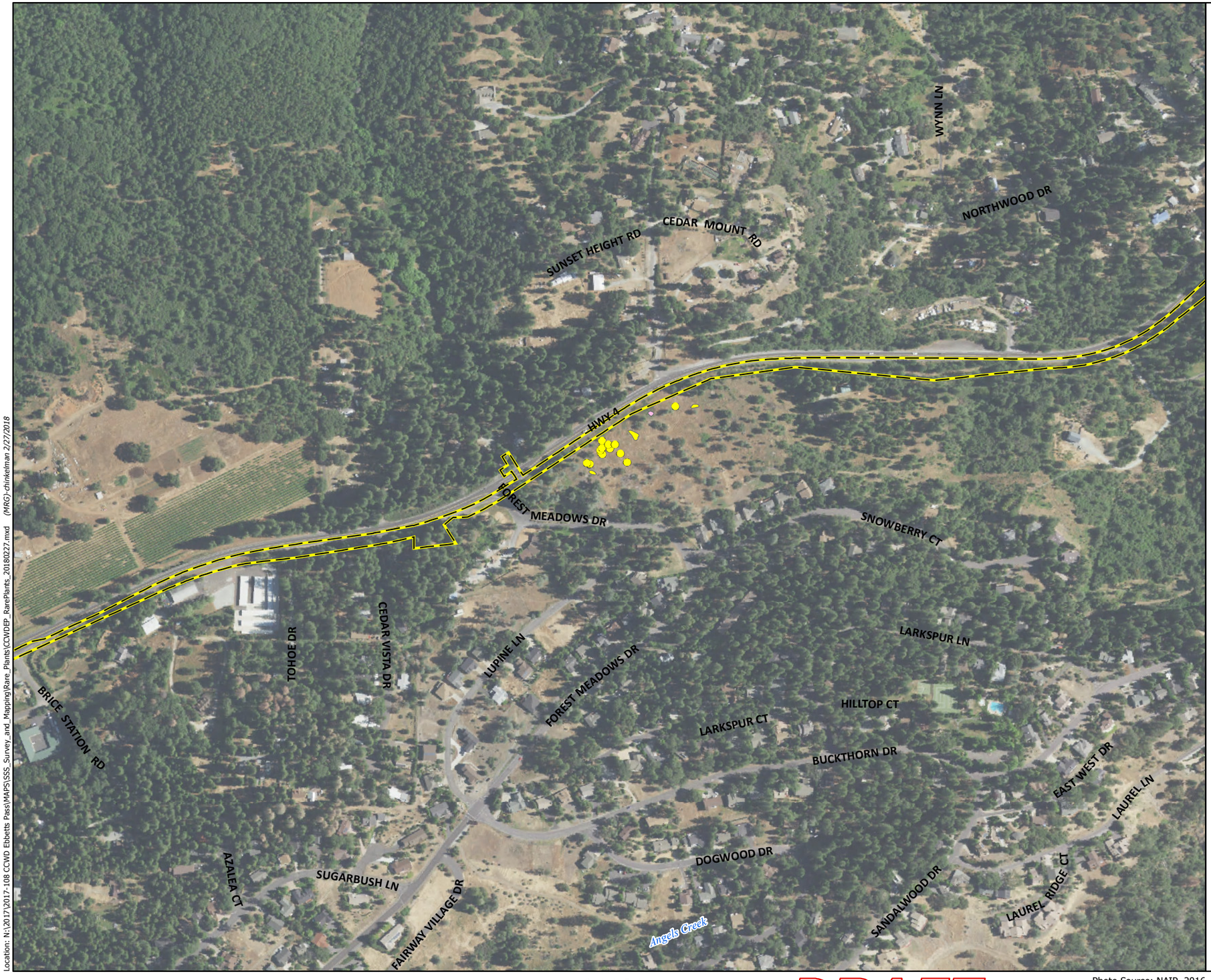
Scale in Feet
0 400

DRAFT

Photo Source: NAIP, 2016

Map Date: 2/27/2018

Figure 4. Special-Status Plant Locations Page 4 of 5



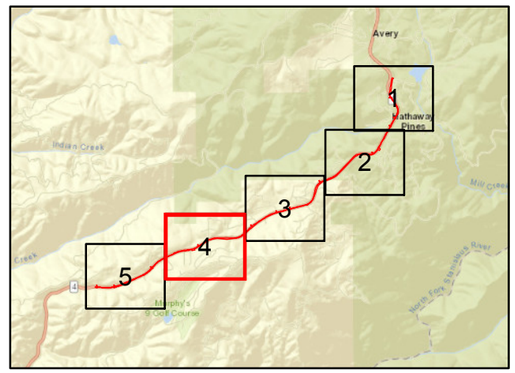
Map Features

- Project Boundary - 25.1 acres

Rare Plant Sighting

- small-flowered monkeyflower (*Mimulus inconspicous*)
- yellow-lip pansy monkeyflower (*Diplacus pulchellus*)

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\SSS_Survey_and_Mapping\Rare_Plants\CCWDBP_RarePlants_20180227.mxd (MRG)-chinkelman 2/27/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 400

DRAFT

Photo Source: NAIP, 2016

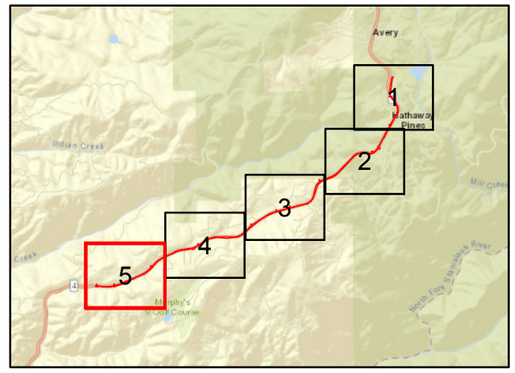
Map Date: 2/27/2018

Figure 4. Special-Status Plant Locations Page 5 of 5

Map Features

Project Boundary - 25.1 acres

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\SSS_Survey_and_Mapping\Rare_Plants\CCWDEP_RarePlants_20180227.mxd (MRG)-chinkelman 2/27/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 400

DRAFT

Photo Source: NAIP, 2016

Map Date: 2/27/2018

Stanislaus Monkeyflower

Stanislaus monkeyflower (*Erythranthe marmorata*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in cismontane woodland and lower montane coniferous forests (CNPS 2017). Stanislaus monkeyflower blooms from March through May and is known to occur at elevations ranging from 328 to 2,953 feet above MSL (CNPS 2017). Stanislaus monkeyflower is endemic to California; its current range includes Amador, Calaveras, Fresno, Stanislaus, and Tuolumne counties (CNPS 2017).

There are nine occurrences of Stanislaus monkeyflower within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Stanislaus monkeyflower was not observed during the special-status plant surveys conducted by ECORP in 2017.

Tuolumne Fawn Lily

Tuolumne fawn lily (*Erythronium tuolumnense*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a perennial bulbiferous herb that occurs in broadleaf upland forest, chaparral, cismontane woodland, and lower montane coniferous forests (CNPS 2017). Tuolumne fawn lily blooms from March through June and is known to occur at elevations ranging from 1,673 to 4,478 feet above MSL (CNPS 2017). Tuolumne fawn lily is endemic to California; its current range includes Tuolumne County (CNPS 2017).

There are 53 CNDDB documented occurrences of Tuolumne fawn lily within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Tuolumne fawn lily was not observed during the special-status plant surveys conducted by ECORP in 2017.

Parry's Horkelia

Parry's horkelia (*Horkelia parryi)* is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in chaparral and cismontane woodlands, and is associated with soils typical of the Ione Formation (CNPS 2017). Parry's horkelia blooms from April through September and is known to occur at elevations ranging from 242 to 3,510 feet above MSL (CNPS 2017). Parry's horkelia is endemic to California; the current range for this species includes Amador, Calaveras, El Dorado, Mariposa, and Tuolumne counties (CNPS 2017).

There are 31 CNDDB documented occurrences of Parry's horkelia within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide marginally suitable habitat for this species. Parry's horkelia was not observed during the special-status plant surveys conducted by ECORP in 2017.

Tuolumne Iris

Tuolumne iris (*Iris hartwegii* ssp. *columbiana)* is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a perennial rhizomatous herb that occurs in cismontane woodlands and lower montane coniferous forest (CNPS 2017). Tuolumne iris

blooms from May through June and is known to occur at elevations ranging from 1,394 to 4,593 feet above MSL (CNPS 2017). Tuolumne iris is endemic to California; the current range for this species includes Calaveras and Tuolumne counties (CNPS 2017).

There are seven CNDDB documented occurrences of Tuolumne iris within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Tuolumne iris was not observed during the special-status plant surveys conducted by ECORP in 2017.

Dubious Pea

Dubious pea (*Lathyrus sulphureus* var. *argillaceus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 3 species. This species is a perennial herb that occurs in cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest (CNPS 2017). Dubious pea blooms from April through May and is known to occur at elevations ranging from 490 to 3,050 feet above MSL (CNPS 2017). Dubious pea is endemic to California; the current range of this species includes Calaveras, El Dorado, Nevada, Placer, Shasta, and Tehama counties (CNPS 2017).

While there are no documented occurrences of Dubious pea within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Dubious pea was not observed during the special-status plant surveys conducted by ECORP in 2017.

Humboldt Lily

Humboldt lily (*Lilium humboldtii* ssp. *humboldtii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is a perennial bulbiferous herb that occurs in openings within chaparral, cismontane woodland, and lower montane coniferous forest (CNPS 2017). Humboldt lily blooms from May through August and is known to occur at elevations ranging from 295 to 4,199 feet above MSL (CNPS 2017). Humboldt lily is endemic to California; the current range of this species includes Amador, Butte, Calaveras, El Dorado, Fresno, Mariposa, Nevada, Placer, Tehama, Tuolumne, and Yuba counties (CNPS 2017).

While there are no documented occurrences of Humboldt lily within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. Humboldt lily was not observed during the special-status plant surveys conducted by ECORP in 2017.

Stebbins' Lomatium

Stebbins' lomatium (*Lomatium stebbinsii)* is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is a perennial herb that occurs in gravelly, volcanic clay soils within chaparral and lower montane coniferous forest (CNPS 2017). Stebbins' lomatium blooms from March through May and is known to occur at elevations ranging from 4,084 to 7,792 feet above MSL (CNPS 2017). Stebbins' lomatium is endemic to California; the current range for this species includes Calaveras and Tuolumne counties (CNPS 2017).

There are 16 CNDDB documented occurrences of Stebbins' lomatium within ten miles of the Project area (CDFW 2017). The ponderosa pine forests and California black oak forests within the Project area provide marginally suitable habitat for this species. This species was not observed during the special-status plant surveys conducted by ECORP in 2017.

Coleman's Rein Orchid

Coleman's rein orchid (*Piperia colemanii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is a perennial herb that occurs in chaparral and lower montane coniferous forest, often on sandy soils (CNPS 2017). Coleman's rein orchid blooms from June through August and is known to occur at elevations ranging from 3,935 to 7,545 feet above MSL (CNPS 2017). Coleman's rein orchid is endemic to California; the current range of this species includes Butte, Calaveras, Colusa, El Dorado, Fresno, Madera, Mariposa, Placer, Plumas, Shasta, Siskiyou, Tehama, Tulare, and Tuolumne counties (CNPS 2017).

While there are no documented occurrences of Coleman's rein orchid within ten miles of the Project area (CDFW 2017), the ponderosa pine forests and California black oak forests within the Project area provide suitable habitat for this species. This species was not observed during the special-status plant surveys conducted by ECORP in 2017.

4.5.2 Invertebrates

One special-status invertebrate species, Valley elderberry beetle (*Desmocerus californicus dimorphus*), was identified as having potential to occur within the Project area based on the literature review (Table 3). Upon further analysis and after the reconnaissance visit, the species was determined to be absent from the Project area due to lack of suitable habitat as elderberry shrubs were absent from the Project site. No further discussion of this species is provided in this assessment.

4.5.3 Fish

Two special-status fish species, Delta smelt (*Hypomesus transpacificus*) and steelhead (*Oncorhynchus* (=*Salmo*) *mykiss*), were identified as having potential to occur within the Project area based on the literature review (Table 3). Upon further analysis and after the reconnaissance visit, both species were determined to be absent from the Project area due to the lack of suitable habitat. No further discussion of these species is provided in this assessment.

4.5.4 Amphibians

Three special-status amphibians, foothill yellow-legged frog (*Rana boylii*), California red-legged frog (*Rana draytonii*) and Sierra Nevada yellow-legged frog (*Rana sierrae*), were identified as having potential to occur within the Project area based on the literature review (Table 3). Upon further analysis and after the reconnaissance visit, all amphibian species were determined to be absent from the Project area due to the lack of suitable habitat. No further discussion of these species is provided in this assessment.

4.5.5 Reptiles

One special-status reptile species, Western pond turtle (*Emys marmorata*), was identified as having potential to occur within the Project area based on the literature review (Table 3). Upon further

analysis and after the reconnaissance visit, the species was determined to be absent from the Project area due to the lack of suitable habitat. No further discussion of this species is provided in this assessment.

4.5.6 Birds

Twenty-eight special-status bird species were identified as having potential to occur within the Project area based on the literature review (Table 3). Upon further analysis and after the reconnaissance visit, 16 species were determined to be absent from the Project area due to the lack of suitable habitat. No further discussion of these species is provided in this assessment. Brief descriptions of the remaining 12 species that have the potential to occur within the Project area are presented below.

4.6.6.1 Osprey

Osprey (*Pandion haliaetus*) is not listed pursuant to either the California or federal ESAs; however, the species is fully protected pursuant to § 3511 of the California Fish and Game Code. It is a U.S. Forest Service sensitive species and is considered a CDFW watch list species. This species typically breeds in northern California from Cascade Ranges south to Lake Tahoe and along the coast to Marin County (Zeiner et al. 1990) and is an uncommon breeder along the southern Colorado River and other central and southern California waterbodies. Breeding occurs from March to September. Nesting occurs in tall structures including trees, cliffs, large snags or human made structures usually within 1,312 feet to 1 mile of large, fish-producing waters (Zeiner et al. 1990).

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). While the ponderosa pine forest present within the Project area may provide potential nesting habitat, the Project area is not adjacent to a large waterbody generally associated with osprey nests. Osprey are known to nest around New Melones Lake whose northern extent occurs approximately three miles to the south of the Project area. Osprey has low potential to occur within the Project area.

4.6.6.2 Northern Goshawk

The Northern goshawk (*Accipiter gentilis*) is not listed pursuant to either the California or federal Endangered Species Acts. However, it is a CDFW species of special concern, BLM sensitive species and U.S. Forest Service sensitive species. In the western United States, northern goshawks breed in mountainous habitat from northern Washington south through Oregon and into California, including the Siskiyou Mountains to the north Coast Range, from the Warner Mountains south through the Cascade and Sierra Nevada Mountains to the Greenhorn Mountains, White Mountains, Kern and Ventura Counties (Squires and Reynolds 1997). Breeding habitat in the West includes Douglas fir, various pine, and aspen forests (Squires and Reynolds 1997). Breeding occurs during March through July, with a peak from April through August.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Northern goshawk has low potential to occur within the Project area.

4.6.6.3 Flammulated Owl

The flammulated owl (*Otus flammeolus*) is a USFWS bird of conservation concern, but not listed pursuant to the state or federal endangered species acts. This small owl (to 17 cm in height) is a resident of coniferous forests at elevations from 6,000 to 10,000 feet MSL, mainly in ponderosa pine and Jeffrey pine (*P. jeffreyi*) forests of low- to moderate-canopy density (McCallum 1994). Flammulated owls are secondary cavity nesters, using woodpecker holes, or occasionally natural cavities, in ponderosa pine, Douglas-fir (*Pseudotsuga menziesii*), aspen (*Populus tremuloides*), oak (*Quercus* sp.), or snags (Linkhart and McCallum 2013). Wintering occurs in Mexico and Central America, migration north occurs in April. Breeding occurs in May to August.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Flammulated owl has low potential to occur within the Project area.

4.6.6.4 California Spotted Owl

The California spotted owl (*Strix occidentalis occidentalis*) is a CDFW species of special concern, a USFWS bird of conservation concern, a BLM sensitive species, and a U. S. Forest Service sensitive species. This is a subspecies of spotted owl, which occurs primarily on the west slope of the Sierra Nevada range. A year-round resident in most of its range, breeding range occurs from 1,000 feet to almost 8,000 feet, with some birds migrating to lower elevations in the winter (Verner et al. 1992). This is an owl primarily of dense Ponderosa pine and mixed coniferous forest, with old-growth trees, snags, a complex canopy, and abundant woody debris (Shuford and Gardali 2008). Wintering may occur in blue oak (*Q. douglasii*) gray pine (*P. sabiniana*) foothill riparian forests. California spotted owls do not build their own nest, but rather use naturally-occurring platforms, cliffs, and abandoned common raven (*Corvus corax*), raptor, or squirrel nests. Nesting occurs during March through September.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. California spotted owl has low potential to occur within the Project area.

4.6.6.5 Rufous Hummingbird

The rufous hummingbird (*Selasphorus rufus*) is not listed and protected under either Federal or California ESA's; however, it is considered a species of conservation concern according to the U.S. Fish and Wildlife Service. Rufous hummingbirds breed from coastal southeastern Alaska south British Columbia and Alberta, Canada, Washington, Idaho, Montana, and Oregon (Healy and Calder 2006). Rufous hummingbirds do not nest in California, but are common in the foothills and lower conifer zones of the west slope of the Sierra Nevada during migration (Beedy et al. 2013).

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The annual forb meadow, annual grassland and understory of the ponderosa pine forest present within the Project area may provide potential foraging habitat for the species. Rufous hummingbird has potential to occur within the Project area.

4.6.6.6 Calliope Hummingbird

The calliope hummingbird (*Selasphorus calliope*) is not listed and protected under either Federal or California ESA's; however, it is considered a species of conservation concern according to the U.S. Fish and Wildlife Service. Calliope hummingbirds breed in North America west of the Rockies from British Columbia and Alberta, Canada south through Mexico. In Northern California, the breeding range includes the interior portions of the Klamath Mountains and the inner Coast Range to northeastern Mendocino and northwestern Glenn Counties, south through the Sierra-Cascade axis to southern Tulare County, and in the Warner Mountains (Small 1994). Nesting habitat includes shrub-sapling seral stage of reforestation, in aspen thickets along streams, and open montane forests (Calder and Calder 1994). Nesting occurs during May through August. Calliope hummingbirds winter from Sinaloa and Durango, Mexico south to Oaxaca (Calder and Calder 1994).

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The annual forb meadow, annual grassland and understory of the ponderosa pine forest present within the Project area may provide potential foraging habitat for the species. Calliope hummingbird has potential to occur within the Project area.

4.6.6.7 Lewis' Woodpecker

The Lewis's woodpecker (*Melanerpes lewis*) is not listed pursuant to either CESA or FESA, but is designated as a bird of conservation concern by the USFWS. Lewis's woodpeckers nest in existing tree cavities, rarely newly excavated, within ponderosa pine forests, open riparian woodland dominated by cottonwood, logged or burned pine forests, oak woodlands, orchards, pinyon pine-juniper woodland, a variety of pine and fir forests, and agricultural farm and ranchland (Vierling et al. 2013). Nesting occurs from April through September.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Lewis' woodpecker has potential to occur within the Project area.

4.6.6.8 White-Headed Woodpecker

The white-headed woodpecker (*Picoides albolarvatus*) is not listed and protected under either state or federal Endangered Species Acts, but is considered a USFWS bird of conservation concern. White-headed woodpeckers require montane coniferous forests and are found from British Columbia to San Diego County, in southern California (Garrett et al 1996). These woodpeckers nest in tree cavities primarily within large diameter conifers in mixed coniferous forests of ponderosa and sugar pines, white and red fir, Douglas-fir, and black oak (Garrett et al 1996). Breeding occurs during April through August.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. White-headed woodpecker has potential to occur within the Project area.

4.6.6.9 Williamson's Sapsucker

The Williamson's sapsucker (*Sphyrapicus thyroideus*) is not listed and protected under either Federal or California ESA's; however, it is considered a species of conservation concern according to the U.S. Fish and Wildlife Service. In California, Williamson's sapsucker breeding range include Sierra Nevada-Cascade Range from Greenhorn Mountains to the Oregon Border, isolated breeding populations are located in Siskiyou, Trinity and the Warner Mountains (Small 1994). They nest in middle to high elevation conifer and mixed conifer-deciduous forests (Gyug et al. 2012). They nest in tree cavities of western larch, ponderosa pine, Jeffrey pine, Sierra-Cascade lodgepole pine, Douglas-fir, spruce, grand fir, white fir, red fir, trembling aspen, water birch, black cottonwood, and occasionally, utility poles (Gyug et al. 2012). Nesting occurs during May through July.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Williamson's sapsucker has potential to occur within the Project area.

4.6.6.10 Olive-Sided Flycatcher

The olive-sided flycatcher (*Contopus cooperi*) is not listed pursuant to either the California or federal Endangered Species Acts but is a CDFW species of special concern and a USFWS bird of conservation concern. In the western United States, olive-sided flycatchers breed from Washington south throughout California, except the Central Valley, eastern deserts, and mountains of southern California (Small 1994). This species breeds in late-successional coniferous forests including Ponderosa pine woodlands, black oak woodlands, mixed coniferous forests, and Jeffrey pine forests, usually at mid to high elevations (Shuford et al 2008). They use edges and clearings surrounding dense forests, foraging primarily on bees and wasps. Nesting occurs during May through August.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting and foraging habitat for the species. Olive-sided flycatcher has potential to occur within the Project area.

4.6.6.11 Oak Titmouse

The oak titmouse (*Baeolophus inornatus*) is not listed and protected under either state or federal Endangered Species Acts, but are considered a USFWS bird of conservation concern. Oak titmouse breeding range includes southwestern Oregon south through California's Coast, Transverse and Peninsular ranges, western foothills of the Sierra Nevada, into Baja California; they are absent from the humid northwestern coastal region and the San Joaquin Valley (Cicero et al. 2017). They are found in dry oak or oak-pine woodlands, but may also use scrub oaks or other brush near woodlands (Cicero et al. 2017). Nesting occurs during March through July.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting and foraging habitat for the species. Oak titmouse has potential to occur within the Project area.

4.6.6.12 Fox Sparrow

The fox sparrow (*Passerella iliaca*) is not listed pursuant to either the California or federal Endangered Species Acts, but it is designated as a species of conservation concern by the USFWS. The "large-billed" fox sparrow (*Megarhyncha* Group) nests in western Oregon south into coastal northern California, the Siskiyou and Warner Mountains, Sierra Nevada, and mountains of southern California, and western Nevada. Nesting habitat includes montane chaparral and mixed coniferous forest (Weckstein et al. 2002).

Wintering fox sparrows are typically found in thick riparian, chaparral vegetation in California (Weckstein et al. 2002). "Sooty" fox sparrows (*Unalaschkensis* Group) winter along the entire coastal region; "slate-colored" fox sparrows (*Schistacea* Group) winter from northern interior California to Baja California; and "large-billed" fox sparrows winter from central California south to Baja (Weckstein et al. 2002). Breeding occurs during May through July, and can be found on wintering grounds from September through April.

There are no CNDDB occurrences of this species within five miles of the Project area (CDFW 2017). The ponderosa pine forest present within the Project area may provide potential nesting habitat and foraging habitat for the species. Fox sparrow has potential to occur within the Project area.

4.5.7 Mammals

Six special-status mammal species were identified as having potential to occur within the Project area based on the literature review (Table 3). Upon further analysis and after the reconnaissance visit, three species were considered to have potential to occur on-site. Brief descriptions of these species with the potential to occur within the Project area are presented below.

4.6.7.1 Western Red Bat

The western red bat (*Lasiurus blossevillii*) is not listed pursuant to either the California or federal ESAs; however, it is designated as a species of special concern by CDFW. In addition, the WBWG has classified the western red bat in California as "imperiled or are at high risk of imperilment" (WBWG 2005). The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This bat occurs from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts, and is typically associated with forested and riparian communities. This solitary species roosts in the foliage of large shrubs and trees in communities bordering forests, rivers, cultivated fields, and urban areas. They feed on a variety of insects, usually foraging in or near riparian areas. This species is a year-round resident of California; however, they do migrate seasonally with the extent of these movements being poorly understood (Shump and Shump 1982, Philpott 1996).

There are no occurrences of western red bat within five miles of the Project area (CDFW 2017). Trees within the Project area may provide potential roosting habitat for this species. Western red bat has potential to occur within the Project area.

4.6.7.2 Townsend's Big-Eared Bat

The Townsend's big-eared bat (*Corynorhinus townsendii*) is not listed pursuant either the California or Federal ESAs; however, it is designated as a species of special concern by CDFW. In addition, the WBWG has classified the Townsend's big-eared bat in California as "imperiled or are at high risk of imperilment" (WBWG 2005). Distribution of this species is strongly correlated with the availability of caves and cave-analogue roosting habitat, including abandoned mines. Townsend's big-eared bats have also been reported to utilize buildings, bridges, rock crevices, and hollow trees as roost sites (WBWG 2005). These bats are highly sensitive to human disturbance at roosting, maternity, and hibernacula sites. This species will roost alone or in groups of 15 to 100 individuals. They feed primarily on moths and prefer to forage along the edge of clumps of native vegetation. Townsend's big-eared bats are year-round residents in California, and even though they hibernate during the winter, will occasionally forage during the winter months (Kunz and Martin 1982, Philpott 1996).

There are two occurrences of Townsend's big-eared bat within five miles of the Project area (CDFW 2017). Trees within the Project area may provide potential roosting habitat for this species, but there are no caves or mines within the Project, which are preferred habitat for this species. Townsend's big-eared bat has low potential to occur within the Project area.

4.6.7.3 Pallid Bat

The pallid bat (*Antrozous pallidus*) is not listed pursuant to either the California or federal ESAs; however, it is designated as a CDFW species of special concern as well as a BLM and USFS sensitive species. In addition, the Western Bat Working Group (WBWG) has classified the pallid bat in California as "imperiled or are at high risk of imperilment" (WBWG 2005). The pallid bat is a large buff-colored bat, with large ears and broad wings (Orr 1954). The pallid bat occurs in Oregon and Washington and throughout the southwestern United States, south into Mexico (Hermanson and O'Shea 1983). Pallid bats inhabit low elevation rocky arid deserts and canyonlands, shrub-steppe grasslands, oak woodlands, karst formations, and higher elevation coniferous forests (Philpott 1996, WBWG 2005). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, and trees; and in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (WBWG 2005). Pallid bats are primarily insectivores and feed by gleaning prey items from the ground or from vegetation (Bell 1982).

There are no occurrences of pallid bat within five miles of the Project area (CDFW 2017). Trees within the Project area may provide potential roosting habitat for this species. Pallid bat has potential to occur within the Project area.

4.5.8 Wildlife Movement/Corridors

The majority of the Project is located along existing roadways within a low density/rural residential area. Portions of the Project located within undeveloped areas along the roadway likely don't function as wildlife corridors due to vehicular traffic. Installation of the pipeline is not anticipated to impede any wildlife movement.

5.0 RECOMMENDATIONS

5.1 Waters of the U.S.

The field surveys identified 0.184 acre of potential Waters of the U.S. within the Project. A formal wetland delineation has been conducted and the wetlands have yet to be verified by USACE. Based on the Project description, the proposed pipeline will cross the following feature types: seasonal wetland swale, seep, intermittent drainage, ephemeral drainage and ditch. Therefore, it is anticipated that installation of the pipeline will result in fill of potential Waters of the U.S.

If the potential jurisdictional features are verified as Waters of the U.S. by USACE and if disturbance would occur to Waters of the U.S. within the Project, the following mitigation measures are recommended to minimize potential impacts to Waters of the U.S.:

- Authorization to fill wetlands under the Section 404 of the federal CWA (Section 404 Permit) must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit for the Project will be prepared and submitted to USACE, and will include jurisdictional determination, direct, avoided, and preserved acreages of Waters of the U.S. Mitigation for impacts to Waters of the U.S. typically consists of a minimum of a 1:1 ratio for direct impacts; however final mitigation requirements will be developed in consultation with USACE.
- A Water Quality Certification or waiver pursuant to Section 401 of the CWA, as issued by RWQCB, must be obtained for Section 404 permit actions.
- Features that may be subject to CDFW Section 1602 jurisdiction were identified in the Project Area (e.g., intermittent drainages, ephemeral drainages, ditch, seasonal wetland swale). The following measure is recommended to minimize potential impacts to the bed, bank, or channel of rivers, streams, or lakes within the Project Area:
- An SAA pursuant to Section 1602 of the California Fish and Game Code must be obtained for any activity that will impact the bed, bank, or channel of any river, stream or lake. Mitigation measures will be developed during consultation with CDFW as part of the SAA permit process to ensure protections for affected fish and wildlife resources.

5.2 Special-Status Plants

While no special-status plants were observed within the Project alignment, two special-status plant species (yellow-lip pansy monkeyflower and small-flowered monkeyflower) were observed at two locations just outside the Project alignment. Observations of both species occurred adjacent to the Project alignment between Northwood Drive and Forest Meadows Drive and another observation of yellow-lip pansy monkeyflower occurred adjacent to the Project alignment north of Hunter Dam Road. No other special-status plants were found during protocol-level surveys in 2017. Due to the potential presence of special-status plant species, the following measure is recommended:

- Consult with CDFW to determine appropriate mitigation measures if avoidance of the off-site rare plant populations is not feasible.

- Mitigation measures may include seed collection, plant relocation, and implementation of best management practices during construction to avoid any potential indirect impacts to rare plant populations.

5.3 Special-Status Invertebrates

There are no potentially occurring special-status invertebrate species within the Project. Therefore, no measures are recommended.

5.4 Special-Status Fish

There are no potentially occurring special-status fish species within the Project and the Project does not occur within EFH. Therefore, no measures are recommended.

5.5 Special-Status Amphibians

There are no potentially occurring special-status amphibian species within the Project. Therefore, no measures are recommended.

5.6 Special-Status Reptiles

There are no potentially occurring special-status reptile species within the Project. Therefore, no measures are recommended.

5.7 Special-Status Birds and MBTA-Protected Birds (including Raptors)

Suitable nesting habitat for 12 special-status birds is present within the Project. These are:

Osprey, northern goshawk, flammulated owl, California spotted owl, rufous hummingbird, calliope hummingbird, Lewis' woodpecker, white-headed woodpecker, Williamson's sapsucker, olive-sided flycatcher, oak titmouse and fox sparrow. If present, the Project could result in harassment to nesting individuals and may temporarily disrupt foraging activities.

In addition to the above-listed special-status birds, all native birds, including raptors, are protected under the federal MBTA. As such, to ensure that there would be no impacts to protected active nests during construction, the following mitigation measures are recommended:

- Conduct a pre-construction nesting bird survey of all suitable habitats within 50 feet of the Project for nesting birds and within 300 feet of the Project for nesting raptors within 14 days prior to the commencement of construction during the nesting season (1 February – 31 August).
- If active nests are found, a no-disturbance buffer around the nests shall be established. The buffer distance shall be established by a qualified biologist in consultation with CDFW or USFWS. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. Once the young are independent of the nest, no further measures are necessary. Pre-construction nesting surveys are not required for construction activities that occur outside of the nesting season.

5.8 Special-Status Mammals

Three special-status mammals have potential to occur within the Project: Western red bat, Townsend's big-eared bat, and pallid bat. To ensure that these species are not impacted by the Project, the following measure is recommended:

- Conduct a pre-construction clearance survey for special-status bats within 14 days of the start of Project construction. If roosting bats are found, consult with CDFW to implement appropriate measures (e.g., monitoring, roost exclusion).

5.9 Oak Trees

Native oaks trees that may be protected by the County's Voluntary Oak Woodland Management Plan are present within the Project area. If tree trimming, removal or work under a native canopy is required for installation of the pipeline, appropriate, voluntary best management practices, as discussed in Appendix A of the Voluntary Oak Woodland Management Plan, should be implemented:

- Maintain an average leaf canopy of 30 percent or more of single stemmed oaks and 15 percent or more of multi-stemmed oaks.
- Retain trees of all sizes and species represented at the site that are compatible with the intended land use.
- When safety permits, leave old hollow trees and those actively being used for nesting, roosting, or feeding.
- Where low fire risk and aesthetics allow, pile limbs and brush to provide wildlife cover.
- Avoid root compaction by limiting heavy equipment in the root zone.
- Carefully plan roads, cuts and fills, building foundations and septic systems to avoid damage to tree roots.
- Design roads to minimize excessive erosion and sedimentation to downstream resources. Consider re-seeding of disturbed ground.
- Consider replacing trees whose removal during construction was unavoidable.

6.0 REFERENCES

Baldwin, B. G., D.H Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual; Vascular Plants of California*, Second Edition. University of California Press, Berkeley, California. 1,519 pp. + app.

Bell, G. P. 1982. Behavioral and ecological aspects of gleaning by a desert insectivorous bat, Antrozous pallidus (Chiroptera: Vespertilionidae). Behavioral Ecology and Sociobiology, 10:217-223.

Beedy, E.C., and Hamilton, W.J., III. 1999. Tricolored Blackbird (*Agelaius tricolor*), in The Birds of North America, no. 423. Philadelphia, Pennsylvania.

Beedy E.C., E.R. Pandalfino, and K. Hansen. 2013. Birds of the Sierra Nevada: Their Natural History, Status, and Distribution, by University of California Press.

Calaveras County. 1998. Avery-Hathaway Pines Community Plan. Dated March 20, 1998.

Calaveras County. 2007. Calaveras County Voluntary Oak Woodland Management Plan. Dated January 2007.

Calaveras County. 2016. Calaveras County Planning Commission Recommended Draft General Plan. September 22, 2016.

Calder, W. A., and L. L. Calder. 1994. Calliope Hummingbird (Selasphorus calliope), The Birds of North America (P.G. Rodewald, Ed.). Cornell Lab of Ornithology, Ithaca, New York.

California Department of Fish and Game (CDFG). 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Sacramento, California.

California Department of Fish and Wildlife (CDFW). 2017. Rarefind 5. Online Version, commercial version. California Natural Diversity Database. The Resources Agency, Sacramento. Accessed May 2017.

California Native Plant Society (CNPS). 2001. California Native Plant Society Botanical Survey Guidelines.

California Native Plant Society (CNPS). 2017. Inventory of Rare and Endangered Plants in California (online edition, v8-02). California Native Plant Society. Sacramento, CA. Available online: http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi. Accessed May 2017.

Cicero, Carla, Peter Pyle and Michael A. Patten. 2017. Oak Titmouse (*Baeolophus inornatus*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/oaktit

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U. S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.

Garrett, K. L., M. G. Raphael, and R. D. Dixon. 1996. White-headed Woodpecker (*Picoides albolarvatus*). In A. Poole [ed.], The Birds of North America Online. Cornell Lab of Ornithology. Ithaca, NY. [Online.] <http://bna.birds.cornell.edu/bna/species/252> (March 2008).

Gyug, Les W., R. C. Dobbs, T. E. Martin and C. J. Conway. 2012. Williamson's Sapsucker (*Sphyrapicus thyroideus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. Available: http://bna.birds.cornell.edu/bna/species/285

Headquarters, U.S. Army Corps of Engineers (HQUSACE). 1992. *Clarification and Interpretation of the 1987 Manual*. Memorandum from Major General Arthur E. Williams. Dated March 6, 1992.

Healy, Susan and William A. Calder. 2006. Rufous Hummingbird (*Selasphorus rufus*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/rufhum

Hermanson, J.W., and T.J. O'Shea. 1983. *Antrozous pallidus*. American Society of Mammalogists, Mammalian Species. 213:1-8.

Kunz, T.H. and R. A. Martin. 1982. *Plecotus townsendii*. American Society of Mammalogists, Mammalian Species. 175:1-6.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 Wetland Ratings. Phytoneuron 2016-30: 1–17. Published 28 April 2016.

Linkhart, Brian D. and D. Archibald Mccallum. 2013. Flammulated Owl (Psiloscops flammeolus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/093

McCallum, D. A. 1994. Flammulated Owl (*Otus flammeolus*). *In* The Birds of North America, No. 93 (A. Poole, and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Munsell Color. 2015. Munsell Soil-color Charts. Munsell Color. Grand Rapids, Michigan.

National Oceanic and Atmospheric Administration (NOAA). 2017. National Centers for Environmental Information (NCEI) 1981-2010 Climate Normals. Available online at: https://www.ncdc.noaa.gov/cdo-web/datatools/normals. Accessed July 2017.

Natural Resources Conservation Service (NRCS). 2017a. Web Soil Survey. Available Online: http://websoilsurvey.nrcs.usda.gov/.

Natural Resources Conservation Service (NRCS). 2017b. Soil Data Access Hydric Soils List. Available at https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. Accessed July 2017.

Natural Resources Conservation Service (NRCS), U.S. Geological Survey (USGS), and Environmental Protection Agency (EPA). 2016. Watershed Boundary Dataset for California. Available online: https://datagateway.nrcs.usda.gov [Dated 09/21/2016].

Orr, R.T. 1954. Natural history of the pallid bat, Antrozous pallidus. Proceedings of the California Academy of Sciences, Fourth Series, 28(4):165-246.

Pacific Fishery Management Council. 2000. Review of 1999 Ocean Salmon Fisheries. Portland Oregon. February 2000.

Philpott, W.L. 1996 (Year Approximate). Natural Histories of California Bats. U.S. Forest Service, 17 pages.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate

conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Shump, K.A. and A.U. Shump. 1982. Mammalian Species, 183:1-6.

Small, A. 1994. California birds: their status and distribution. Ibis, Vista, California.

Squires, J.R., and Reynolds, R.T. 1997. Northern Goshawk (*Accipiter gentilis*), in The Birds of North America, no. 298. Philadelphia, Pennsylvania.

U.S. Army Corps of Engineers (USACE). 2008. Regulatory Guidance Letter 08-02, Jurisdictional Determinations. Dated June 26, 2008.

U.S. Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).* Ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Energy (USDE). 2013. Glossary of Energy-Related Terms. Washington, D.C. Available at: https://energy.gov/eere/energybasics/articles/glossary-energy-related-terms

U.S. Fish and Wildlife Service (USFWS). 1996. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants.*

U.S. Fish and Wildlife Service (USFWS). 1996. Recovery plan for the Sacramento-San Joaquin Delta native fishes. USFWS, Portland, Oregon.

U.S. Fish and Wildlife Service (USFWS). 2017. USFWS Resource Report List. Information for Planning and Conservation. Internet website: http://ecos.fws.gov/ipac.

U.S. Geological Survey (USGS). 1948a. “Murphys, California” 7.5-minute Quadrangle. Geological Survey. Denver, Colorado.

U.S. Geological Survey (USGS). 1948b. “Stanislaus, California” 7.5-minute Quadrangle. Geological Survey. Denver, Colorado.

Verner, J.; Gutiérrez, R.J.; Gould, G.I., Jr. 1992. The California spotted owl: general biology and ecological relations. *In* The California Spotted Owl: A Technical Assessment Of Its Current Status. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 55–7.

Vierling, Kerri T., Victoria A. Saab and Bret W. Tobalske. 2013. Lewis‘s Woodpecker (*Melanerpes lewis*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/lewwoo

Weckstein, J.D., D.E. Kroodsma and R.C. Faucett. 2002. Fox Sparrow (*Passerella iliaca*). *In* The Birds of North America, No. 715 (A. Poole and F. Gill, Eds.). The Birds of North America, Inc., Philadelphia, PA.

Western Bat Working Group (WBWG). 2005. Bat Species Accounts Developed for the 1998 Reno Biennial Meeting, Updated at the 2005 Portland Biennial Meeting. Available on-line at: http://www.wbwg.org/species_accounts.htm.

Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (Eds). 1990. California's Wildlife, Volume II, Birds. California Statewide Wildlife Habitat Relationships System. California Department of Fish and Game, Sacramento, California.

LIST OF ATTACHMENTS

ATTACHMENT A

Species Searches

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Murphys (3812024) OR Stanislaus (3812023) OR Fort Mountain (3812034) OR Rail Road Flat (3812035) OR Calaveritas (3812025) OR Angels Camp (3812015) OR Columbia (3812014) OR Columbia SE (3812013) OR Twain Harte (3812012) OR Crandall Peak (3812022) OR Boards Crossing (3812032) OR Dorrington (3812033))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter gentilis northern goshawk	ABNKC12060	None	None	G5	S3	SSC
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Allium tribracteatum three-bracted onion	PMLIL022D0	None	None	G2	S2	1B.2
Ammonitella yatesii tight coin (=Yates' snail)	IMGASB0010	None	None	G1	S1	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aphrastochthonius grubbsi Grubbs' Cave pseudoscorpion	ILARA37010	None	None	G1G2	S1S2	
Banksula martinorum Martins' cave harvestman	ILARA14070	None	None	G1	S1	
Banksula melones Melones Cave harvestman	ILARA14010	None	None	G1	S1	
Banksula tutankhamen King Tut Cave harvestman	ILARA14200	None	None	G1	S1	
Big Tree Forest Big Tree Forest	CTT84250CA	None	None	G3	S3.2	
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Botrychium crenulatum scalloped moonwort	PPOPH010L0	None	None	G4	S3	2B.2
Botrychium minganense Mingan moonwort	PPOPH010R0	None	None	G4G5	S3	2B.2
Botrychium montanum western goblin	PPOPH010K0	None	None	G3	S2	2B.1
Calochortus clavatus var. avius Pleasant Valley mariposa-lily	PMLIL0D095	None	None	G4T2	S2	1B.2
Carex davyi Davy's sedge	PMCYP033H0	None	None	G3	S3	1B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Chlorogalum grandiflorum Red Hills soaproot	PMLIL0G020	None	None	G2	S2	1B.2
Clarkia australis Small's southern clarkia	PDONA05040	None	None	G2	S2	1B.2
Clarkia biloba ssp. australis Mariposa clarkia	PDONA05051	None	None	G4G5T2T3	S2S3	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Cryptantha spithamaea Red Hills cryptantha	PDBOR0A2M2	None	None	G2	S2	1B.3
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Diplacus pulchellus yellow-lip pansy monkeyflower	PDSCR1B280	None	None	G2	S2	1B.2
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eryngium pinnatisectum Tuolumne button-celery	PDAPI0Z0P0	None	None	G2	S2	1B.2
Erythranthe marmorata Stanislaus monkeyflower	PDPHR01130	None	None	G2?	S2?	1B.1
Erythronium tuolumnense Tuolumne fawn lily	PMLIL0U0H0	None	None	G2G3	S2S3	1B.2
Euderma maculatum spotted bat	AMACC07010	None	None	G4	S3	SSC
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Gulo gulo California wolverine	AMAJF03010	Proposed Threatened	Threatened	G4	S1	FP
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Horkelia parryi Parry's horkelia	PDROS0W0C0	None	None	G2	S2	1B.2
Iris hartwegii ssp. columbiana Tuolumne iris	PMIRI090D2	None	None	G4T1	S1	1B.2
Larca laceyi Lacey's Cave pseudoscorpion	ILARA39010	None	None	G1G2	S1	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lathyrus sulphureus var. argillaceus dubious pea	PDFAB25101	None	None	G5T1T2	S1S2	3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lomatium stebbinsii Stebbins' lomatium	PDAPI1B1V0	None	None	G2	S2	1B.1
Margaritifera falcata western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
Monadenia mormonum buttoni Button's Sierra sideband	IMGASC7071	None	None	G2T1	S1S2	
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Navarretia paradoxiclara Patterson's navarretia	PDPLM0C150	None	None	G2	S2	1B.3
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Peltigera gowardii western waterfan lichen	NLVER00460	None	None	G3G4	S3	4.2
Pseudogarypus orpheus Music Hall Cave pseudoscorpion	ILARA40010	None	None	G1G2	S1	
Punctum hannai Trinity Spot	IMGAS47080	None	None	G1G2	S1S2	
Rana boylii foothill yellow-legged frog	AAABH01050	None	None	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Rana sierrae Sierra Nevada yellow-legged frog	AAABH01340	Endangered	Threatened	G1	S1	WL
Strix nebulosa great gray owl	ABNSB12040	None	Endangered	G5	S1	
Stygobromus gradyi Grady's Cave amphipod	ICMAL05460	None	None	G1	S1	
Stygobromus harai Hara's Cave amphipod	ICMAL05470	None	None	G1G2	S1S2	

Record Count: 54

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

25 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3812035, 3812034, 3812033, 3812025, 3812024, 3812023, 3812015 3812014 and 3812013;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Allium sanbornii var. sanbornii	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	4.2	S4?	G3T4?
Allium tribracteatum	three-bracted onion	Alliaceae	perennial bulbiferous herb	Apr-Aug	1B.2	S2	G2
Arctostaphylos myrtifolia	Ione manzanita	Ericaceae	perennial evergreen shrub	Nov-Mar	1B.2	S1S2	G1G2
Calochortus clavatus var. avius	Pleasant Valley mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	1B.2	S2	G4T2
Carex davyi	Davy's sedge	Cyperaceae	perennial herb	May-Aug	1B.3	S3	G3
Ceanothus fresnensis	Fresno ceanothus	Rhamnaceae	perennial evergreen shrub	May-Jul	4.3	S4	G4
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	May-Jun	1B.2	S2	G2
Clarkia australis	Small's southern clarkia	Onagraceae	annual herb	May-Aug	1B.2	S2	G2
Clarkia virgata	Sierra clarkia	Onagraceae	annual herb	May-Aug	4.3	S3	G3
Claytonia parviflora ssp. grandiflora	streambank spring beauty	Montiaceae	annual herb	Feb-May	4.2	S3	G5T3
Cryptantha spithamaea	Red Hills cryptantha	Boraginaceae	annual herb	Apr-May	1B.3	S2	G2
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Diplacus pulchellus	yellow-lip pansy monkeyflower	Phrymaceae	annual herb	Apr-Jul	1B.2	S2	G2
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual / perennial herb	May-Aug	1B.2	S2	G2
Erythranthe marmorata	Stanislaus monkeyflower	Phrymaceae	annual herb	Mar-May	1B.1	SX	GXQ
Erythronium tuolumnense	Tuolumne fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jun	1B.2	S2S3	G2G3
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	1B.2	S2	G2
Iris hartwegii ssp. columbiana	Tuolumne iris	Iridaceae	perennial rhizomatous herb	May-Jun	1B.2	S1	G4T1
	dubious pea	Fabaceae	perennial herb	Apr-May	3	S1S2	G5T1T2

Lathyrus sulphureus var. argillaceus							
Lilium humboldtii ssp. humboldtii	Humboldt lily	Liliaceae	perennial bulbiferous herb	May-Jul(Aug)	4.2	S3	G4T3
Lomatium stebbinsii	Stebbins' lomatium	Apiaceae	perennial herb	Mar-May	1B.1	S2	G2
Navarretia paradoxiclara	Patterson's navarretia	Polemoniaceae	annual herb	May-Jun(Jul)	1B.3	S2	G2
Peltigera gowardii	western waterfan lichen	Peltigeraceae	foliose lichen (aquatic)		4.2	S3	G3G4
Piperia colemanii	Coleman's rein orchid	Orchidaceae	perennial herb	Jun-Aug	4.3	S4	G4

Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 19 May 2017].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

27 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3812034, 3812033, 3812032, 3812024, 3812023, 3812022, 3812014 3812013 and 3812012;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Allium sanbornii var. sanbornii	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	4.2	S4?	G3T4?
Allium tribracteatum	three-bracted onion	Alliaceae	perennial bulbiferous herb	Apr-Aug	1B.2	S2	G2
Bolandra californica	Sierra bolandra	Saxifragaceae	perennial herb	Jun-Jul	4.3	S4	G4
Botrychium crenulatum	scalloped moonwort	Ophioglossaceae	perennial rhizomatous herb	Jun-Sep	2B.2	S3	G4
Botrychium minganense	Mingan moonwort	Ophioglossaceae	perennial rhizomatous herb	Jul-Sep	2B.2	S3	G4G5
Botrychium montanum	western goblin	Ophioglossaceae	perennial rhizomatous herb	Jul-Sep	2B.1	S2	G3
Calochortus clavatus var. avius	Pleasant Valley mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	1B.2	S2	G4T2
Carex davyi	Davy's sedge	Cyperaceae	perennial herb	May-Aug	1B.3	S3	G3
Ceanothus fresnensis	Fresno ceanothus	Rhamnaceae	perennial evergreen shrub	May-Jul	4.3	S4	G4
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	May-Jun	1B.2	S2	G2
Clarkia australis	Small's southern clarkia	Onagraceae	annual herb	May-Aug	1B.2	S2	G2
Clarkia biloba ssp. australis	Mariposa clarkia	Onagraceae	annual herb	Apr-Jul	1B.2	S2S3	G4G5T2T3
Clarkia virgata	Sierra clarkia	Onagraceae	annual herb	May-Aug	4.3	S3	G3
Claytonia parviflora ssp. grandiflora	streambank spring beauty	Montiaceae	annual herb	Feb-May	4.2	S3	G5T3
Claytonia umbellata	Great Basin claytonia	Montiaceae	perennial herb	May-Aug	2B.3	S1	G5?
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Diplacus pulchellus	yellow-lip pansy monkeyflower	Phrymaceae	annual herb	Apr-Jul	1B.2	S2	G2
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual / perennial herb	May-Aug	1B.2	S2	G2
Erythranthe marmorata	Stanislaus	Phrymaceae	annual herb	Mar-May	1B.1	SX	GXQ

	monkeyflower						
Erythronium tuolumnense	Tuolumne fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jun	1B.2	S2S3	G2G3
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	1B.2	S2	G2
Iris hartwegii ssp. columbiana	Tuolumne iris	Iridaceae	perennial rhizomatous herb	May-Jun	1B.2	S1	G4T1
Lilium humboldtii ssp. humboldtii	Humboldt lily	Liliaceae	perennial bulbiferous herb	May-Jul(Aug)	4.2	S3	G4T3
Lomatium stebbinsii	Stebbins' lomatium	Apiaceae	perennial herb	Mar-May	1B.1	S2	G2
Peltigera gowardii	western waterfan lichen	Peltigeraceae	foliose lichen (aquatic)		4.2	S3	G3G4
Piperia colemanii	Coleman's rein orchid	Orchidaceae	perennial herb	Jun-Aug	4.3	S4	G4

Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 19 May 2017].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society

United States Department of the Interior

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

In Reply Refer To: May 19, 2017
Consultation Code: 08ESMF00-2017-SLI-2096
Event Code: 08ESMF00-2017-E-05434
Project Name: Calaveras County Water District Ebbetts Pass Reach 1 Water Transmission Pipeline

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the

Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

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

Project Summary

Consultation Code: 08ESMF00-2017-SLI-2096

Event Code: 08ESMF00-2017-E-05434

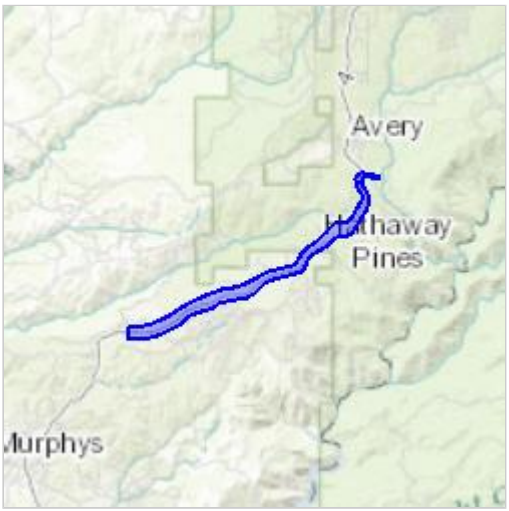
Project Name: Calaveras County Water District Ebbetts Pass Reach 1 Water Transmission Pipeline

Project Type: WATER SUPPLY / DELIVERY

Project Description: Water transmission pipeline.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.18131626269809N120.38074840243951W



Counties: Calaveras, CA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Amphibians

NAME	STATUS
California Red-legged Frog *(Rana draytonii)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
Sierra Nevada Yellow-legged Frog *(Rana sierrae)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9529	Endangered

Fishes

NAME	STATUS
Delta Smelt *(Hypomesus transpacificus)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Steelhead *(Oncorhynchus (=Salmo) mykiss)* Population: Northern California DPS There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1007	Threatened

Critical habitats

There are no critical habitats within your project area.

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

Calaveras 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] are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

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.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
Sierra Nevada Yellow-legged Frog Rana sierrae There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/9529	Endangered

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened
Steelhead Oncorhynchus (=Salmo) mykiss There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/1007	Threatened

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 activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

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
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	Year-round
Black-chinned Sparrow Spizella atrogularis https://ecos.fws.gov/ecp/species/9447	Breeding
Burrowing Owl Athene cunicularia https://ecos.fws.gov/ecp/species/9737	Year-round
California Spotted Owl Strix occidentalis occidentalis https://ecos.fws.gov/ecp/species/7266	Year-round
Calliope Hummingbird Stellula calliope https://ecos.fws.gov/ecp/species/9526	Breeding
Costa's Hummingbird Calypte costae https://ecos.fws.gov/ecp/species/9470	Year-round
Flammulated Owl Otus flammeolus https://ecos.fws.gov/ecp/species/7728	Breeding
Fox Sparrow Passerella iliaca	Year-round
Green-tailed Towhee Pipilo chlorurus https://ecos.fws.gov/ecp/species/9444	Breeding
Lewis's Woodpecker Melanerpes lewis https://ecos.fws.gov/ecp/species/9408	Wintering
Loggerhead Shrike Lanius ludovicianus https://ecos.fws.gov/ecp/species/8833	Year-round
Oak Titmouse Baeolophus inornatus https://ecos.fws.gov/ecp/species/9656	Year-round

Olive-sided Flycatcher Contopus cooperi https://ecos.fws.gov/ecp/species/3914	Breeding
Peregrine Falcon Falco peregrinus https://ecos.fws.gov/ecp/species/8831	Wintering
Rufous Hummingbird selasphorus rufus https://ecos.fws.gov/ecp/species/8002	Breeding, Migrating
Rufous-crowned Sparrow Aimophila ruficeps https://ecos.fws.gov/ecp/species/9718	Year-round
Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	Wintering
Snowy Plover Charadrius alexandrinus	Breeding
Swainson's Hawk Buteo swainsoni https://ecos.fws.gov/ecp/species/1098	Breeding
Western Grebe aechmophorus occidentalis https://ecos.fws.gov/ecp/species/6743	Wintering
White Headed Woodpecker Picoides albolarvatus https://ecos.fws.gov/ecp/species/9411	Year-round
Williamson's Sapsucker Sphyrapicus thyroideus https://ecos.fws.gov/ecp/species/8832	Year-round
Willow Flycatcher Empidonax traillii https://ecos.fws.gov/ecp/species/3482	Breeding
Yellow-billed Magpie Pica nuttalli https://ecos.fws.gov/ecp/species/9726	Year-round

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

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 NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES 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.

This location overlaps the following wetlands:

FRESHWATER POND
PUBFh

A full description for each wetland code can be found at the National Wetlands Inventory website: https://ecos.fws.gov/ipac/wetlands/decoder

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.

ATTACHMENT B

Representative Site Photographs

Photo 1. Annual forb meadow northeast of Forest Meadows Drive, with seeps in background, facing southwest (May 24, 2017).

Photo 2. California black oak forest north of Hunter Dam Road, facing east (May 25, 2017).

Photo 3. Ponderosa pine forest south of Hunter Dam Road, facing north (May 25, 2017).

Photo 4. SR-4 and ponderosa pine forest southwest of Canyon View Drive, facing southwest (May 25, 2017).

Photo 5. Seasonal wetland swale east of Red Apple Drive, facing southwest (May 25, 2017).

Photo 6. Ditch south of Red Apple Drive, facing west (May 25, 2017).

Photo 7. Ephemeral drainage southwest of Stanislaus National Forest office, facing southeast (July 12, 2017).

Photo 8. SR-4 and ditch at southwestern end of Project alignment, facing southwest (July 13, 2017).

APPENDIX C

Arborists Inventory and Impacted Tree List

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1	Valley Oak	*(Quercus lobata)*	3,3,4,4, 4,5,5,5	33	13	Fair	Fair
2	Ponderosa Pine	*(Pinus ponderosa)*		12	12	Fair	Fair
3	Valley Oak	*(Quercus lobata)*	2,2,2, 3,3,4,5	21	12	Fair	Fair
4	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Fair	Fair
5	Valley Oak	*(Quercus lobata)*	4,4,4,4, 5,5,5	31	16	Poor to fair	Fair
6	Incense Cedar	*(Calocedrus decurrens)*		18	20	Poor to fair	Poor
7	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
8	Incense Cedar	*(Calocedrus decurrens)*		8	10	Fair	Poor to fair
9	Ponderosa Pine	*(Pinus ponderosa)*		14	13	Fair	Fair
10	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
11	Ponderosa Pine	*(Pinus ponderosa)*		8	9	Fair	Fair
12	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
13	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
14	Ponderosa Pine	*(Pinus ponderosa)*		33	25	Fair	Fair
15	Ponderosa Pine	*(Pinus ponderosa)*		7	6	Fair	Fair
16	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
17	Ponderosa Pine	*(Pinus ponderosa)*		34	22	Fair	Fair
18	Ponderosa Pine	*(Pinus ponderosa)*		23	21	Fair	Fair
19	Ponderosa Pine	*(Pinus ponderosa)*		17	17	Fair	Fair
20	Incense Cedar	*(Calocedrus decurrens)*		15	16	Fair	Fair
21	Ponderosa Pine	*(Pinus ponderosa)*		8	9	Fair	Fair
22	Incense Cedar	*(Calocedrus decurrens)*		9	8	Fair	Fair
23	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
24	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
25	Incense Cedar	*(Calocedrus decurrens)*		7	9	Fair	Fair
26	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
27	Ponderosa Pine	*(Pinus ponderosa)*		32	25	Fair	Fair
28	Black Oak	*(Quercus velutina)*		17	20	Poor to fair	Fair
29	Ponderosa Pine	*(Pinus ponderosa)*		20	22	Fair	Fair
30	Ponderosa Pine	*(Pinus ponderosa)*		7	6	Poor to fair	Poor to fair
31	Ponderosa Pine	*(Pinus ponderosa)*		9	10	Fair	Fair
32	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
33	Sugar Pine	*(Pinus lambertiana)*	22,31	53	22	Fair	Fair
34	Ponderosa Pine	*(Pinus ponderosa)*		18	20	Fair	Fair
35	Ponderosa Pine	*(Pinus ponderosa)*		33	24	Fair	Fair
36	Ponderosa Pine	*(Pinus ponderosa)*		21	17	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
37	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
38	Ponderosa Pine	*(Pinus ponderosa)*		34	25	Fair	Fair
39	Incense Cedar	*(Calocedrus decurrens)*		14	8	Fair	Fair
40	Ponderosa Pine	*(Pinus ponderosa)*		29	27	Fair	Fair
41	Ponderosa Pine	*(Pinus ponderosa)*		27	24	Fair	Fair
42	Incense Cedar	*(Calocedrus decurrens)*		15	9	Fair	Fair
43	Ponderosa Pine	*(Pinus ponderosa)*		18	18	Fair	Fair
44	Ponderosa Pine	*(Pinus ponderosa)*		28	25	Fair	Fair
45	Ponderosa Pine	*(Pinus ponderosa)*		26	22	Fair	Fair
46	Ponderosa Pine	*(Pinus ponderosa)*		38	27	Fair	Fair
47	Sugar Pine	*(Pinus lambertiana)*		8	10	Fair	Fair
48	Incense Cedar	*(Calocedrus decurrens)*		7	6	Fair	Fair
49	Ponderosa Pine	*(Pinus ponderosa)*		30	24	Fair	Fair
50	Ponderosa Pine	*(Pinus ponderosa)*		42	27	Fair	Fair
51	Ponderosa Pine	*(Pinus ponderosa)*		10	9	Fair	Fair
52	Sugar Pine	*(Pinus lambertiana)*		6	7	Fair	Fair
53	Ponderosa Pine	*(Pinus ponderosa)*		31	25	Fair	Fair
54	Ponderosa Pine	*(Pinus ponderosa)*		34	20	Poor to fair	Fair
55	Sugar Pine	*(Pinus lambertiana)*		5	7	Fair	Fair
56	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Poor to fair	Fair
57	Ponderosa Pine	*(Pinus ponderosa)*		16	9	Fair	Fair
58	Ponderosa Pine	*(Pinus ponderosa)*		13	9	Poor to fair	Fair
59	Incense Cedar	*(Calocedrus decurrens)*		8	9	Poor to fair	Fair
60	Incense Cedar	*(Calocedrus decurrens)*		9	8	Fair	Fair
61	Ponderosa Pine	*(Pinus ponderosa)*		23	21	Fair	Fair
62	Ponderosa Pine	*(Pinus ponderosa)*		10	10	Fair	Fair
63	Incense Cedar	*(Calocedrus decurrens)*		29	16	Fair	Fair
64	Incense Cedar	*(Calocedrus decurrens)*		37	20	Fair	Fair
65	Black Oak	*(Quercus velutina)*		5	8	Fair	Fair
66	Ponderosa Pine	*(Pinus ponderosa)*		35	20	Fair	Fair
67	Ponderosa Pine	*(Pinus ponderosa)*		35	27	Fair	Fair
68	Incense Cedar	*(Calocedrus decurrens)*		39	24	Fair	Poor to fair
69	Incense Cedar	*(Calocedrus decurrens)*		28	16	Fair	Fair
70	Incense Cedar	*(Calocedrus decurrens)*		14	17	Fair	Poor to fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
71	Ponderosa Pine	*(Pinus ponderosa)*		46	28	Fair	Fair
72	Incense Cedar	*(Calocedrus decurrens)*		14	16	Fair	Fair
73	Incense Cedar	*(Calocedrus decurrens)*		14	20	Fair	Fair
74	Incense Cedar	*(Calocedrus decurrens)*		29	20	Fair	Fair
75	Ponderosa Pine	*(Pinus ponderosa)*		27	25	Fair	Fair
76	Incense Cedar	*(Calocedrus decurrens)*		15	8	Fair	Poor to fair
77	Black Oak	*(Quercus velutina)*		5	6	Fair	Fair
78	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
79	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
80	Ponderosa Pine	*(Pinus ponderosa)*		33	25	Fair	Fair
81	Incense Cedar	*(Calocedrus decurrens)*		41	25	Fair	Fair
82	Incense Cedar	*(Calocedrus decurrens)*		19	17	Fair	Fair
83	Incense Cedar	*(Calocedrus decurrens)*		16	12	Fair	Fair
84	Ponderosa Pine	*(Pinus ponderosa)*		24	22	Fair	Fair
85	Incense Cedar	*(Calocedrus decurrens)*		17	20	Fair	Fair
86	Ponderosa Pine	*(Pinus ponderosa)*		48	30	Fair	Fair
87	Incense Cedar	*(Calocedrus decurrens)*		15	18	Poor to fair	Fair
88	Black Oak	*(Quercus velutina)*	4,6	10	9	Poor to fair	Fair
89	Incense Cedar	*(Calocedrus decurrens)*		17	16	Fair	Fair
90	Incense Cedar	*(Calocedrus decurrens)*		6	5	Fair	Fair
91	Ponderosa Pine	*(Pinus ponderosa)*		41	28	Fair	Fair
92	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
93	Ponderosa Pine	*(Pinus ponderosa)*		30	20	Fair	Fair
94	Ponderosa Pine	*(Pinus ponderosa)*		38	30	Fair	Fair
95	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
96	Incense Cedar	*(Calocedrus decurrens)*		12	8	Fair	Fair
97	Incense Cedar	*(Calocedrus decurrens)*		11	8	Fair	Fair
98	Incense Cedar	*(Calocedrus decurrens)*		9	6	Fair	Poor to fair
99	***Number not used***						
100	Ponderosa Pine	*(Pinus ponderosa)*		10	8	Fair	Fair
101	Incense Cedar	*(Calocedrus decurrens)*		11	6	Poor to fair	Fair
102	Ponderosa Pine	*(Pinus ponderosa)*		30	24	Fair	Fair
103	Incense Cedar	*(Calocedrus decurrens)*		18	14	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
104	Ponderosa Pine	*(Pinus ponderosa)*		7	5	Fair	Fair
105	Black Oak	*(Quercus velutina)*		14	17	Fair	Fair
106	Black Oak	*(Quercus velutina)*		10	14	Fair	Fair
107	Ponderosa Pine	*(Pinus ponderosa)*		12	14	Fair	Fair
108	Ponderosa Pine	*(Pinus ponderosa)*		16	17	Fair	Fair
109	Black Oak	*(Quercus velutina)*		13	15	Fair	Fair
110	Black Oak	*(Quercus velutina)*	12,17	29	24	Fair	Fair
111	Black Oak	*(Quercus velutina)*		7	11	Fair	Fair
112	Incense Cedar	*(Calocedrus decurrens)*		7	6	Fair	Fair
113	Ponderosa Pine	*(Pinus ponderosa)*		45	28	Fair	Fair
114	Black Oak	*(Quercus velutina)*		4	5	Fair	Fair
115	Black Oak	*(Quercus velutina)*		14	18	Fair	Fair
116	Incense Cedar	*(Calocedrus decurrens)*	8,9	17	10	Poor to fair	Fair
117	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
118	Black Oak	*(Quercus velutina)*		16	23	Fair	Fair
119	Black Oak	*(Quercus velutina)*		13	25	Fair	Fair
120	Ponderosa Pine	*(Pinus ponderosa)*		12	14	Fair	Fair
121	Black Oak	*(Quercus velutina)*		14	20	Poor to fair	Fair
122	Incense Cedar	*(Calocedrus decurrens)*		9	7	Fair	Fair
123	Ponderosa Pine	*(Pinus ponderosa)*		5	8	Fair	Fair
124	Ponderosa Pine	*(Pinus ponderosa)*		14	13	Fair	Fair
125	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Fair	Fair
126	Ponderosa Pine	*(Pinus ponderosa)*		10	9	Fair	Fair
127	Ponderosa Pine	*(Pinus ponderosa)*		10	10	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
128	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
129	Sugar Pine	*(Pinus lambertiana)*		7	8	Fair	Fair
130	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
131	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
132	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
133	Ponderosa Pine	*(Pinus ponderosa)*		10	8	Fair	Fair
134	Ponderosa Pine	*(Pinus ponderosa)*		10	8	Fair	Fair
135	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
136	Black Oak	*(Quercus velutina)*	5,6	11	13	Fair	Fair
137	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
138	Ponderosa Pine	*(Pinus ponderosa)*		8	7	Fair	Fair
139	Ponderosa Pine	*(Pinus ponderosa)*		11	14	Fair	Fair
140	Ponderosa Pine	*(Pinus ponderosa)*		14	17	Fair	Fair
141	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
142	Incense Cedar	*(Calocedrus decurrens)*		7	8	Poor to fair	Fair
143	Incense Cedar	*(Calocedrus decurrens)*		6	7	Poor to fair	Fair
144	Ponderosa Pine	*(Pinus ponderosa)*		11	10	Fair	Fair
145	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
146	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
147	Ponderosa Pine	*(Pinus ponderosa)*		6	8	Poor	Poor
148	Ponderosa Pine	*(Pinus ponderosa)*		5	7	Fair	Fair
149	Ponderosa Pine	*(Pinus ponderosa)*		11	10	Fair	Fair
150	Ponderosa Pine	*(Pinus ponderosa)*		6	5	Fair	Fair
151	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Poor to fair	Fair
152	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
153	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
154	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
155	Ponderosa Pine	*(Pinus ponderosa)*		8	9	Fair	Fair
156	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
157	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
158	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Poor to fair	Fair
159	Incense Cedar	*(Calocedrus decurrens)*		37	26	Fair	Fair
160	Ponderosa Pine	*(Pinus ponderosa)*		38	28	Fair	Fair
161	Ponderosa Pine	*(Pinus ponderosa)*		41	30	Fair	Fair
162	Ponderosa Pine	*(Pinus ponderosa)*		16	17	Fair	Fair
163	Ponderosa Pine	*(Pinus ponderosa)*		4	4	Fair	Fair
164	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
165	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
166	Ponderosa Pine	*(Pinus ponderosa)*		5	7	Fair	Fair
167	Ponderosa Pine	*(Pinus ponderosa)*		4	6	Fair	Fair
168	Ponderosa Pine	*(Pinus ponderosa)*		6	9	Fair	Fair
169	Ponderosa Pine	*(Pinus ponderosa)*		12	14	Fair	Fair
170	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
171	Ponderosa Pine	*(Pinus ponderosa)*		4	6	Fair	Fair
172	Ponderosa Pine	*(Pinus ponderosa)*		5	7	Fair	Fair
173	Ponderosa Pine	*(Pinus ponderosa)*		10	11	Fair	Fair
174	Ponderosa Pine	*(Pinus ponderosa)*		12	14	Fair	Fair
175	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
176	Ponderosa Pine	*(Pinus ponderosa)*		15	17	Fair	Fair
177	Ponderosa Pine	*(Pinus ponderosa)*		9	8	Fair	Fair
178	Ponderosa Pine	*(Pinus ponderosa)*		16	16	Fair	Fair
179	Ponderosa Pine	*(Pinus ponderosa)*		11	15	Fair	Fair
180	Ponderosa Pine	*(Pinus ponderosa)*		13	15	Fair	Fair
181	Incense Cedar	*(Calocedrus decurrens)*		36	19	Fair	Fair
182	Ponderosa Pine	*(Pinus ponderosa)*		41	28	Fair	Fair
183	Incense Cedar	*(Calocedrus decurrens)*		13	17	Poor	Fair
184	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
185	Black Oak	*(Quercus velutina)*		5	9	Fair	Fair
186	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
187	Black Oak	*(Quercus velutina)*		4	6	Fair	Fair
188	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
189	Ponderosa Pine	*(Pinus ponderosa)*		8	10	Poor	Poor
190	Black Oak	*(Quercus velutina)*		7	10	Fair	Fair
191	Black Oak	*(Quercus velutina)*		9	15	Fair	Fair
192	Ponderosa Pine	*(Pinus ponderosa)*		8	7	Poor to fair	Fair
193	Incense Cedar	*(Calocedrus decurrens)*		10	10	Poor to fair	Fair
194	Black Oak	*(Quercus velutina)*		8	17	Poor to fair	Fair
195	Black Oak	*(Quercus velutina)*		8	15	Poor to fair	Fair
196	Incense Cedar	*(Calocedrus decurrens)*		7	10	Poor to fair	Fair
197	Black Oak	*(Quercus velutina)*		10	19	Poor to fair	Fair
198	Incense Cedar	*(Calocedrus decurrens)*		8	10	Poor to fair	Fair
199	Black Oak	*(Quercus velutina)*		7	11	Poor to fair	Fair
200	Incense Cedar	*(Calocedrus decurrens)*		14	16	Poor to fair	Fair
201	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Poor to fair	Fair
202	Incense Cedar	*(Calocedrus decurrens)*		7	9	Poor to fair	Fair
203	Ponderosa Pine	*(Pinus ponderosa)*		31	26	Fair	Fair
204	Incense Cedar	*(Calocedrus decurrens)*		10	12	Poor to fair	Fair
205	Incense Cedar	*(Calocedrus decurrens)*		9	10	Poor to fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
206	Incense Cedar	*(Calocedrus decurrens)*		13	15	Poor to fair	Fair
207	Incense Cedar	*(Calocedrus decurrens)*		7	8	Poor	Fair
208	Incense Cedar	*(Calocedrus decurrens)*		7	11	Poor to fair	Fair
209	Incense Cedar	*(Calocedrus decurrens)*		9	13	Poor	Fair
210	Incense Cedar	*(Calocedrus decurrens)*		6	6	Poor to fair	Fair
211	Ponderosa Pine	*(Pinus ponderosa)*		7	17	Poor to fair	Fair
212	Incense Cedar	*(Calocedrus decurrens)*		16	18	Poor	Fair
213	Incense Cedar	*(Calocedrus decurrens)*		8	8	Poor	Fair
214	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Poor	Fair
215	Incense Cedar	*(Calocedrus decurrens)*		6	6	Poor to fair	Fair
216	Incense Cedar	*(Calocedrus decurrens)*		9	10	Poor to fair	Fair
217	Incense Cedar	*(Calocedrus decurrens)*		11	12	Poor	Fair
218	Ponderosa Pine	*(Pinus ponderosa)*		11	13	Poor	Fair
219	Incense Cedar	*(Calocedrus decurrens)*		9	9	Poor	Fair
220	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Poor to fair	Fair
221	Incense Cedar	*(Calocedrus decurrens)*		20	18	Poor	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
222	Incense Cedar	*(Calocedrus decurrens)*		11	14	Poor	Fair
223	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Poor	Fair
224	Ponderosa Pine	*(Pinus ponderosa)*		8	7	Poor	Fair
225	Black Oak	*(Quercus velutina)*		8	15	Poor to fair	Fair
226	Incense Cedar	*(Calocedrus decurrens)*		14	17	Poor	Fair
227	Incense Cedar	*(Calocedrus decurrens)*		15	17	Poor	Fair
228	Black Oak	*(Quercus velutina)*		4	11	Poor to fair	Fair
229	Incense Cedar	*(Calocedrus decurrens)*		6	6	Poor to fair	Fair
230	Incense Cedar	*(Calocedrus decurrens)*		6	6	Poor to fair	Fair
231	Incense Cedar	*(Calocedrus decurrens)*		8	9	Poor to fair	Fair
232	Incense Cedar	*(Calocedrus decurrens)*		8	10	Poor	Fair
233	Incense Cedar	*(Calocedrus decurrens)*		12	12	Poor to fair	Fair
234	Incense Cedar	*(Calocedrus decurrens)*		9	6	Fair	Fair
235	Incense Cedar	*(Calocedrus decurrens)*		7	8	Poor to fair	Fair
236	Black Oak	*(Quercus velutina)*		5	9	Poor to fair	Fair
237	Incense Cedar	*(Calocedrus decurrens)*		5	9	Poor to fair	Fair
238	Incense Cedar	*(Calocedrus decurrens)*		7	5	Fair	Fair
239	Incense Cedar	*(Calocedrus decurrens)*		7	8	Poor to fair	Fair
240	Ponderosa Pine	*(Pinus ponderosa)*		4	7	Fair	Fair
241	Ponderosa Pine	*(Pinus ponderosa)*		4	7	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
242	Ponderosa Pine	*(Pinus ponderosa)*		4	6	Fair	Fair
243	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
244	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
245	Incense Cedar	*(Calocedrus decurrens)*		6	8	Poor to fair	Fair
246	Black Oak	*(Quercus velutina)*		6	15	Poor to fair	Fair
247	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
248	Ponderosa Pine	*(Pinus ponderosa)*		28	24	Fair	Fair
249	Ponderosa Pine	*(Pinus ponderosa)*		31	25	Fair	Fair
250	Ponderosa Pine	*(Pinus ponderosa)*		14	12	Fair	Fair
251	Ponderosa Pine	*(Pinus ponderosa)*		29	26	Fair	Fair
252	Incense Cedar	*(Calocedrus decurrens)*		22	17	Fair	Fair
253	Incense Cedar	*(Calocedrus decurrens)*		6	12	Fair	Fair
254	Incense Cedar	*(Calocedrus decurrens)*		15	17	Fair	Fair
255	Incense Cedar	*(Calocedrus decurrens)*		10	11	Poor to fair	Fair
256	Ponderosa Pine	*(Pinus ponderosa)*		30	26	Fair	Fair
257	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
258	Ponderosa Pine	*(Pinus ponderosa)*		18	20	Fair	Fair
259	Ponderosa Pine	*(Pinus ponderosa)*		17	15	Fair	Fair
260	Incense Cedar	*(Calocedrus decurrens)*		13	14	Poor to fair	Fair
261	Incense Cedar	*(Calocedrus decurrens)*		8	8	Poor to fair	Fair
262	Incense Cedar	*(Calocedrus decurrens)*		13	14	Fair	Fair
263	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
264	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
265	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
266	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
267	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
268	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
269	Incense Cedar	*(Calocedrus decurrens)*		6	5	Fair	Poor to fair
270	Tan Oak	*(Notholithocarpus densiflorus)*		4	10	Fair	Fair
271	Incense Cedar	*(Calocedrus decurrens)*		7	9	Fair	Fair
272	Incense Cedar	*(Calocedrus decurrens)*		8	10	Fair	Fair
273	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
274	Incense Cedar	*(Calocedrus decurrens)*		4	3	Fair	Poor to fair
275	Incense Cedar	*(Calocedrus decurrens)*		5	7	Fair	Poor to fair
276	Incense Cedar	*(Calocedrus decurrens)*		20	17	Poor	Fair
277	Incense Cedar	*(Calocedrus decurrens)*		15	13	Poor to fair	Fair
278	Ponderosa Pine	*(Pinus ponderosa)*		34	25	Fair	Fair
279	Incense Cedar	*(Calocedrus decurrens)*		11	13	Fair	Fair
280	Incense Cedar	*(Calocedrus decurrens)*		11	10	Fair	Fair
281	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
282	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
283	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
284	Tan Oak	*(Notholithocarpus densiflorus)*		19	28	Fair	Fair
285	Incense Cedar	*(Calocedrus decurrens)*		15	17	Fair	Fair
286	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
287	Incense Cedar	*(Calocedrus decurrens)*		25	23	Fair	Fair
288	Incense Cedar	*(Calocedrus decurrens)*		16	15	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
289	Redbud	*(Cercis canadensis)*	2,3,4,5,6	20	12	Fair	Fair
290	Incense Cedar	*(Calocedrus decurrens)*		21	21	Fair	Fair
291	Incense Cedar	*(Calocedrus decurrens)*		29	25	Fair	Fair
292	Incense Cedar	*(Calocedrus decurrens)*		24	22	Fair	Fair
293	Incense Cedar	*(Calocedrus decurrens)*		14	10	Fair	Fair
294	Incense Cedar	*(Calocedrus decurrens)*		22	22	Poor to fair	Fair
295	Incense Cedar	*(Calocedrus decurrens)*		21	20	Fair	Fair
296	Incense Cedar	*(Calocedrus decurrens)*		36	27	Fair	Fair
297	Incense Cedar	*(Calocedrus decurrens)*		14	16	Fair	Fair
298	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
299	Ponderosa Pine	*(Pinus ponderosa)*		27	25	Fair	Fair
300	Ponderosa Pine	*(Pinus ponderosa)*		23	22	Fair	Fair
301	Incense Cedar	*(Calocedrus decurrens)*		14	14	Fair	Fair
302	Ponderosa Pine	*(Pinus ponderosa)*		24	25	Fair	Fair
303	Black Oak	*(Quercus velutina)*		5	14	Fair	Fair
304	Ponderosa Pine	*(Pinus ponderosa)*		26	28	Fair	Fair
305	Ponderosa Pine	*(Pinus ponderosa)*		30	28	Fair	Fair
306	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
307	Incense Cedar	*(Calocedrus decurrens)*		17	15	Fair	Fair
308	Incense Cedar	*(Calocedrus decurrens)*		10	12	Fair	Fair
309	Ponderosa Pine	*(Pinus ponderosa)*		16	15	Fair	Fair
310	Incense Cedar	*(Calocedrus decurrens)*		7	6	Fair	Poor to fair
311	Incense Cedar	*(Calocedrus decurrens)*		17	15	Fair	Fair
312	Incense Cedar	*(Calocedrus decurrens)*		9	15	Poor	Fair
313	Incense Cedar	*(Calocedrus decurrens)*		8	10	Fair	Fair
314	Incense Cedar	*(Calocedrus decurrens)*		9	12	Fair	Fair
315	Incense Cedar	*(Calocedrus decurrens)*		15	14	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
316	Incense Cedar	*(Calocedrus decurrens)*		45	30	Fair	Fair
317	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
318	Black Oak	*(Quercus velutina)*		6	9	Fair	Fair
319	Ponderosa Pine	*(Pinus ponderosa)*		14	12	Fair	Fair
320	Ponderosa Pine	*(Pinus ponderosa)*		8	7	Fair	Fair
321	Ponderosa Pine	*(Pinus ponderosa)*		9	9	Fair	Fair
322	Ponderosa Pine	*(Pinus ponderosa)*		29	25	Fair	Fair
323	Ponderosa Pine	*(Pinus ponderosa)*		6	5	Fair	Fair
324	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
325	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Fair	Fair
326	Ponderosa Pine	*(Pinus ponderosa)*		41	29	Fair	Fair
327	Ponderosa Pine	*(Pinus ponderosa)*		29	24	Fair	Fair
328	White Fir	*(Abies concolor)*		6	7	Fair	Fair
329	Incense Cedar	*(Calocedrus decurrens)*		6	5	Poor to fair	Poor to fair
330	Ponderosa Pine	*(Pinus ponderosa)*		17	20	Fair	Fair
331	White Fir	*(Abies concolor)*		7	8	Fair	Fair
332	Incense Cedar	*(Calocedrus decurrens)*		31	24	Fair	Fair
333	Ponderosa Pine	*(Pinus ponderosa)*		20	18	Fair	Fair
334	Ponderosa Pine	*(Pinus ponderosa)*		23	23	Fair	Fair
335	Sugar Pine	*(Pinus lambertiana)*		23	18	Fair	Fair
336	Incense Cedar	*(Calocedrus decurrens)*		9	8	Fair	Fair
337	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
338	White Fir	*(Abies concolor)*		9	12	Fair	Fair
339	Incense Cedar	*(Calocedrus decurrens)*		19	15	Fair	Fair
340	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
341	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
342	Ponderosa Pine	*(Pinus ponderosa)*		31	24	Fair	Fair
343	Ponderosa Pine	*(Pinus ponderosa)*		29	24	Fair	Fair
344	Incense Cedar	*(Calocedrus decurrens)*		8	10	Fair	Fair
345	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
346	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
347	Ponderosa Pine	*(Pinus ponderosa)*		13	12	Fair	Fair
348	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
349	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
350	Incense Cedar	*(Calocedrus decurrens)*		21	17	Fair	Fair
351	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
352	Incense Cedar	*(Calocedrus decurrens)*		5	4	Fair	Fair
353	Ponderosa Pine	*(Pinus ponderosa)*		24	24	Fair	Fair
354	Ponderosa Pine	*(Pinus ponderosa)*		13	13	Fair	Fair
355	Ponderosa Pine	*(Pinus ponderosa)*		30	28	Fair	Fair
356	Ponderosa Pine	*(Pinus ponderosa)*		19	20	Fair	Fair
357	Ponderosa Pine	*(Pinus ponderosa)*		20	20	Fair	Fair
358	Ponderosa Pine	*(Pinus ponderosa)*		10	9	Fair	Fair
359	Ponderosa Pine	*(Pinus ponderosa)*		12	22	Fair	Fair
360	Ponderosa Pine	*(Pinus ponderosa)*		13	20	Fair	Fair
361	Ponderosa Pine	*(Pinus ponderosa)*		11	15	Poor	Poor
362	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
363	Ponderosa Pine	*(Pinus ponderosa)*		14	14	Fair	Fair
364	Canyon Live Oak	*(Quercus chrysolepis)*		5	8	Fair	Fair
365	Ponderosa Pine	*(Pinus ponderosa)*		6	8	Fair	Fair
366	Ponderosa Pine	*(Pinus ponderosa)*		14	13	Fair	Fair
367	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair
368	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
369	Incense Cedar	*(Calocedrus decurrens)*		14	16	Fair	Fair
370	Ponderosa Pine	*(Pinus ponderosa)*		28	22	Fair	Fair
371	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
372	Ponderosa Pine	*(Pinus ponderosa)*		13	16	Fair	Fair
373	Ponderosa Pine	*(Pinus ponderosa)*		13	15	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
374	Ponderosa Pine	*(Pinus ponderosa)*		13	15	Fair	Fair
375	Ponderosa Pine	*(Pinus ponderosa)*		5	4	Poor to fair	Poor to fair
376	White Fir	*(Abies concolor)*		6	8	Fair	Fair
377	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
378	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
379	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
380	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
381	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
382	Incense Cedar	*(Calocedrus decurrens)*		7	7	Poor to fair	Poor
383	Sugar Pine	*(Pinus lambertiana)*		6	7	Fair	Fair
384	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
385	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
386	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
387	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
388	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
389	Incense Cedar	*(Calocedrus decurrens)*		20	19	Fair	Fair
390	Incense Cedar	*(Calocedrus decurrens)*		21	23	Fair	Fair
391	Ponderosa Pine	*(Pinus ponderosa)*		22	19	Fair	Fair
392	Incense Cedar	*(Calocedrus decurrens)*		5	8	Poor to fair	Fair
393	Incense Cedar	*(Calocedrus decurrens)*		19	18	Fair	Fair
394	Incense Cedar	*(Calocedrus decurrens)*		14	13	Fair	Fair
395	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
396	Incense Cedar	*(Calocedrus decurrens)*		8	7	Fair	Fair
397	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
398	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
399	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
400	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
401	Incense Cedar	*(Calocedrus decurrens)*		8	9	Poor to fair	Fair
402	Incense Cedar	*(Calocedrus decurrens)*		4	6	Poor to fair	Poor to fair
403	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
404	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
405	Incense Cedar	*(Calocedrus decurrens)*		14	15	Fair	Fair
406	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
407	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
408	Incense Cedar	*(Calocedrus decurrens)*		7	11	Fair	Fair
409	Incense Cedar	*(Calocedrus decurrens)*	8,10	18	14	Fair	Fair
410	Incense Cedar	*(Calocedrus decurrens)*		10	6	Fair	Fair
411	Incense Cedar	*(Calocedrus decurrens)*		19	20	Fair	Fair
412	Tan Oak	*(Notholithocarpus densiflorus)*	4,6	10	17	Fair	Fair
413	Tan Oak	*(Notholithocarpus densiflorus)*		12	16	Fair	Fair
414	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
415	Ponderosa Pine	*(Pinus ponderosa)*		6	8	Fair	Fair
416	Incense Cedar	*(Calocedrus decurrens)*		12	10	Fair	Fair
417	Incense Cedar	*(Calocedrus decurrens)*		9	10	Fair	Fair
418	Ponderosa Pine	*(Pinus ponderosa)*		12	11	Fair	Fair
419	Ponderosa Pine	*(Pinus ponderosa)*	5,6,9	20	11	Poor to fair	Fair
420	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
421	Incense Cedar	*(Calocedrus decurrens)*		7	7	Fair	Fair
422	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair
423	Black Oak	*(Quercus velutina)*		7	11	Fair	Fair
424	Canyon Live Oak	*(Quercus chrysolepis)*		6	12	Fair	Fair
425	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
426	Ponderosa Pine	*(Pinus ponderosa)*		6	9	Fair	Fair
427	Ponderosa Pine	*(Pinus ponderosa)*		6	9	Fair	Fair
428	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
429	Ponderosa Pine	*(Pinus ponderosa)*		5	7	Fair	Fair
430	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
431	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
432	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
433	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
434	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
435	Ponderosa Pine	*(Pinus ponderosa)*		22	19	Fair	Fair
436	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
437	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
438	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
439	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
440	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
441	Ponderosa Pine	*(Pinus ponderosa)*		31	27	Fair	Fair
442	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
443	Black Oak	*(Quercus velutina)*		5	10	Fair	Fair
444	Ponderosa Pine	*(Pinus ponderosa)*		21	22	Fair	Fair
445	Ponderosa Pine	*(Pinus ponderosa)*		31	25	Poor to fair	Fair
446	Ponderosa Pine	*(Pinus ponderosa)*		5	7	Fair	Fair
447	Ponderosa Pine	*(Pinus ponderosa)*		5	7	Fair	Fair
448	Ponderosa Pine	*(Pinus ponderosa)*		7	9	Fair	Fair
449	Ponderosa Pine	*(Pinus ponderosa)*		4	6	Fair	Fair
450	Ponderosa Pine	*(Pinus ponderosa)*		5	8	Fair	Fair
451	Ponderosa Pine	*(Pinus ponderosa)*		10	15	Fair	Fair
452	Ponderosa Pine	*(Pinus ponderosa)*		12	15	Fair	Fair
453	Ponderosa Pine	*(Pinus ponderosa)*		12	16	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
454	Incense Cedar	*(Calocedrus decurrens)*		20	20	Fair	Fair
455	Ponderosa Pine	*(Pinus ponderosa)*		12	14	Fair	Fair
456	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
457	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
458	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
459	Ponderosa Pine	*(Pinus ponderosa)*	8,20	28	22	Fair	Fair
460	Ponderosa Pine	*(Pinus ponderosa)*		15	15	Fair	Fair
461	Ponderosa Pine	*(Pinus ponderosa)*		14	16	Fair	Fair
462	Ponderosa Pine	*(Pinus ponderosa)*		8	10	Fair	Fair
463	Ponderosa Pine	*(Pinus ponderosa)*		22	25	Fair	Fair
464	Ponderosa Pine	*(Pinus ponderosa)*		15	14	Fair	Fair
465	Ponderosa Pine	*(Pinus ponderosa)*		17	17	Fair	Fair
466	Ponderosa Pine	*(Pinus ponderosa)*		24	24	Fair	Fair
467	Ponderosa Pine	*(Pinus ponderosa)*		24	24	Fair	Fair
468	Ponderosa Pine	*(Pinus ponderosa)*		25	26	Fair	Fair
469	Ponderosa Pine	*(Pinus ponderosa)*		14	16	Fair	Fair
470	Ponderosa Pine	*(Pinus ponderosa)*		16	16	Fair	Fair
471	Ponderosa Pine	*(Pinus ponderosa)*		13	16	Fair	Fair
472	Ponderosa Pine	*(Pinus ponderosa)*		21	20	Fair	Fair
473	Ponderosa Pine	*(Pinus ponderosa)*		24	23	Fair	Fair
474	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
475	Ponderosa Pine	*(Pinus ponderosa)*		10	14	Fair	Fair
476	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
477	Ponderosa Pine	*(Pinus ponderosa)*		19	24	Fair	Fair
478	Black Oak	*(Quercus velutina)*	6,8,10	24	25	Poor to fair	Fair
479	Black Oak	*(Quercus velutina)*		45	38	Fair	Fair
480	Ponderosa Pine	*(Pinus ponderosa)*		14	16	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
481	Incense Cedar	*(Calocedrus decurrens)*		17	16	Fair	Poor to fair
482	Incense Cedar	*(Calocedrus decurrens)*		14	16	Fair	Fair
483	Ponderosa Pine	*(Pinus ponderosa)*		13	16	Fair	Fair
484	Incense Cedar	*(Calocedrus decurrens)*		16	18	Fair	Fair
485	Ponderosa Pine	*(Pinus ponderosa)*		9	10	Fair	Fair
486	Ponderosa Pine	*(Pinus ponderosa)*		14	16	Fair	Fair
487	Ponderosa Pine	*(Pinus ponderosa)*		16	15	Fair	Fair
488	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Fair	Fair
489	Ponderosa Pine	*(Pinus ponderosa)*		19	22	Fair	Fair
490	Ponderosa Pine	*(Pinus ponderosa)*		16	16	Fair	Fair
491	Ponderosa Pine	*(Pinus ponderosa)*		18	17	Fair	Fair
492	Ponderosa Pine	*(Pinus ponderosa)*		19	18	Fair	Fair
493	Incense Cedar	*(Calocedrus decurrens)*		21	22	Fair	Fair
494	Ponderosa Pine	*(Pinus ponderosa)*		26	28	Fair	Fair
495	Incense Cedar	*(Calocedrus decurrens)*		16	17	Fair	Fair
496	Black Oak	*(Quercus velutina)*		13	21	Fair	Fair
497	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Fair	Fair
498	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
499	Ponderosa Pine	*(Pinus ponderosa)*		17	19	Fair	Fair
500	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
501	Ponderosa Pine	*(Pinus ponderosa)*		18	17	Fair	Fair
502	Sugar Pine	*(Pinus lambertiana)*		22	19	Fair	Fair
503	Sugar Pine	*(Pinus lambertiana)*		17	16	Poor to fair	Fair
504	Black Oak	*(Quercus velutina)*	3,4,4	11	15	Fair	Fair
505	Canyon Live Oak	*(Quercus chrysolepis)*		6	15	Fair	Fair
506	Ponderosa Pine	*(Pinus ponderosa)*		18	17	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
507	Ponderosa Pine	*(Pinus ponderosa)*		16	17	Fair	Fair
508	Canyon Live Oak	*(Quercus chrysolepis)*		5	7	Fair	Fair
509	Canyon Live Oak	*(Quercus chrysolepis)*		7	10	Fair	Fair
510	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
511	Ponderosa Pine	*(Pinus ponderosa)*		20	22	Fair	Fair
512	Ponderosa Pine	*(Pinus ponderosa)*		5	3	Poor	Poor
513	Incense Cedar	*(Calocedrus decurrens)*		20	19	Fair	Fair
514	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
515	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
516	Ponderosa Pine	*(Pinus ponderosa)*		6	8	Fair	Fair
517	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
518	Ponderosa Pine	*(Pinus ponderosa)*		22	21	Fair	Fair
519	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
520	Ponderosa Pine	*(Pinus ponderosa)*		20	18	Fair	Fair
521	Ponderosa Pine	*(Pinus ponderosa)*		22	18	Fair	Fair
522	Incense Cedar	*(Calocedrus decurrens)*		25	24	Fair	Fair
523	Incense Cedar	*(Calocedrus decurrens)*		9	8	Fair	Fair
524	Incense Cedar	*(Calocedrus decurrens)*		4	7	Fair	Fair
525	Black Oak	*(Quercus velutina)*		8	10	Fair	Fair
526	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
527	Ponderosa Pine	*(Pinus ponderosa)*		7	6	Fair	Fair
528	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair
529	Ponderosa Pine	*(Pinus ponderosa)*		6	5	Fair	Fair
530	Ponderosa Pine	*(Pinus ponderosa)*		8	9	Poor to fair	Fair
531	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
532	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
533	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
534	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
535	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
536	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
537	Ponderosa Pine	*(Pinus ponderosa)*		12	15	Fair	Fair
538	Incense Cedar	*(Calocedrus decurrens)*		10	10	Fair	Fair
539	Incense Cedar	*(Calocedrus decurrens)*		7	9	Fair	Fair
540	Incense Cedar	*(Calocedrus decurrens)*		10	11	Fair	Fair
541	Ponderosa Pine	*(Pinus ponderosa)*		17	17	Fair	Fair
542	Incense Cedar	*(Calocedrus decurrens)*		4	5	Poor to fair	Fair
543	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
544	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
545	Incense Cedar	*(Calocedrus decurrens)*		8	7	Fair	Fair
546	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
547	Incense Cedar	*(Calocedrus decurrens)*	4,5	9	6	Fair	Fair
548	Incense Cedar	*(Calocedrus decurrens)*		9	10	Fair	Fair
549	Incense Cedar	*(Calocedrus decurrens)*		11	9	Fair	Fair
550	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
551	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
552	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
553	Incense Cedar	*(Calocedrus decurrens)*		8	10	Fair	Fair
554	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
555	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
556	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
557	Ponderosa Pine	*(Pinus ponderosa)*		13	12	Fair	Fair
558	Incense Cedar	*(Calocedrus decurrens)*		9	10	Fair	Poor

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
559	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
560	Incense Cedar	*(Calocedrus decurrens)*		10	12	Fair	Fair
561	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
562	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
563	Incense Cedar	*(Calocedrus decurrens)*		16	15	Fair	Fair
564	Incense Cedar	*(Calocedrus decurrens)*		11	9	Fair	Fair
565	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
566	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
567	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
568	Incense Cedar	*(Calocedrus decurrens)*		19	16	Fair	Poor
569	Ponderosa Pine	*(Pinus ponderosa)*		23	20	Fair	Fair
570	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
571	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
572	Incense Cedar	*(Calocedrus decurrens)*		13	12	Fair	Fair
573	Incense Cedar	*(Calocedrus decurrens)*		8	5	Fair	Fair
574	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
575	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
576	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
577	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
578	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
579	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
580	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
581	Ponderosa Pine	*(Pinus ponderosa)*		12	14	Fair	Fair
582	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
583	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
584	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
585	Ponderosa Pine	*(Pinus ponderosa)*		13	15	Fair	Fair
586	Ponderosa Pine	*(Pinus ponderosa)*		14	17	Fair	Fair
587	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
588	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
589	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
590	Ponderosa Pine	*(Pinus ponderosa)*		20	21	Fair	Fair
591	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
592	Ponderosa Pine	*(Pinus ponderosa)*		20	24	Fair	Fair
593	Ponderosa Pine	*(Pinus ponderosa)*		16	18	Fair	Fair
594	Ponderosa Pine	*(Pinus ponderosa)*		16	15	Fair	Fair
595	Incense Cedar	*(Calocedrus decurrens)*	4,5	9	7	Fair	Poor to fair
596	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
597	Ponderosa Pine	*(Pinus ponderosa)*		17	20	Fair	Fair
598	Ponderosa Pine	*(Pinus ponderosa)*		17	20	Fair	Fair
599	Ponderosa Pine	*(Pinus ponderosa)*		6	5	Fair	Fair
600	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
601	Ponderosa Pine	*(Pinus ponderosa)*		20	24	Fair	Fair
602	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
603	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
604	Ponderosa Pine	*(Pinus ponderosa)*		12	13	Fair	Fair
605	Ponderosa Pine	*(Pinus ponderosa)*		9	10	Fair	Fair
606	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
607	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
608	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
609	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
610	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair
611	Ponderosa Pine	*(Pinus ponderosa)*		13	15	Fair	Fair
612	Ponderosa Pine	*(Pinus ponderosa)*		17	20	Fair	Fair
613	Ponderosa Pine	*(Pinus ponderosa)*		19	20	Fair	Fair
614	Silver Maple	*(Acer saccharinum)*		16	18	Fair	Fair
615	Silver Maple	*(Acer saccharinum)*		15	16	Fair	Fair
616	Foothill Pine	*(Pinus sabiniana)*		27	30	Poor to fair	Fair
617	Foothill Pine	*(Pinus sabiniana)*		10	12	Poor to fair	Fair
618	Incense Cedar	*(Calocedrus decurrens)*		10	10	Fair	Fair
619	Ponderosa Pine	*(Pinus ponderosa)*		29	25	Fair	Fair
620	Canyon Live Oak	*(Quercus chrysolepis)*		7	12	Fair	Fair
621	Foothill Pine	*(Pinus sabiniana)*		21	23	Fair	Fair
622	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
623	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Poor to fair	Fair
624	Canyon Live Oak	*(Quercus chrysolepis)*	10,11, 16,20	57	25	Poor to fair	Fair
625	Canyon Live Oak	*(Quercus chrysolepis)*		33	28	Poor	Fair
626	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
627	Incense Cedar	*(Calocedrus decurrens)*		9	10	Fair	Fair
628	Ponderosa Pine	*(Pinus ponderosa)*		29	26	Fair	Fair
629	Incense Cedar	*(Calocedrus decurrens)*		7	9	Fair	Fair
630	Incense Cedar	*(Calocedrus decurrens)*		14	21	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
631	Incense Cedar	*(Calocedrus decurrens)*		6	8	Fair	Fair
632	Incense Cedar	*(Calocedrus decurrens)*		10	13	Fair	Poor
633	Incense Cedar	*(Calocedrus decurrens)*		9	8	Fair	Poor to fair
634	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Poor to fair
635	Incense Cedar	*(Calocedrus decurrens)*		9	8	Poor to fair	Poor
636	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Poor to fair
637	Incense Cedar	*(Calocedrus decurrens)*		9	11	Fair	Poor to fair
638	Incense Cedar	*(Calocedrus decurrens)*		13	7	Fair	Fair
639	Ponderosa Pine	*(Pinus ponderosa)*		11	13	Fair	Fair
640	Black Oak	*(Quercus velutina)*		32	31	Fair	Fair
641	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
642	Incense Cedar	*(Calocedrus decurrens)*		7	7	Fair	Fair
643	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Poor to fair
644	Incense Cedar	*(Calocedrus decurrens)*		9	8	Fair	Poor to fair
645	Foothill Pine	*(Pinus sabiniana)*		17	25	Poor to fair	Fair
646	Blue Oak	*(Quercus douglasii)*		7	8	Fair	Fair
647	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
648	Blue Oak	*(Quercus douglasii)*		16	20	Poor to fair	Fair
649	Ponderosa Pine	*(Pinus ponderosa)*		16	12	Poor	Poor
650	Incense Cedar	*(Calocedrus decurrens)*	5,6	11	9	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
651	Incense Cedar	*(Calocedrus decurrens)*		7	9	Fair	Fair
652	Incense Cedar	*(Calocedrus decurrens)*		9	12	Fair	Fair
653	Black Oak	*(Quercus velutina)*	3,5	8	13	Fair	Fair
654	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
655	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
656	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
657	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
658	Incense Cedar	*(Calocedrus decurrens)*		44	24	Fair	Fair
659	Incense Cedar	*(Calocedrus decurrens)*		6	5	Fair	Poor
660	Incense Cedar	*(Calocedrus decurrens)*		11	10	Fair	Fair
661	Ponderosa Pine	*(Pinus ponderosa)*		38	25	Fair	Fair
662	Black Oak	*(Quercus velutina)*		8	15	Fair	Fair
663	Black Oak	*(Quercus velutina)*		11	12	Fair	Fair
664	Black Oak	*(Quercus velutina)*		7	12	Fair	Fair
665	Foothill Pine	*(Pinus sabiniana)*		14	15	Fair	Fair
666	Ponderosa Pine	*(Pinus ponderosa)*		7	9	Fair	Fair
667	Black Oak	*(Quercus velutina)*		5	11	Fair	Fair
668	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
669	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
670	Ponderosa Pine	*(Pinus ponderosa)*		29	22	Fair	Fair
671	Incense Cedar	*(Calocedrus decurrens)*		17	10	Fair	Fair
672	Incense Cedar	*(Calocedrus decurrens)*		12	10	Fair	Fair
673	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
674	Incense Cedar	*(Calocedrus decurrens)*		10	8	Fair	Fair
675	Incense Cedar	*(Calocedrus decurrens)*		7	8	Poor to fair	Fair
676	Ponderosa Pine	*(Pinus ponderosa)*		8	6	Fair	Fair
677	Incense Cedar	*(Calocedrus decurrens)*		10	10	Fair	Fair
678	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
679	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
680	Ponderosa Pine	*(Pinus ponderosa)*		8	9	Fair	Fair
681	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
682	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
683	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
684	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Fair	Fair
685	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
686	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
687	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
688	Incense Cedar	*(Calocedrus decurrens)*		10	11	Fair	Fair
689	Incense Cedar	*(Calocedrus decurrens)*		4	6	Fair	Fair
690	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
691	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
692	Incense Cedar	*(Calocedrus decurrens)*		8	5	Fair	Poor to fair
693	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
694	Incense Cedar	*(Calocedrus decurrens)*		12	12	Fair	Fair
695	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Fair	Fair
696	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
697	Ponderosa Pine	*(Pinus ponderosa)*		10	11	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
698	Ponderosa Pine	*(Pinus ponderosa)*		18	19	Fair	Fair
699	Ponderosa Pine	*(Pinus ponderosa)*		16	18	Fair	Fair
700	Ponderosa Pine	*(Pinus ponderosa)*		16	17	Fair	Fair
701	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Fair	Fair
702	Ponderosa Pine	*(Pinus ponderosa)*		21	20	Fair	Fair
703	Ponderosa Pine	*(Pinus ponderosa)*		19	17	Fair	Fair
704	Ponderosa Pine	*(Pinus ponderosa)*		18	17	Fair	Fair
705	***Number not used***						
706	Ponderosa Pine	*(Pinus ponderosa)*		22	24	Fair	Fair
707	Ponderosa Pine	*(Pinus ponderosa)*		10	10	Fair	Fair
708	Incense Cedar	*(Calocedrus decurrens)*		14	16	Fair	Fair
709	Incense Cedar	*(Calocedrus decurrens)*		16	14	Fair	Fair
710	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
711	Ponderosa Pine	*(Pinus ponderosa)*		13	13	Fair	Fair
712	Ponderosa Pine	*(Pinus ponderosa)*		20	17	Fair	Fair
713	Ponderosa Pine	*(Pinus ponderosa)*		29	25	Fair	Fair
714	Ponderosa Pine	*(Pinus ponderosa)*		19	18	Fair	Fair
715	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
716	Ponderosa Pine	*(Pinus ponderosa)*		8	7	Fair	Fair
717	Ponderosa Pine	*(Pinus ponderosa)*		7	10	Fair	Fair
718	Ponderosa Pine	*(Pinus ponderosa)*		4	4	Fair	Fair
719	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Fair	Fair
720	Ponderosa Pine	*(Pinus ponderosa)*		17	17	Fair	Fair
721	Ponderosa Pine	*(Pinus ponderosa)*		22	20	Fair	Fair
722	Incense Cedar	*(Calocedrus decurrens)*	6,6,6	18	7	Fair	Fair
723	Incense Cedar	*(Calocedrus decurrens)*		7	7	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
724	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
725	Ponderosa Pine	*(Pinus ponderosa)*		7	6	Poor to fair	Poor
726	Ponderosa Pine	*(Pinus ponderosa)*		11	10	Fair	Fair
727	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
728	Ponderosa Pine	*(Pinus ponderosa)*	6,8	14	10	Fair	Fair
729	Ponderosa Pine	*(Pinus ponderosa)*		19	20	Fair	Fair
730	Incense Cedar	*(Calocedrus decurrens)*		31	21	Fair	Fair
731	Incense Cedar	*(Calocedrus decurrens)*		16	15	Fair	Fair
732	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
733	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
734	Ponderosa Pine	*(Pinus ponderosa)*		34	29	Fair	Fair
735	Black Oak	*(Quercus velutina)*		29	25	Poor to fair	Fair
736	Ponderosa Pine	*(Pinus ponderosa)*		37	29	Fair	Fair
737	Incense Cedar	*(Calocedrus decurrens)*		40	26	Fair	Fair
738	Incense Cedar	*(Calocedrus decurrens)*		21	14	Fair	Fair
739	Ponderosa Pine	*(Pinus ponderosa)*		8	10	Fair	Fair
740	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
741	Tree of Heaven	*(Ailanthus altissima)*		5	9	Fair	Fair
742	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Fair	Fair
743	California Buckeye	*(Aesculus californica)*	3,3,4,4,5	19	12	Fair	Fair
744	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
745	Incense Cedar	*(Calocedrus decurrens)*		17	15	Fair	Fair
746	Incense Cedar	*(Calocedrus decurrens)*		15	17	Fair	Fair
747	Ponderosa Pine	*(Pinus ponderosa)*		23	20	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
748	Incense Cedar	*(Calocedrus decurrens)*		10	8	Fair	Fair
749	Ponderosa Pine	*(Pinus ponderosa)*		33	28	Fair	Fair
750	Incense Cedar	*(Calocedrus decurrens)*		8	10	Poor to fair	Fair
751	Incense Cedar	*(Calocedrus decurrens)*	4,6	10	5	Poor to fair	Poor
752	Ponderosa Pine	*(Pinus ponderosa)*		24	22	Fair	Fair
753	Ponderosa Pine	*(Pinus ponderosa)*		17	19	Fair	Fair
754	Ponderosa Pine	*(Pinus ponderosa)*		14	16	Fair	Fair
755	Ponderosa Pine	*(Pinus ponderosa)*		26	27	Fair	Fair
756	Ponderosa Pine	*(Pinus ponderosa)*		26	25	Fair	Fair
757	Incense Cedar	*(Calocedrus decurrens)*		23	22	Fair	Fair
758	Ponderosa Pine	*(Pinus ponderosa)*		19	21	Fair	Fair
759	Black Oak	*(Quercus velutina)*	5,5	10	12	Fair	Fair
760	Ponderosa Pine	*(Pinus ponderosa)*		11	14	Fair	Fair
761	Ponderosa Pine	*(Pinus ponderosa)*		14	17	Fair	Fair
762	Ponderosa Pine	*(Pinus ponderosa)*		31	28	Poor to fair	Fair
763	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
764	Ponderosa Pine	*(Pinus ponderosa)*		6	5	Fair	Fair
765	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
766	Ponderosa Pine	*(Pinus ponderosa)*		10	6	Fair	Fair
767	Ponderosa Pine	*(Pinus ponderosa)*		8	7	Fair	Fair
768	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
769	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
770	Ponderosa Pine	*(Pinus ponderosa)*		9	8	Fair	Fair
771	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
772	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
773	Incense Cedar	*(Calocedrus decurrens)*		17	16	Fair	Fair
774	Ponderosa Pine	*(Pinus ponderosa)*		24	22	Fair	Fair
775	Incense Cedar	*(Calocedrus decurrens)*		15	17	Fair	Fair
776	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
777	Incense Cedar	*(Calocedrus decurrens)*		13	15	Fair	Fair
778	Incense Cedar	*(Calocedrus decurrens)*		16	15	Poor to fair	Fair
779	Ponderosa Pine	*(Pinus ponderosa)*		7	6	Fair	Fair
780	Ponderosa Pine	*(Pinus ponderosa)*		9	10	Fair	Fair
781	Ponderosa Pine	*(Pinus ponderosa)*		8	12	Fair	Fair
782	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
783	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
784	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
785	Ponderosa Pine	*(Pinus ponderosa)*		10	13	Fair	Fair
786	Ponderosa Pine	*(Pinus ponderosa)*		20	16	Fair	Fair
787	Ponderosa Pine	*(Pinus ponderosa)*		10	6	Fair	Fair
788	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Fair	Fair
789	Ponderosa Pine	*(Pinus ponderosa)*		20	20	Fair	Fair
790	Incense Cedar	*(Calocedrus decurrens)*		14	15	Fair	Fair
791	Ponderosa Pine	*(Pinus ponderosa)*		11	10	Fair	Fair
792	Ponderosa Pine	*(Pinus ponderosa)*		21	17	Fair	Fair
793	Ponderosa Pine	*(Pinus ponderosa)*		18	15	Fair	Fair
794	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
795	Ponderosa Pine	*(Pinus ponderosa)*		22	20	Fair	Fair
796	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
797	Black Oak	*(Quercus velutina)*	5,6,6,7	24	12	Fair	Fair
798	Ponderosa Pine	*(Pinus ponderosa)*		16	17	Fair	Fair
799	Black Oak	*(Quercus velutina)*		6	8	Fair	Fair
800	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Fair	Fair
801	Ponderosa Pine	*(Pinus ponderosa)*		16	18	Fair	Fair
802	Black Oak	*(Quercus velutina)*	5,8	13	14	Fair	Fair
803	Canyon Live Oak	*(Quercus chrysolepis)*	4,6	10	8	Fair	Fair
804	Canyon Live Oak	*(Quercus chrysolepis)*	4,5	9	9	Fair	Fair
805	Black Oak	*(Quercus velutina)*		7	10	Fair	Fair
806	Incense Cedar	*(Calocedrus decurrens)*		29	26	Fair	Fair
807	Incense Cedar	*(Calocedrus decurrens)*		15	16	Fair	Fair
808	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Poor	Fair
809	Black Oak	*(Quercus velutina)*	11,11	22	25	Fair	Fair
810	Canyon Live Oak	*(Quercus chrysolepis)*		19	28	Fair	Fair
811	Ponderosa Pine	*(Pinus ponderosa)*		18	22	Fair	Fair
812	Ponderosa Pine	*(Pinus ponderosa)*		11	14	Fair	Fair
813	Ponderosa Pine	*(Pinus ponderosa)*		17	23	Fair	Fair
814	Ponderosa Pine	*(Pinus ponderosa)*		17	18	Poor to fair	Fair
815	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
816	Ponderosa Pine	*(Pinus ponderosa)*		14	14	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
817	Ponderosa Pine	*(Pinus ponderosa)*		28	20	Poor	Fair
818	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Fair	Fair
819	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
820	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
821	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Poor	Fair
822	Ponderosa Pine	*(Pinus ponderosa)*		14	13	Poor to fair	Fair
823	Ponderosa Pine	*(Pinus ponderosa)*		9	8	Fair	Fair
824	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Fair	Fair
825	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
826	Ponderosa Pine	*(Pinus ponderosa)*		15	13	Fair	Fair
827	Incense Cedar	*(Calocedrus decurrens)*		6	6	Poor	Fair
828	Incense Cedar	*(Calocedrus decurrens)*		5	5	Poor to fair	Fair
829	Ponderosa Pine	*(Pinus ponderosa)*		8	9	Fair	Fair
830	Ponderosa Pine	*(Pinus ponderosa)*		34	28	Fair	Fair
831	Incense Cedar	*(Calocedrus decurrens)*		17	14	Poor to fair	Fair
832	Black Oak	*(Quercus velutina)*	3,4	7	6	Fair	Fair
833	Black Oak	*(Quercus velutina)*		6	9	Fair	Fair
834	Black Oak	*(Quercus velutina)*	4,5	9	10	Fair	Fair
835	Ponderosa Pine	*(Pinus ponderosa)*		30	24	Fair	Fair
836	Ponderosa Pine	*(Pinus ponderosa)*		28	22	Fair	Fair
837	Incense Cedar	*(Calocedrus decurrens)*		16	10	Fair	Fair
838	Ponderosa Pine	*(Pinus ponderosa)*		28	22	Fair	Fair
839	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
840	Ponderosa Pine	*(Pinus ponderosa)*		8	7	Fair	Fair
841	Sugar Pine	*(Pinus lambertiana)*		6	7	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
842	Incense Cedar	*(Calocedrus decurrens)*		41	24	Fair	Fair
843	Incense Cedar	*(Calocedrus decurrens)*		32	25	Fair	Fair
844	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
845	Black Oak	*(Quercus velutina)*		5	6	Fair	Fair
846	Black Oak	*(Quercus velutina)*	2,3,4	9	8	Fair	Fair
847	Canyon Live Oak	*(Quercus chrysolepis)*		6	7	Fair	Fair
848	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
849	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
850	Canyon Live Oak	*(Quercus chrysolepis)*		5	5	Fair	Fair
851	Incense Cedar	*(Calocedrus decurrens)*		5	3	Fair	Fair
852	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
853	Black Oak	*(Quercus velutina)*		5	9	Poor	Poor to fair
854	Black Oak	*(Quercus velutina)*		4	6	Fair	Fair
855	Incense Cedar	*(Calocedrus decurrens)*		33	25	Fair	Fair
856	Ponderosa Pine	*(Pinus ponderosa)*		16	19	Fair	Fair
857	Incense Cedar	*(Calocedrus decurrens)*		7	5	Fair	Fair
858	Incense Cedar	*(Calocedrus decurrens)*		4	4	Poor	Fair
859	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
860	Incense Cedar	*(Calocedrus decurrens)*		15	14	Fair	Fair
861	Ponderosa Pine	*(Pinus ponderosa)*		26	23	Fair	Fair
862	Bigleaf Maple	*(Acer macrophyllum)*		8	16	Fair	Fair
863	Bigleaf Maple	*(Acer macrophyllum)*		9	12	Fair	Fair
864	Black Oak	*(Quercus velutina)*	6,6	12	17	Fair	Fair
865	Incense Cedar	*(Calocedrus decurrens)*		9	6	Fair	Poor to fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
866	Incense Cedar	*(Calocedrus decurrens)*		14	13	Fair	Fair
867	Incense Cedar	*(Calocedrus decurrens)*		15	16	Fair	Fair
868	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
869	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
870	Bigleaf Maple	*(Acer macrophyllum)*		12	14	Fair	Fair
871	Bigleaf Maple	*(Acer macrophyllum)*		12	20	Fair	Fair
872	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
873	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
874	Black Oak	*(Quercus velutina)*		26	30	Fair	Fair
875	Incense Cedar	*(Calocedrus decurrens)*		31	19	Fair	Fair
876	Incense Cedar	*(Calocedrus decurrens)*		10	12	Fair	Fair
877	Incense Cedar	*(Calocedrus decurrens)*		7	9	Fair	Fair
878	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
879	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Poor to fair
880	Incense Cedar	*(Calocedrus decurrens)*		38	24	Fair	Fair
881	Incense Cedar	*(Calocedrus decurrens)*		9	10	Fair	Fair
882	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
883	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
884	Incense Cedar	*(Calocedrus decurrens)*		12	12	Fair	Fair
885	Incense Cedar	*(Calocedrus decurrens)*		14	12	Fair	Fair
886	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
887	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
888	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
889	Pacific Willow	*(Salix lucida)*	11,12	23	24	Fair	Fair
891	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
892	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
893	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
894	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
895	Incense Cedar	*(Calocedrus decurrens)*		4	6	Fair	Fair
896	Ponderosa Pine	*(Pinus ponderosa)*		51	30	Fair	Fair
897	Incense Cedar	*(Calocedrus decurrens)*		44	20	Fair	Fair
898	Black Oak	*(Quercus velutina)*		6	10	Fair	Fair
899	Incense Cedar	*(Calocedrus decurrens)*		16	17	Fair	Fair
900	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
901	Ponderosa Pine	*(Pinus ponderosa)*		42	26	Fair	Fair
902	Ponderosa Pine	*(Pinus ponderosa)*		29	28	Fair	Fair
903	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
904	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
905	Incense Cedar	*(Calocedrus decurrens)*		8	7	Fair	Fair
906	Incense Cedar	*(Calocedrus decurrens)*		20	20	Fair	Fair
907	Incense Cedar	*(Calocedrus decurrens)*		9	8	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
908	Incense Cedar	*(Calocedrus decurrens)*		15	12	Fair	Fair
909	Incense Cedar	*(Calocedrus decurrens)*		19	14	Fair	Fair
910	Incense Cedar	*(Calocedrus decurrens)*		6	12	Fair	Fair
911	Incense Cedar	*(Calocedrus decurrens)*		15	15	Fair	Fair
912	Incense Cedar	*(Calocedrus decurrens)*		12	10	Fair	Fair
913	Incense Cedar	*(Calocedrus decurrens)*		18	12	Poor	Fair
914	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
915	Ponderosa Pine	*(Pinus ponderosa)*		22	19	Fair	Fair
916	Ponderosa Pine	*(Pinus ponderosa)*		23	21	Fair	Fair
917	Incense Cedar	*(Calocedrus decurrens)*		12	12	Fair	Fair
918	Ponderosa Pine	*(Pinus ponderosa)*		15	13	Fair	Fair
919	Incense Cedar	*(Calocedrus decurrens)*		5	4	Fair	Poor to fair
920	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
921	Incense Cedar	*(Calocedrus decurrens)*		6	5	Fair	Fair
922	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
923	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
924	Ponderosa Pine	*(Pinus ponderosa)*		31	25	Fair	Fair
925	Incense Cedar	*(Calocedrus decurrens)*		16	17	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
926	Ponderosa Pine	*(Pinus ponderosa)*		12	10	Poor to fair	Poor to fair
927	Ponderosa Pine	*(Pinus ponderosa)*		28	20	Fair	Fair
928	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
929	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
930	Ponderosa Pine	*(Pinus ponderosa)*		20	17	Fair	Fair
931	Ponderosa Pine	*(Pinus ponderosa)*		17	17	Fair	Fair
932	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
933	Ponderosa Pine	*(Pinus ponderosa)*		29	20	Fair	Fair
934	Ponderosa Pine	*(Pinus ponderosa)*		14	13	Fair	Fair
935	Ponderosa Pine	*(Pinus ponderosa)*		8	6	Fair	Fair
936	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
937	Incense Cedar	*(Calocedrus decurrens)*		11	9	Poor to fair	Fair
938	Incense Cedar	*(Calocedrus decurrens)*		8	7	Fair	Fair
939	Ponderosa Pine	*(Pinus ponderosa)*		18	20	Fair	Fair
940	Ponderosa Pine	*(Pinus ponderosa)*	13,16	29	17	Fair	Fair
941	Fremont Cottonwood	*(Populus fremontii)*		18	17	Fair	Fair
942	American Sweetgum	*(Liquidambar styraciflua)*		5	5	Fair	Fair
943	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
944	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
945	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
946	Incense Cedar	*(Calocedrus decurrens)*		7	7	Fair	Fair
947	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
948	Black Oak	*(Quercus velutina)*		7	10	Fair	Fair
949	Black Oak	*(Quercus velutina)*	5,6	11	14	Fair	Fair
950	Black Oak	*(Quercus velutina)*		8	12	Fair	Fair
951	Ponderosa Pine	*(Pinus ponderosa)*		50	30	Fair	Fair
952	Black Oak	*(Quercus velutina)*	7,8	15	16	Fair	Fair
953	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair
954	Deodar Cedar	*(Cedrus deodara)*		4	6	Fair	Fair
955	Deodar Cedar	*(Cedrus deodara)*		5	6	Fair	Fair
956	Deodar Cedar	*(Cedrus deodara)*		4	6	Fair	Fair
957	Deodar Cedar	*(Cedrus deodara)*		5	7	Fair	Fair
958	Deodar Cedar	*(Cedrus deodara)*		6	8	Fair	Fair
959	Deodar Cedar	*(Cedrus deodara)*		4	6	Fair	Fair
960	Deodar Cedar	*(Cedrus deodara)*		5	6	Fair	Fair
961	Deodar Cedar	*(Cedrus deodara)*		5	6	Fair	Fair
962	Deodar Cedar	*(Cedrus deodara)*	4,5	9	6	Fair	Fair
963	Deodar Cedar	*(Cedrus deodara)*		5	5	Fair	Fair
964	Deodar Cedar	*(Cedrus deodara)*		5	7	Fair	Fair
965	Deodar Cedar	*(Cedrus deodara)*		5	6	Fair	Fair
966	Deodar Cedar	*(Cedrus deodara)*		5	5	Fair	Fair
967	Bigleaf Maple	*(Acer macrophyllum)*		7	15	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
968	Ponderosa Pine	*(Pinus ponderosa)*		15	17	Poor to fair	Fair
969	Incense Cedar	*(Calocedrus decurrens)*		25	21	Fair	Fair
970	Bigleaf Maple	*(Acer macrophyllum)*		5	10	Fair	Fair
971	Bigleaf Maple	*(Acer macrophyllum)*		5	14	Fair	Fair
972	Bigleaf Maple	*(Acer macrophyllum)*		8	16	Fair	Fair
973	Bigleaf Maple	*(Acer macrophyllum)*		4	14	Fair	Fair
974	Incense Cedar	*(Calocedrus decurrens)*		14	16	Fair	Fair
975	Bigleaf Maple	*(Acer macrophyllum)*		6	14	Fair	Fair
976	Incense Cedar	*(Calocedrus decurrens)*		4	7	Fair	Fair
977	Ponderosa Pine	*(Pinus ponderosa)*		24	16	Fair	Fair
978	Incense Cedar	*(Calocedrus decurrens)*		14	16	Fair	Fair
979	Incense Cedar	*(Calocedrus decurrens)*		10	14	Fair	Fair
980	Ponderosa Pine	*(Pinus ponderosa)*		29	20	Fair	Fair
981	Incense Cedar	*(Calocedrus decurrens)*		10	12	Fair	Fair
982	Incense Cedar	*(Calocedrus decurrens)*		11	14	Fair	Fair
983	Ponderosa Pine	*(Pinus ponderosa)*		24	20	Fair	Fair
984	Incense Cedar	*(Calocedrus decurrens)*		12	13	Fair	Fair
985	Incense Cedar	*(Calocedrus decurrens)*		14	13	Poor to fair	Fair
986	Ponderosa Pine	*(Pinus ponderosa)*		20	15	Poor	Fair
987	Incense Cedar	*(Calocedrus decurrens)*		19	15	Fair	Fair
988	Incense Cedar	*(Calocedrus decurrens)*		9	11	Fair	Fair
989	Incense Cedar	*(Calocedrus decurrens)*		9	13	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
990	Incense Cedar	*(Calocedrus decurrens)*		16	15	Fair	Fair
991	Incense Cedar	*(Calocedrus decurrens)*		4	6	Fair	Fair
992	Incense Cedar	*(Calocedrus decurrens)*		14	15	Fair	Fair
993	Ponderosa Pine	*(Pinus ponderosa)*		29	26	Fair	Fair
994	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
995	Ponderosa Pine	*(Pinus ponderosa)*		32	25	Fair	Fair
996	Ponderosa Pine	*(Pinus ponderosa)*		40	27	Fair	Fair
997	Incense Cedar	*(Calocedrus decurrens)*		29	28	Fair	Fair
998	Ponderosa Pine	*(Pinus ponderosa)*		23	20	Fair	Fair
999	Ponderosa Pine	*(Pinus ponderosa)*		31	28	Fair	Fair
1000	Ponderosa Pine	*(Pinus ponderosa)*	17,33	50	29	Fair	Fair
1001-1100	***Numbers not used***						
1101	Ponderosa Pine	*(Pinus ponderosa)*		12	9	Poor to fair	Poor to fair
1102	Ponderosa Pine	*(Pinus ponderosa)*		32	22	Fair	Fair
1103	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
1104	California Black Walnut	*(Juglans californica)*		27	29	Fair	Fair
1105	Ponderosa Pine	*(Pinus ponderosa)*		20	17	Fair	Fair
1106	Ponderosa Pine	*(Pinus ponderosa)*		25	20	Fair	Fair
1107	Incense Cedar	*(Calocedrus decurrens)*		10	11	Fair	Fair
1108	Ponderosa Pine	*(Pinus ponderosa)*		27	24	Fair	Fair
1109	Ponderosa Pine	*(Pinus ponderosa)*		20	18	Fair	Fair
1110	Ponderosa Pine	*(Pinus ponderosa)*		29	25	Fair	Fair
1111	Ponderosa Pine	*(Pinus ponderosa)*		9	7	Fair	Poor to fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1112	Incense Cedar	*(Calocedrus decurrens)*		5	7	Fair	Fair
1113	Ponderosa Pine	*(Pinus ponderosa)*		22	20	Fair	Fair
1114	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
1115	Ponderosa Pine	*(Pinus ponderosa)*		9	11	Fair	Fair
1116	Ponderosa Pine	*(Pinus ponderosa)*		19	19	Fair	Fair
1117	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
1118	Ponderosa Pine	*(Pinus ponderosa)*		19	17	Fair	Fair
1119	Incense Cedar	*(Calocedrus decurrens)*		17	17	Fair	Fair
1120	Ponderosa Pine	*(Pinus ponderosa)*		26	21	Fair	Fair
1121	Incense Cedar	*(Calocedrus decurrens)*		16	18	Fair	Fair
1122	Ponderosa Pine	*(Pinus ponderosa)*		24	21	Fair	Fair
1123	Incense Cedar	*(Calocedrus decurrens)*		16	12	Fair	Fair
1124	Ponderosa Pine	*(Pinus ponderosa)*		21	21	Fair	Fair
1125	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
1126	Ponderosa Pine	*(Pinus ponderosa)*		24	21	Fair	Fair
1127	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1128	Ponderosa Pine	*(Pinus ponderosa)*		21	16	Poor	Fair
1129	Ponderosa Pine	*(Pinus ponderosa)*		19	18	Fair	Fair
1130	Ponderosa Pine	*(Pinus ponderosa)*		12	9	Fair	Fair
1131	Ponderosa Pine	*(Pinus ponderosa)*		19	17	Fair	Fair
1132	Ponderosa Pine	*(Pinus ponderosa)*		21	17	Fair	Fair
1133	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
1134	Ponderosa Pine	*(Pinus ponderosa)*		25	21	Fair	Fair
1135	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
1136	Ponderosa Pine	*(Pinus ponderosa)*		24	20	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1137	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1138	Ponderosa Pine	*(Pinus ponderosa)*		19	17	Fair	Fair
1139	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
1140	Ponderosa Pine	*(Pinus ponderosa)*		15	14	Fair	Fair
1141	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
1142	Ponderosa Pine	*(Pinus ponderosa)*		11	13	Fair	Fair
1143	Ponderosa Pine	*(Pinus ponderosa)*		20	17	Fair	Fair
1144	Ponderosa Pine	*(Pinus ponderosa)*		20	20	Fair	Fair
1145	Ponderosa Pine	*(Pinus ponderosa)*		27	22	Fair	Fair
1146	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
1147	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
1148	Ponderosa Pine	*(Pinus ponderosa)*		22	21	Fair	Fair
1149	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
1150	Ponderosa Pine	*(Pinus ponderosa)*		27	23	Fair	Fair
1151	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
1152	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1153	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
1154	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
1155	Ponderosa Pine	*(Pinus ponderosa)*		10	9	Fair	Fair
1156	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
1157	Canyon Live Oak	*(Quercus chrysolepis)*		5	7	Fair	Fair
1158	Ponderosa Pine	*(Pinus ponderosa)*		4	4	Fair	Fair
1159	Black Oak	*(Quercus velutina)*		16	10	Poor	Poor
1160	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1161	Incense Cedar	*(Calocedrus decurrens)*		4	3	Fair	Poor to fair
1162	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
1163	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
1164	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
1165	Incense Cedar	*(Calocedrus decurrens)*		7	6	Fair	Fair
1166	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
1167	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
1168	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
1169	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1170	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
1171	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
1172	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
1173	Black Oak	*(Quercus velutina)*		18	21	Poor to fair	Fair
1174	Sugar Pine	*(Pinus lambertiana)*		11	10	Fair	Fair
1175	Sugar Pine	*(Pinus lambertiana)*		5	5	Fair	Fair
1176	Ponderosa Pine	*(Pinus ponderosa)*		6	8	Fair	Fair
1177	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
1178	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
1179	Ponderosa Pine	*(Pinus ponderosa)*		7	9	Fair	Fair
1180	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1181	Sugar Pine	*(Pinus lambertiana)*		6	6	Fair	Fair
1182	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
1183	Sugar Pine	*(Pinus lambertiana)*		7	8	Fair	Fair
1184	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1185	Sugar Pine	*(Pinus lambertiana)*		5	5	Fair	Fair
1186	Ponderosa Pine	*(Pinus ponderosa)*		9	9	Poor to fair	Poor to fair
1187	Black Oak	*(Quercus velutina)*	12,14,18	44	28	Poor to fair	Fair
1188	Sugar Pine	*(Pinus lambertiana)*		7	8	Fair	Fair
1189	Sugar Pine	*(Pinus lambertiana)*		8	8	Fair	Fair
1190	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
1191	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
1192	Sugar Pine	*(Pinus lambertiana)*		5	5	Fair	Fair
1193	Sugar Pine	*(Pinus lambertiana)*		7	8	Fair	Fair
1194	Sugar Pine	*(Pinus lambertiana)*		7	8	Fair	Fair
1195	Ponderosa Pine	*(Pinus ponderosa)*		8	9	Fair	Fair
1196	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
1197	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
1198	Incense Cedar	*(Calocedrus decurrens)*		6	9	Fair	Fair
1199	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1200	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
1201	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
1202	Ponderosa Pine	*(Pinus ponderosa)*		7	10	Fair	Fair
1203	Incense Cedar	*(Calocedrus decurrens)*		4	10	Fair	Fair
1204	Canyon Live Oak	*(Quercus chrysolepis)*	14,12	26	30	Poor	Fair
1205	Ponderosa Pine	*(Pinus ponderosa)*		11	13	Poor	Fair
1206	Ponderosa Pine	*(Pinus ponderosa)*		8	15	Poor	Fair
1207	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
1208	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
1209	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1210	Ponderosa Pine	*(Pinus ponderosa)*		30	24	Poor to fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1211	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1212	Canyon Live Oak	*(Quercus chrysolepis)*		5	10	Poor to fair	Fair
1213	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
1214	Incense Cedar	*(Calocedrus decurrens)*		9	9	Fair	Poor to fair
1215	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
1216	Black Oak	*(Quercus velutina)*		7	14	Fair	Fair
1217	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
1218	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
1219	Canyon Live Oak	*(Quercus chrysolepis)*	2,6	8	12	Fair	Fair
1220	Black Oak	*(Quercus velutina)*		11	14	Fair	Fair
1221	Incense Cedar	*(Calocedrus decurrens)*		16	20	Fair	Fair
1222	Black Oak	*(Quercus velutina)*		17	24	Fair	Fair
1223	Ponderosa Pine	*(Pinus ponderosa)*		40	28	Fair	Fair
1224	Ponderosa Pine	*(Pinus ponderosa)*		35	26	Fair	Fair
1225	Ponderosa Pine	*(Pinus ponderosa)*		34	20	Fair	Fair
1226	Incense Cedar	*(Calocedrus decurrens)*		24	22	Fair	Fair
1227	Ponderosa Pine	*(Pinus ponderosa)*		14	12	Fair	Fair
1228	Incense Cedar	*(Calocedrus decurrens)*		13	12	Fair	Fair
1229	Ponderosa Pine	*(Pinus ponderosa)*		9	8	Fair	Fair
1230	Ponderosa Pine	*(Pinus ponderosa)*		13	12	Fair	Fair
1231	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Poor to fair	Fair
1232	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1233	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair
1234	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
1235	Ponderosa Pine	*(Pinus ponderosa)*		6	8	Fair	Fair
1236	Ponderosa Pine	*(Pinus ponderosa)*		16	17	Fair	Fair
1237	Ponderosa Pine	*(Pinus ponderosa)*		44	28	Fair	Fair
1238	Incense Cedar	*(Calocedrus decurrens)*		18	15	Poor	Fair
1239	Canyon Live Oak	*(Quercus chrysolepis)*		12	16	Poor	Fair
1240	Canyon Live Oak	*(Quercus chrysolepis)*	8,8	16	20	Poor to fair	Fair
1241	Incense Cedar	*(Calocedrus decurrens)*		11	11	Poor to fair	Fair
1242	Incense Cedar	*(Calocedrus decurrens)*		21	20	Fair	Fair
1243	Ponderosa Pine	*(Pinus ponderosa)*		12	14	Poor	Fair
1244	Black Oak	*(Quercus velutina)*		7	12	Fair	Fair
1245	Ponderosa Pine	*(Pinus ponderosa)*		26	22	Poor to fair	Fair
1246	Ponderosa Pine	*(Pinus ponderosa)*		29	28	Fair	Fair
1247	Ponderosa Pine	*(Pinus ponderosa)*	30,46	76	31	Fair	Fair
1248	Incense Cedar	*(Calocedrus decurrens)*		16	16	Poor	Fair
1250	Ponderosa Pine	*(Pinus ponderosa)*		36	26	Fair	Fair
1251	Incense Cedar	*(Calocedrus decurrens)*		18	17	Fair	Fair

KASL
Calaveras County Water District
Ebbetts Pass Water System
Reach 1 Water Transmission Line Replacement Project
County of Calaveras, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1252	Incense Cedar	*(Calocedrus decurrens)*		39	26	Fair	Fair
1253	Incense Cedar	*(Calocedrus decurrens)*		14	17	Fair	Fair
1254	Incense Cedar	*(Calocedrus decurrens)*	18,19	37	18	Fair	Fair
1255	Black Oak	*(Quercus velutina)*		6	8	Fair	Fair
1256	Incense Cedar	*(Calocedrus decurrens)*		29	24	Fair	Fair
1257	Incense Cedar	*(Calocedrus decurrens)*		5	7	Fair	Fair
1258	Ponderosa Pine	*(Pinus ponderosa)*		28	23	Fair	Fair
1259	Incense Cedar	*(Calocedrus decurrens)*		27	18	Fair	Fair
1260	Incense Cedar	*(Calocedrus decurrens)*		32	24	Fair	Fair
1261	Incense Cedar	*(Calocedrus decurrens)*		28	24	Fair	Fair
1262	Incense Cedar	*(Calocedrus decurrens)*		31	28	Fair	Fair

CONSULTING
KASL
ENGINEERS

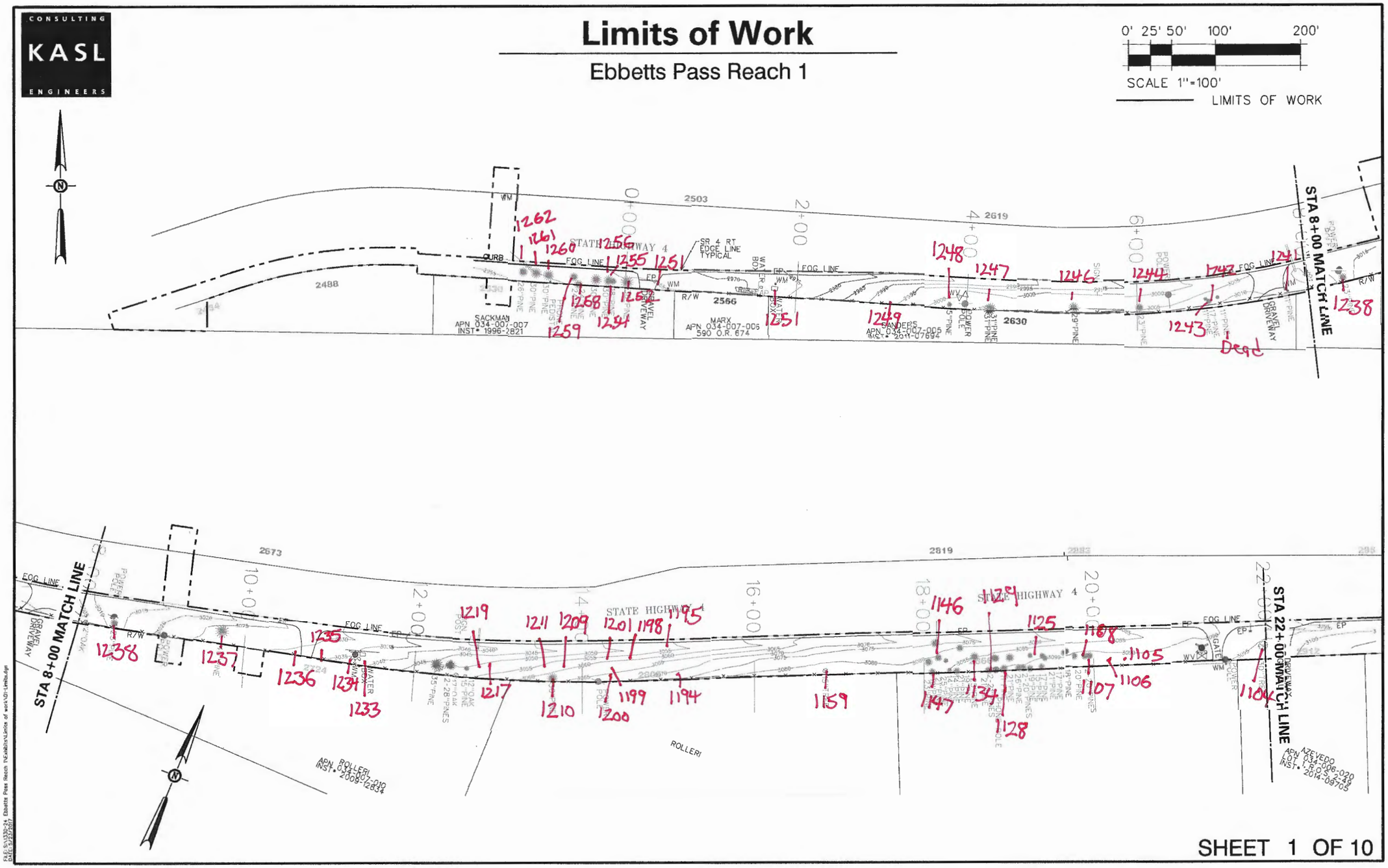
Limits of Work

Ebbetts Pass Reach 1

0' 25' 50' 100' 200'

SCALE 1"=100'

LIMITS OF WORK



CONSULTING KASL ENGINEERS

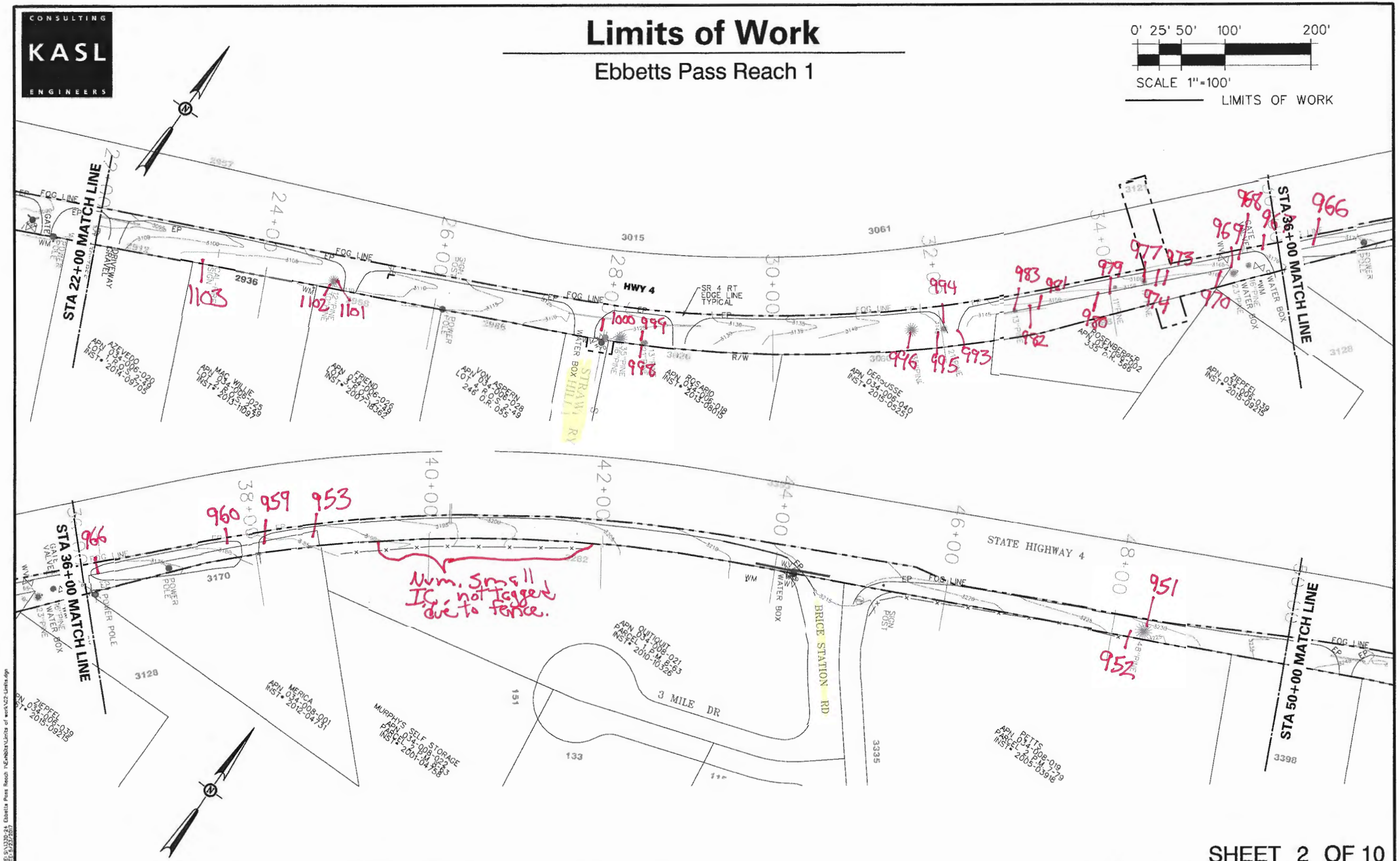
Limits of Work

Ebbetts Pass Reach 1

0' 25' 50' 100' 200'

SCALE 1"=100'

LIMITS OF WORK



SHEET 2 OF 10

CONSULTING
KASL
ENGINEERS

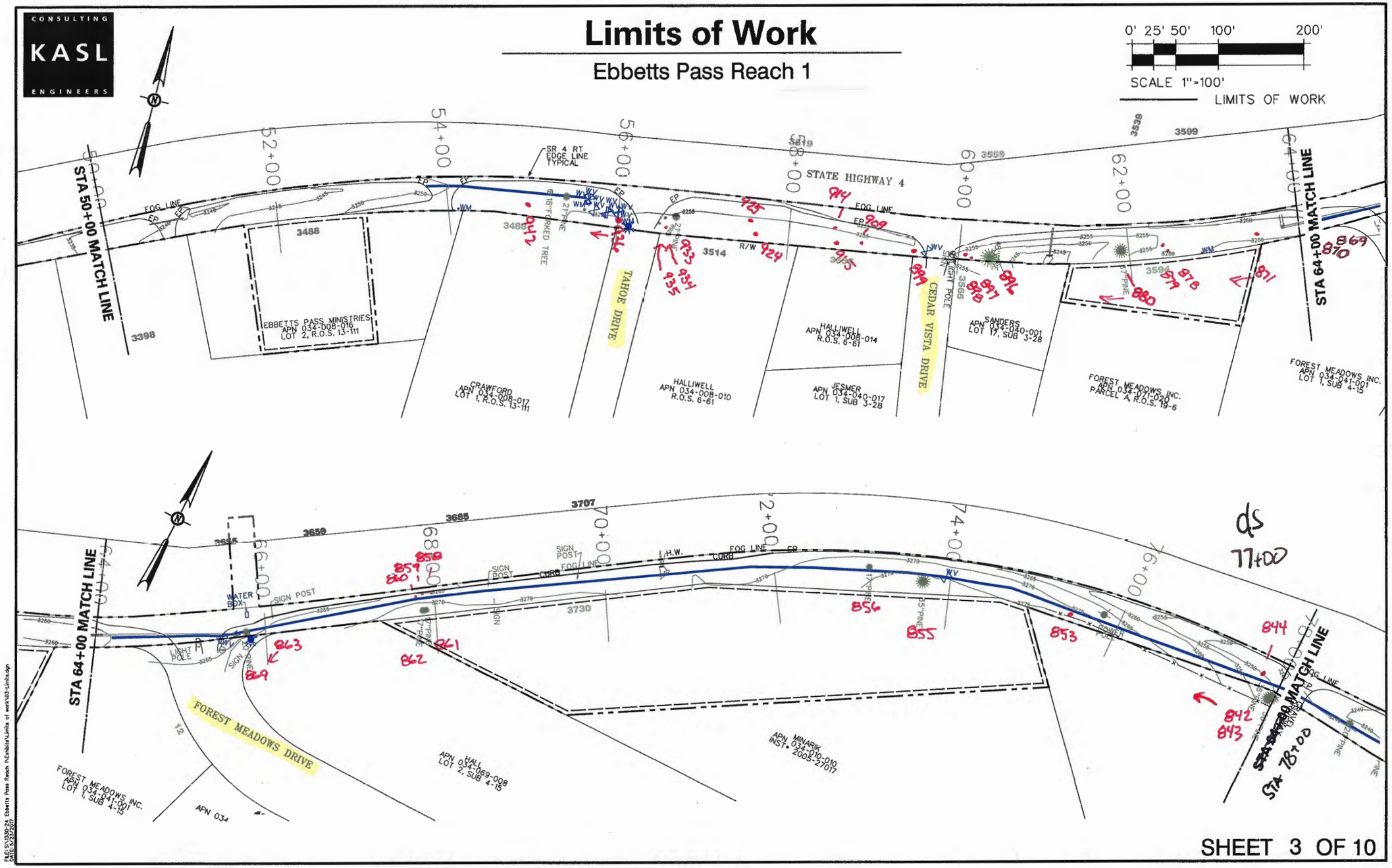
Limits of Work

Ebbetts Pass Reach 1

0' 25' 50' 100' 200'

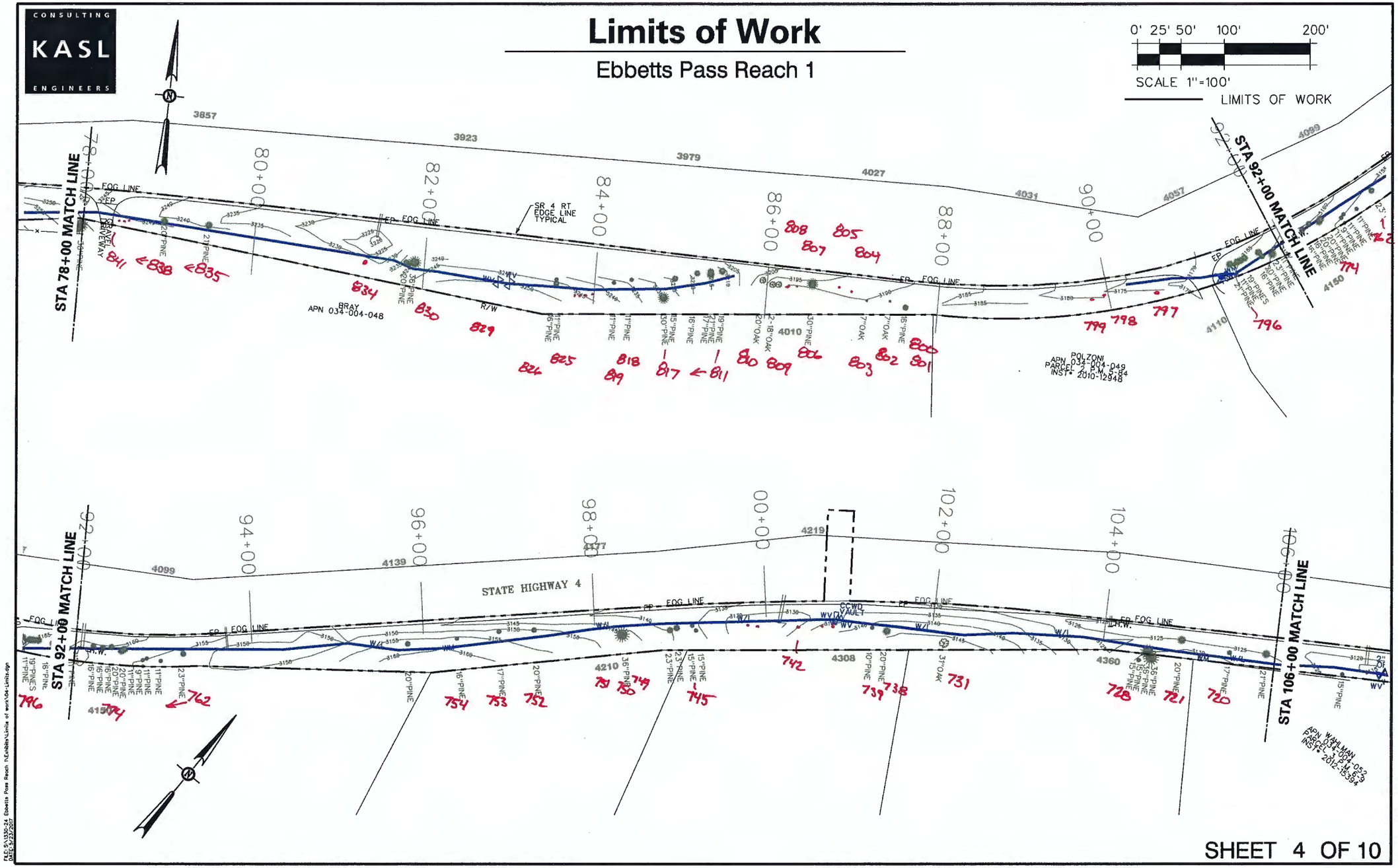
SCALE 1"=100'

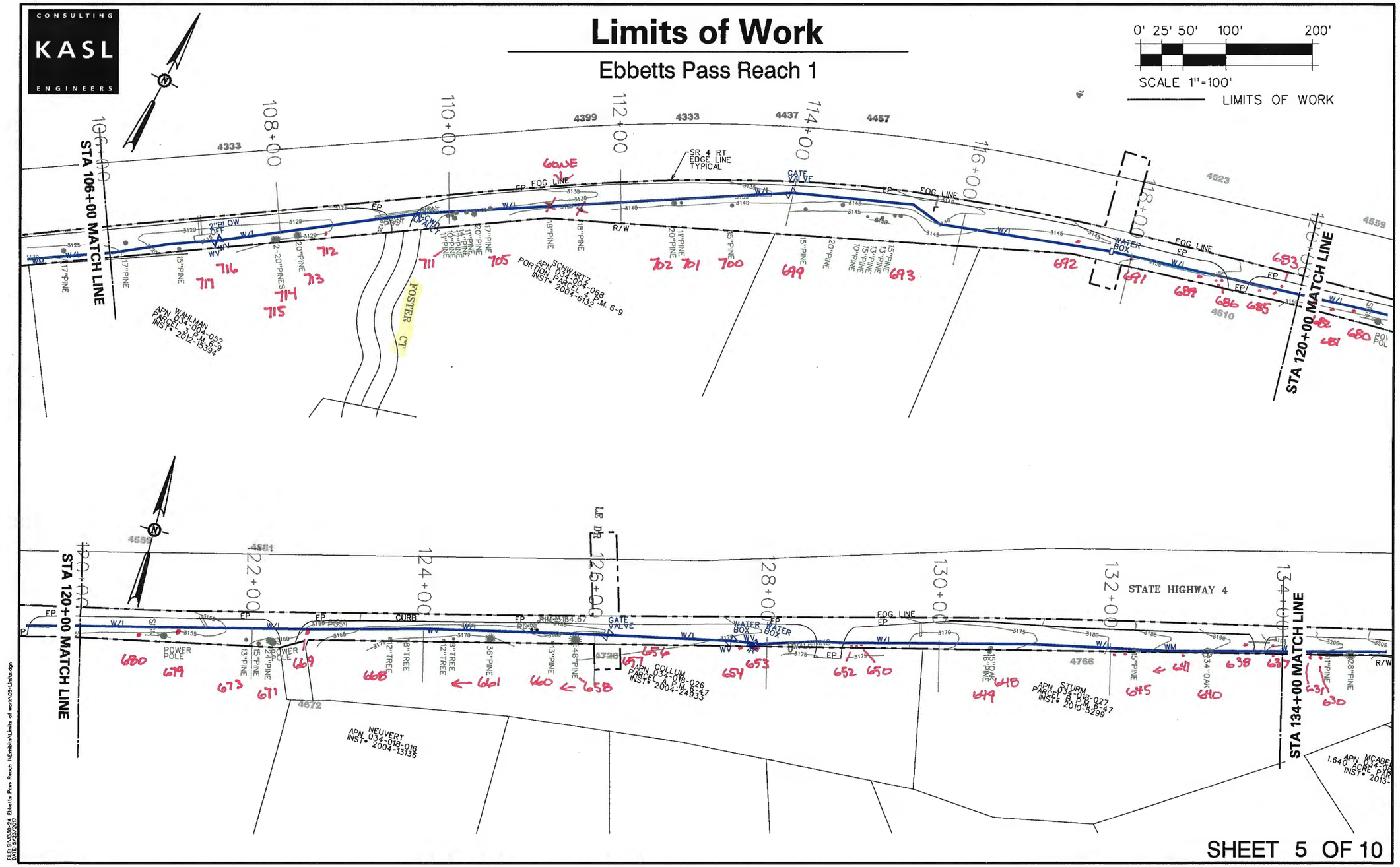
LIMITS OF WORK



SHEET 3 OF 10

FILE: 5\1330-24 Ebbetts Pass Reach 1\Exhibits\Limits of work\03-Limits.dgn
DATE: 9/23/2007


CONSULTING
KASL
ENGINEERS
Limits of Work
Ebbetts Pass Reach 1
0' 25' 50' 100' 200'
SCALE 1"=100'
LIMITS OF WORK
STA 78+00 MATCH LINE
STA 92+00 MATCH LINE
STA 92+00 MATCH LINE
STA 106+00 MATCH LINE
STATE HIGHWAY 4
SR 4 RT EDGE LINE TYPICAL
EP EOG LINE
R/W
BRAY
APN 034-004-048
POLZONI
PARCEL 2 P.M. 5-84
INST# 2010-12948
APN WAHLMAN
PARCEL 1 P.M. 5-84
INST# 2012-1539
CCWD VAULT
SHEET 4 OF 10


CONSULTING
KASL
ENGINEERS
Limits of Work
Ebbetts Pass Reach 1
0' 25' 50' 100' 200'
SCALE 1"=100'
LIMITS OF WORK
STA 106+00 MATCH LINE
STA 120+00 MATCH LINE
STA 120+00 MATCH LINE
STA 134+00 MATCH LINE
SR 4 RT EDGE LINE TYPICAL
FOG LINE
GATE VALVE
WATER BOX
2" BLOW OFF
FOSTER CT
LE DR
STATE HIGHWAY 4
APN WAHLMAN PARCEL 034-024-052 INST.# 2012-1539
APN SCHWARTZ 034-024-068 PORTION PARCEL 4 P.M. 6-9 INST.# 2004-6132
APN COLLUM PARCEL 034-018-026 INST.# 2004-24833
APN NEUVERT 034-018-016 INST.# 2004-13136
APN STURM PARCEL 034-018-027 INST.# 2010-5299
SHEET 5 OF 10

CONSULTING
KASL
ENGINEERS

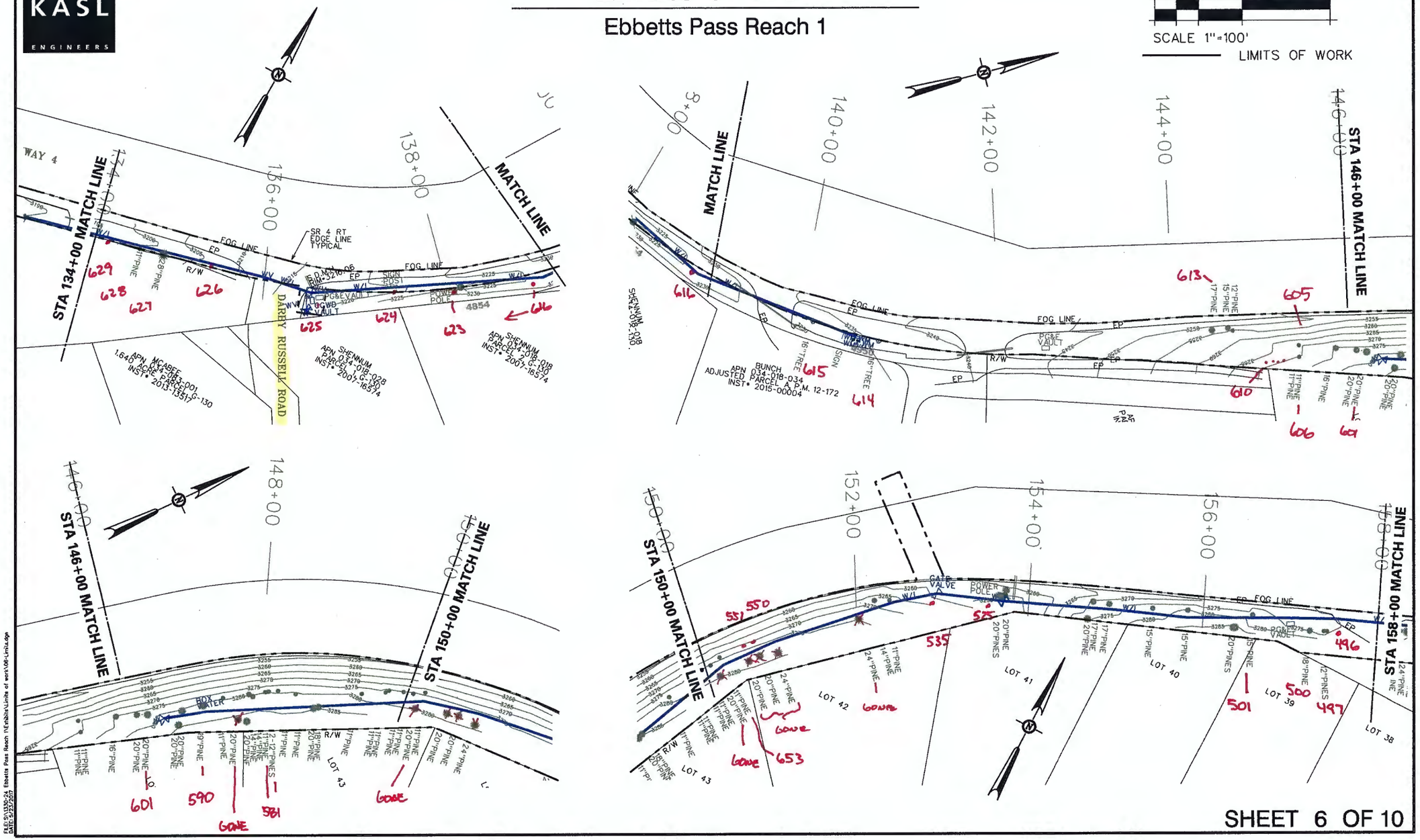
Limits of Work

Ebbetts Pass Reach 1

0' 25' 50' 100' 200'

SCALE 1"=100'

LIMITS OF WORK



SHEET 6 OF 10

DATE:6/13/2024 Ebbetts Pass Reach 1\Exhibits\Limits of work\06-Limits.dgn
DATE:6/13/2024

CONSULTING
KASL
ENGINEERS

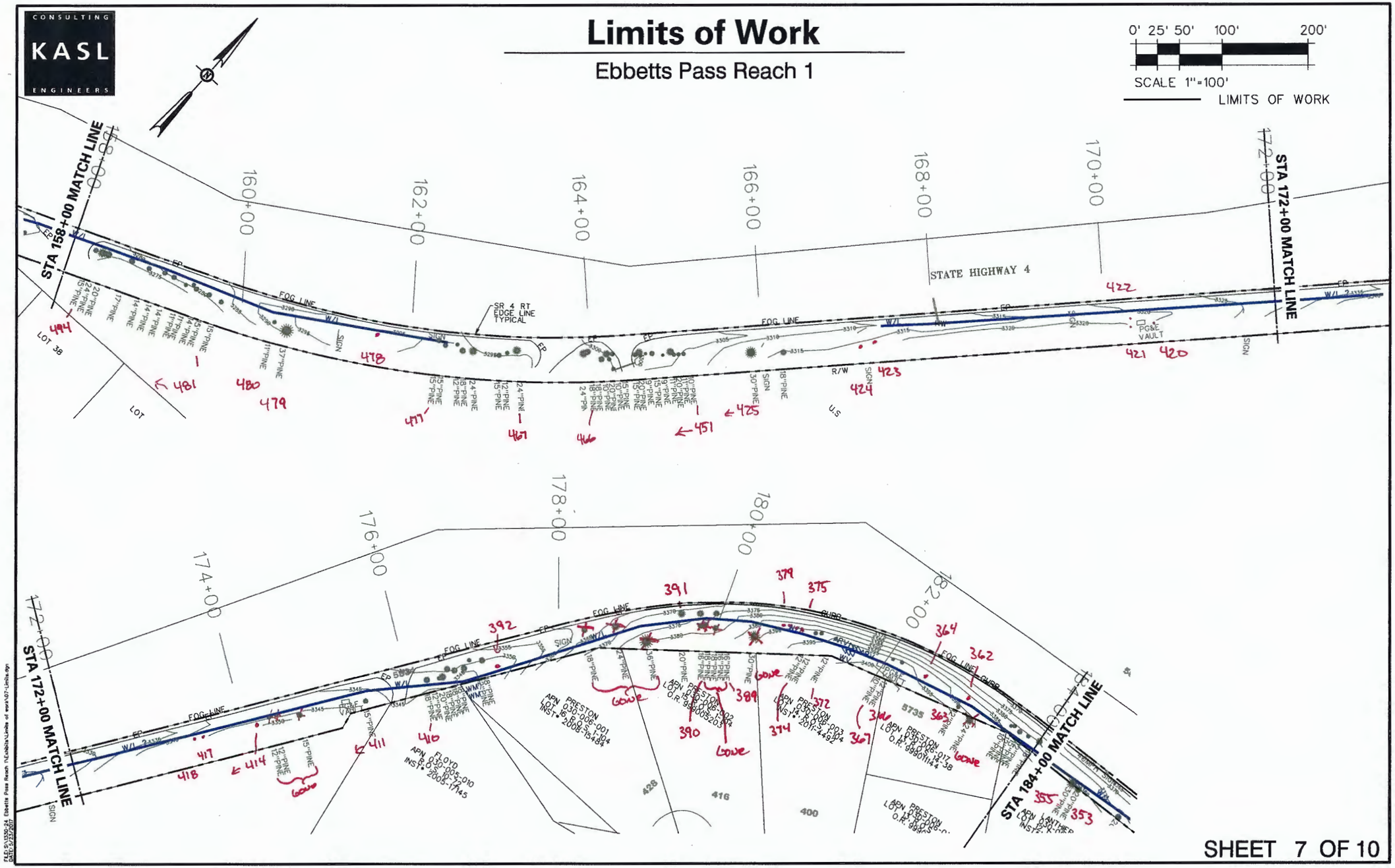
Limits of Work

Ebbetts Pass Reach 1

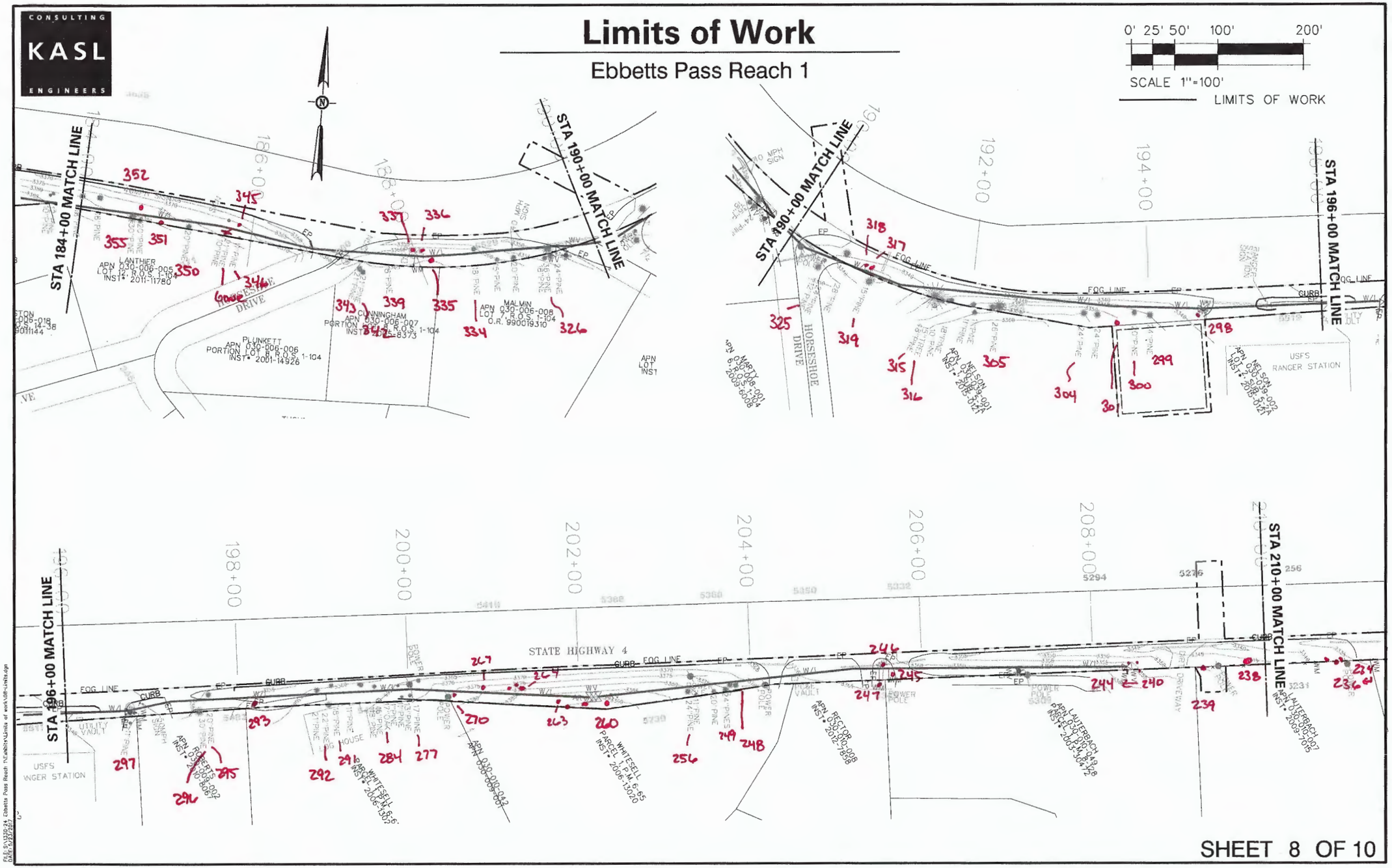
0' 25' 50' 100' 200'

SCALE 1"=100'

LIMITS OF WORK



SHEET 7 OF 10


CONSULTING
KASL
ENGINEERS
Limits of Work
Ebbetts Pass Reach 1
0' 25' 50' 100' 200'
SCALE 1"=100'
LIMITS OF WORK
STA 184+00 MATCH LINE
STA 190+00 MATCH LINE
STA 196+00 MATCH LINE
STA 210+00 MATCH LINE
HORSESHOE DRIVE
STATE HIGHWAY 4
FOG LINE
CURB
EP
USFS RANGER STATION
SHEET 8 OF 10

CONSULTING
KASL
ENGINEERS

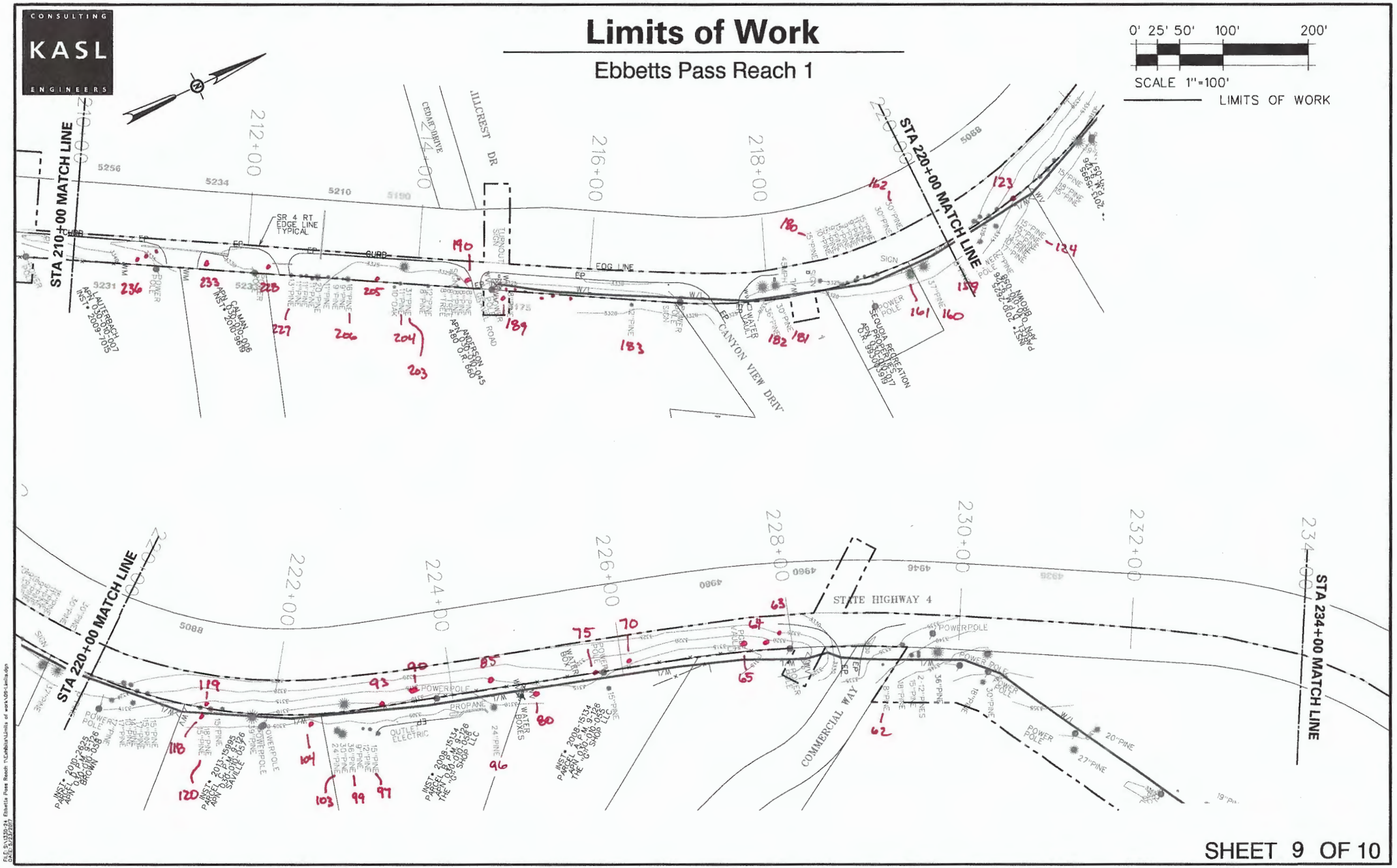
Limits of Work

Ebbetts Pass Reach 1

0' 25' 50' 100' 200'

SCALE 1"=100'

LIMITS OF WORK



SHEET 9 OF 10

CONSULTING
KASL
ENGINEERS

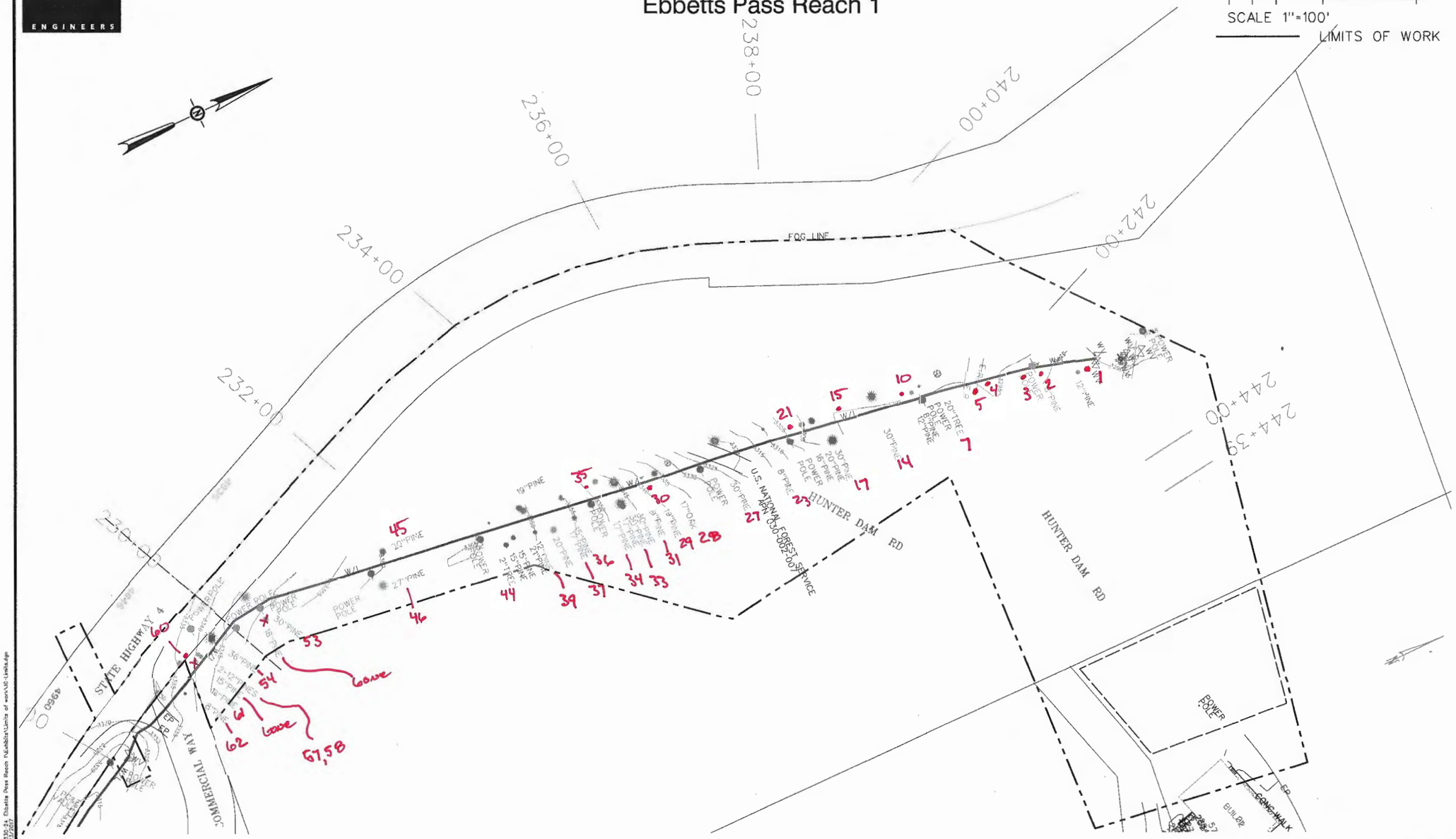
Limits of Work

Ebbetts Pass Reach 1

0' 25' 50' 100' 200'

SCALE 1"=100'

LIMITS OF WORK



NOTE for MMT:
Square tags w/ orange flagging

KASL
Ebbetts Pass Water Line Project Site
*****, California**
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
7	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
17	Ponderosa Pine	*(Pinus ponderosa)*		34	22	Fair	Fair
20	Incense Cedar	*(Calocedrus decurrens)*		15	16	Fair	Fair
37	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
38	Ponderosa Pine	*(Pinus ponderosa)*		34	25	Fair	Fair
39	Incense Cedar	*(Calocedrus decurrens)*		14	8	Fair	Fair
42	Incense Cedar	*(Calocedrus decurrens)*		15	9	Fair	Fair
43	Ponderosa Pine	*(Pinus ponderosa)*		18	18	Fair	Fair
46	Ponderosa Pine	*(Pinus ponderosa)*		38	27	Fair	Fair
48	Incense Cedar	*(Calocedrus decurrens)*		7	6	Fair	Fair
51	Ponderosa Pine	*(Pinus ponderosa)*		10	9	Fair	Fair
52	Sugar Pine	*(Pinus lambertiana)*		6	7	Fair	Fair
55	Sugar Pine	*(Pinus lambertiana)*		5	7	Fair	Fair
57	Ponderosa Pine	*(Pinus ponderosa)*		16	9	Fair	Fair
181	Incense Cedar	*(Calocedrus decurrens)*		36	19	Fair	Fair
182	Ponderosa Pine	*(Pinus ponderosa)*		41	28	Fair	Fair
190	Black Oak	*(Quercus velutina)*		7	10	Fair	Fair
191	Black Oak	*(Quercus velutina)*		9	15	Fair	Fair
203	Ponderosa Pine	*(Pinus ponderosa)*		31	26	Fair	Fair
344	Incense Cedar	*(Calocedrus decurrens)*		8	10	Fair	Fair
345	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
348	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
349	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
351	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
352	Incense Cedar	*(Calocedrus decurrens)*		5	4	Fair	Fair
356	Ponderosa Pine	*(Pinus ponderosa)*		19	20	Fair	Fair
357	Ponderosa Pine	*(Pinus ponderosa)*		20	20	Fair	Fair
358	Ponderosa Pine	*(Pinus ponderosa)*		10	9	Fair	Fair
359	Ponderosa Pine	*(Pinus ponderosa)*		12	22	Fair	Fair
360	Ponderosa Pine	*(Pinus ponderosa)*		13	20	Fair	Fair
361	Ponderosa Pine	*(Pinus ponderosa)*		11	15	Poor	Poor
362	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
365	Ponderosa Pine	*(Pinus ponderosa)*		6	8	Fair	Fair
366	Ponderosa Pine	*(Pinus ponderosa)*		14	13	Fair	Fair
367	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair
368	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
371	Ponderosa Pine	*(Pinus ponderosa)*		7	7	Fair	Fair
372	Ponderosa Pine	*(Pinus ponderosa)*		13	16	Fair	Fair
373	Ponderosa Pine	*(Pinus ponderosa)*		13	15	Fair	Fair
374	Ponderosa Pine	*(Pinus ponderosa)*		13	15	Fair	Fair
375	Ponderosa Pine	*(Pinus ponderosa)*		5	4	Poor to fair	Poor to fair
376	White Fir	*(Abies concolor)*		6	8	Fair	Fair
378	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
379	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
380	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
381	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
382	Incense Cedar	*(Calocedrus decurrens)*		7	7	Poor to fair	Poor
384	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
385	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
386	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
387	Ponderosa Pine	*(Pinus ponderosa)*		4	5	Fair	Fair

NOTE for MMT:
Square tags w/ orange flagging

KASL
Ebbetts Pass Water Line Project Site
*****, California**
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
388	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
389	Incense Cedar	*(Calocedrus decurrens)*		20	19	Fair	Fair
390	Incense Cedar	*(Calocedrus decurrens)*		21	23	Fair	Fair
391	Ponderosa Pine	*(Pinus ponderosa)*		22	19	Fair	Fair
392	Incense Cedar	*(Calocedrus decurrens)*		5	8	Poor to fair	Fair
393	Incense Cedar	*(Calocedrus decurrens)*		19	18	Fair	Fair
394	Incense Cedar	*(Calocedrus decurrens)*		14	13	Fair	Fair
395	Incense Cedar	*(Calocedrus decurrens)*		11	12	Fair	Fair
396	Incense Cedar	*(Calocedrus decurrens)*		8	7	Fair	Fair
397	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
398	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
399	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
400	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
401	Incense Cedar	*(Calocedrus decurrens)*		8	9	Poor to fair	Fair
402	Incense Cedar	*(Calocedrus decurrens)*		4	6	Poor to fair	Poor to fair
403	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
404	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
406	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
459	Ponderosa Pine	*(Pinus ponderosa)*	8,20	28	22	Fair	Fair
461	Ponderosa Pine	*(Pinus ponderosa)*		14	16	Fair	Fair
463	Ponderosa Pine	*(Pinus ponderosa)*		22	25	Fair	Fair
465	Ponderosa Pine	*(Pinus ponderosa)*		17	17	Fair	Fair
466	Ponderosa Pine	*(Pinus ponderosa)*		24	24	Fair	Fair
467	Ponderosa Pine	*(Pinus ponderosa)*		24	24	Fair	Fair
468	Ponderosa Pine	*(Pinus ponderosa)*		25	26	Fair	Fair
471	Ponderosa Pine	*(Pinus ponderosa)*		13	16	Fair	Fair
472	Ponderosa Pine	*(Pinus ponderosa)*		21	20	Fair	Fair
473	Ponderosa Pine	*(Pinus ponderosa)*		24	23	Fair	Fair
474	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
475	Ponderosa Pine	*(Pinus ponderosa)*		10	14	Fair	Fair
476	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
477	Ponderosa Pine	*(Pinus ponderosa)*		19	24	Fair	Fair
484	Incense Cedar	*(Calocedrus decurrens)*		16	18	Fair	Fair
486	Ponderosa Pine	*(Pinus ponderosa)*		14	16	Fair	Fair
487	Ponderosa Pine	*(Pinus ponderosa)*		16	15	Fair	Fair
488	Ponderosa Pine	*(Pinus ponderosa)*		14	15	Fair	Fair
489	Ponderosa Pine	*(Pinus ponderosa)*		19	22	Fair	Fair
490	Ponderosa Pine	*(Pinus ponderosa)*		16	16	Fair	Fair
491	Ponderosa Pine	*(Pinus ponderosa)*		18	17	Fair	Fair
492	Ponderosa Pine	*(Pinus ponderosa)*		19	18	Fair	Fair
493	Incense Cedar	*(Calocedrus decurrens)*		21	22	Fair	Fair
494	Ponderosa Pine	*(Pinus ponderosa)*		26	28	Fair	Fair
495	Incense Cedar	*(Calocedrus decurrens)*		16	17	Fair	Fair
501	Ponderosa Pine	*(Pinus ponderosa)*		18	17	Fair	Fair
504	Black Oak	*(Quercus velutina)*	3,4,4	11	15	Fair	Fair
506	Ponderosa Pine	*(Pinus ponderosa)*		18	17	Fair	Fair
507	Ponderosa Pine	*(Pinus ponderosa)*		16	17	Fair	Fair
510	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
511	Ponderosa Pine	*(Pinus ponderosa)*		20	22	Fair	Fair
513	Incense Cedar	*(Calocedrus decurrens)*		20	19	Fair	Fair
518	Ponderosa Pine	*(Pinus ponderosa)*		22	21	Fair	Fair

NOTE for MMT:
Square tags w/ orange flagging

KASL
Ebbetts Pass Water Line Project Site
*****, California**
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
519	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
520	Ponderosa Pine	*(Pinus ponderosa)*		20	18	Fair	Fair
537	Ponderosa Pine	*(Pinus ponderosa)*		12	15	Fair	Fair
539	Incense Cedar	*(Calocedrus decurrens)*		7	9	Fair	Fair
540	Incense Cedar	*(Calocedrus decurrens)*		10	11	Fair	Fair
541	Ponderosa Pine	*(Pinus ponderosa)*		17	17	Fair	Fair
542	Incense Cedar	*(Calocedrus decurrens)*		4	5	Poor to fair	Fair
543	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
544	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
545	Incense Cedar	*(Calocedrus decurrens)*		8	7	Fair	Fair
547	Incense Cedar	*(Calocedrus decurrens)*	4,5	9	6	Fair	Fair
548	Incense Cedar	*(Calocedrus decurrens)*		9	10	Fair	Fair
551	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
553	Incense Cedar	*(Calocedrus decurrens)*		8	10	Fair	Fair
554	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
555	Ponderosa Pine	*(Pinus ponderosa)*		15	16	Fair	Fair
556	Ponderosa Pine	*(Pinus ponderosa)*		6	7	Fair	Fair
558	Incense Cedar	*(Calocedrus decurrens)*		9	10	Fair	Poor
561	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
562	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
563	Incense Cedar	*(Calocedrus decurrens)*		16	15	Fair	Fair
564	Incense Cedar	*(Calocedrus decurrens)*		11	9	Fair	Fair
565	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
566	Incense Cedar	*(Calocedrus decurrens)*		4	4	Fair	Fair
567	Incense Cedar	*(Calocedrus decurrens)*		8	8	Fair	Fair
570	Ponderosa Pine	*(Pinus ponderosa)*		5	6	Fair	Fair
571	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
572	Incense Cedar	*(Calocedrus decurrens)*		13	12	Fair	Fair
573	Incense Cedar	*(Calocedrus decurrens)*		8	5	Fair	Fair
574	Ponderosa Pine	*(Pinus ponderosa)*		7	8	Fair	Fair
575	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
580	Ponderosa Pine	*(Pinus ponderosa)*		6	6	Fair	Fair
585	Ponderosa Pine	*(Pinus ponderosa)*		13	15	Fair	Fair
589	Ponderosa Pine	*(Pinus ponderosa)*		8	8	Fair	Fair
590	Ponderosa Pine	*(Pinus ponderosa)*		20	21	Fair	Fair
593	Ponderosa Pine	*(Pinus ponderosa)*		16	18	Fair	Fair
594	Ponderosa Pine	*(Pinus ponderosa)*		16	15	Fair	Fair
595	Incense Cedar	*(Calocedrus decurrens)*	4,5	9	7	Fair	Poor to fair
596	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
597	Ponderosa Pine	*(Pinus ponderosa)*		17	20	Fair	Fair
598	Ponderosa Pine	*(Pinus ponderosa)*		17	20	Fair	Fair
599	Ponderosa Pine	*(Pinus ponderosa)*		6	5	Fair	Fair
600	Incense Cedar	*(Calocedrus decurrens)*		5	6	Fair	Fair
601	Ponderosa Pine	*(Pinus ponderosa)*		20	24	Fair	Fair
605	Ponderosa Pine	*(Pinus ponderosa)*		9	10	Fair	Fair
654	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
655	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
656	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
657	Incense Cedar	*(Calocedrus decurrens)*		6	6	Fair	Fair
658	Incense Cedar	*(Calocedrus decurrens)*		44	24	Fair	Fair
659	Incense Cedar	*(Calocedrus decurrens)*		6	5	Fair	Poor

NOTE for MMT:
Square tags w/ orange flagging

KASL
Ebbetts Pass Water Line Project Site
*****, California**
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
660	Incense Cedar	*(Calocedrus decurrens)*		11	10	Fair	Fair
661	Ponderosa Pine	*(Pinus ponderosa)*		38	25	Fair	Fair
662	Black Oak	*(Quercus velutina)*		8	15	Fair	Fair
665	Foothill Pine	*(Pinus sabiniana)*		14	15	Fair	Fair
693	Ponderosa Pine	*(Pinus ponderosa)*		17	16	Fair	Fair
694	Incense Cedar	*(Calocedrus decurrens)*		12	12	Fair	Fair
698	Ponderosa Pine	*(Pinus ponderosa)*		18	19	Fair	Fair
699	Ponderosa Pine	*(Pinus ponderosa)*		16	18	Fair	Fair
700	Ponderosa Pine	*(Pinus ponderosa)*		16	17	Fair	Fair
701	Ponderosa Pine	*(Pinus ponderosa)*		13	14	Fair	Fair
702	Ponderosa Pine	*(Pinus ponderosa)*		21	20	Fair	Fair
709	Incense Cedar	*(Calocedrus decurrens)*		16	14	Fair	Fair
711	Ponderosa Pine	*(Pinus ponderosa)*		13	13	Fair	Fair
729	Ponderosa Pine	*(Pinus ponderosa)*		19	20	Fair	Fair
757	Incense Cedar	*(Calocedrus decurrens)*		23	22	Fair	Fair
758	Ponderosa Pine	*(Pinus ponderosa)*		19	21	Fair	Fair
765	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
768	Ponderosa Pine	*(Pinus ponderosa)*		11	12	Fair	Fair
769	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair
785	Ponderosa Pine	*(Pinus ponderosa)*		10	13	Fair	Fair
806	Incense Cedar	*(Calocedrus decurrens)*		29	26	Fair	Fair
807	Incense Cedar	*(Calocedrus decurrens)*		15	16	Fair	Fair
833	Black Oak	*(Quercus velutina)*		6	9	Fair	Fair
863	Bigleaf Maple	*(Acer macrophyllum)*		9	12	Fair	Fair
878	Incense Cedar	*(Calocedrus decurrens)*		4	5	Fair	Fair
881	Incense Cedar	*(Calocedrus decurrens)*		9	10	Fair	Fair
882	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
887	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
893	Incense Cedar	*(Calocedrus decurrens)*		6	7	Fair	Fair
894	Incense Cedar	*(Calocedrus decurrens)*		8	9	Fair	Fair
903	Incense Cedar	*(Calocedrus decurrens)*		5	5	Fair	Fair
904	Ponderosa Pine	*(Pinus ponderosa)*		5	5	Fair	Fair
905	Incense Cedar	*(Calocedrus decurrens)*		8	7	Fair	Fair
939	Ponderosa Pine	*(Pinus ponderosa)*		18	20	Fair	Fair
940	Ponderosa Pine	*(Pinus ponderosa)*	13,16	29	17	Fair	Fair
947	Incense Cedar	*(Calocedrus decurrens)*		7	8	Fair	Fair
949	Black Oak	*(Quercus velutina)*	5,6	11	14	Fair	Fair
950	Black Oak	*(Quercus velutina)*		8	12	Fair	Fair
951	Ponderosa Pine	*(Pinus ponderosa)*		50	30	Fair	Fair
952	Black Oak	*(Quercus velutina)*	7,8	15	16	Fair	Fair
953	Ponderosa Pine	*(Pinus ponderosa)*		10	12	Fair	Fair
955	Deodar Cedar	*(Cedrus deodara)*		5	6	Fair	Fair
977	Ponderosa Pine	*(Pinus ponderosa)*		24	16	Fair	Fair
978	Incense Cedar	*(Calocedrus decurrens)*		14	16	Fair	Fair
997	Incense Cedar	*(Calocedrus decurrens)*		29	28	Fair	Fair
1144	Ponderosa Pine	*(Pinus ponderosa)*		20	20	Fair	Fair
1145	Ponderosa Pine	*(Pinus ponderosa)*		27	22	Fair	Fair
1237	Ponderosa Pine	*(Pinus ponderosa)*		44	28	Fair	Fair
1260	Incense Cedar	*(Calocedrus decurrens)*		32	24	Fair	Fair
1261	Incense Cedar	*(Calocedrus decurrens)*		28	24	Fair	Fair
1262	Incense Cedar	*(Calocedrus decurrens)*		31	28	Fair	Fair

APPENDIX D

Cultural Resources Inventory Report **[Confidential]**

This report contains ***confidential*** cultural resources site location information and is not included in this draft report.

APPENDIX E

Limits of Work

60% Design and Study Area Review Sheet 1 of 24

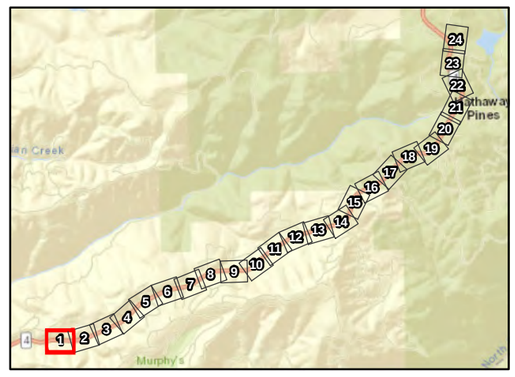
Map Features

Limits of Work (02-27-2018)

Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

60% Design and Study Area Review Sheet 2 of 24

Map Features

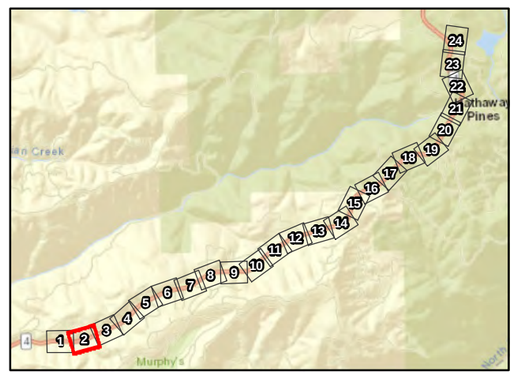
Limits of Work (02-27-2018)

Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 3 of 24

Map Features

Limits of Work (02-27-2018)

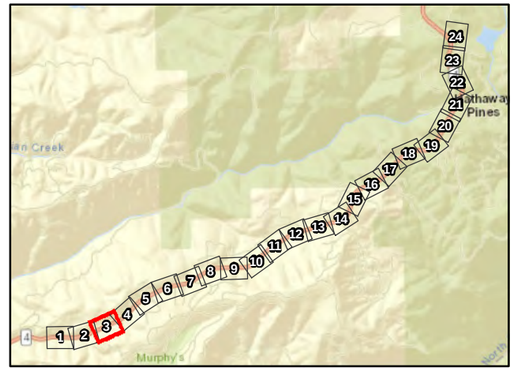
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet

0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 4 of 24

Map Features

Limits of Work (02-27-2018)

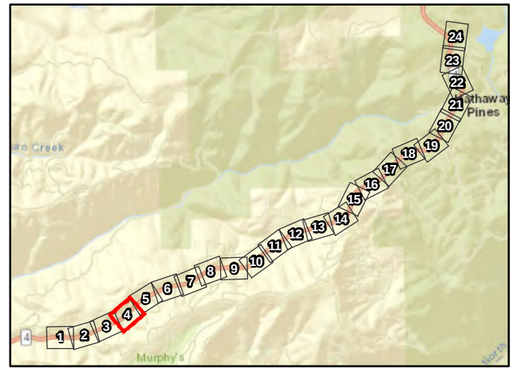
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chrinkelman 3/9/2018

60% Design and Study Area Review Sheet 5 of 24

SUNSET RIDGE DR

QUILES KILNS

HWY 4

THREE MILE DR

BRICE STATION RD

Map Features

Limits of Work (02-27-2018)

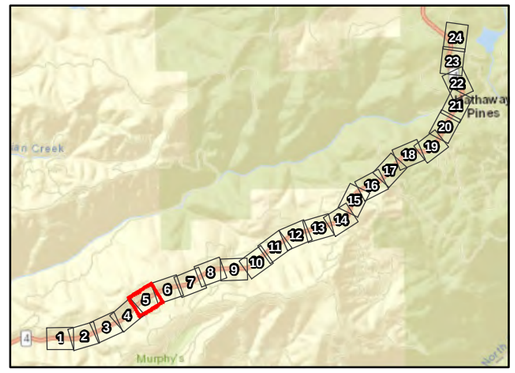
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

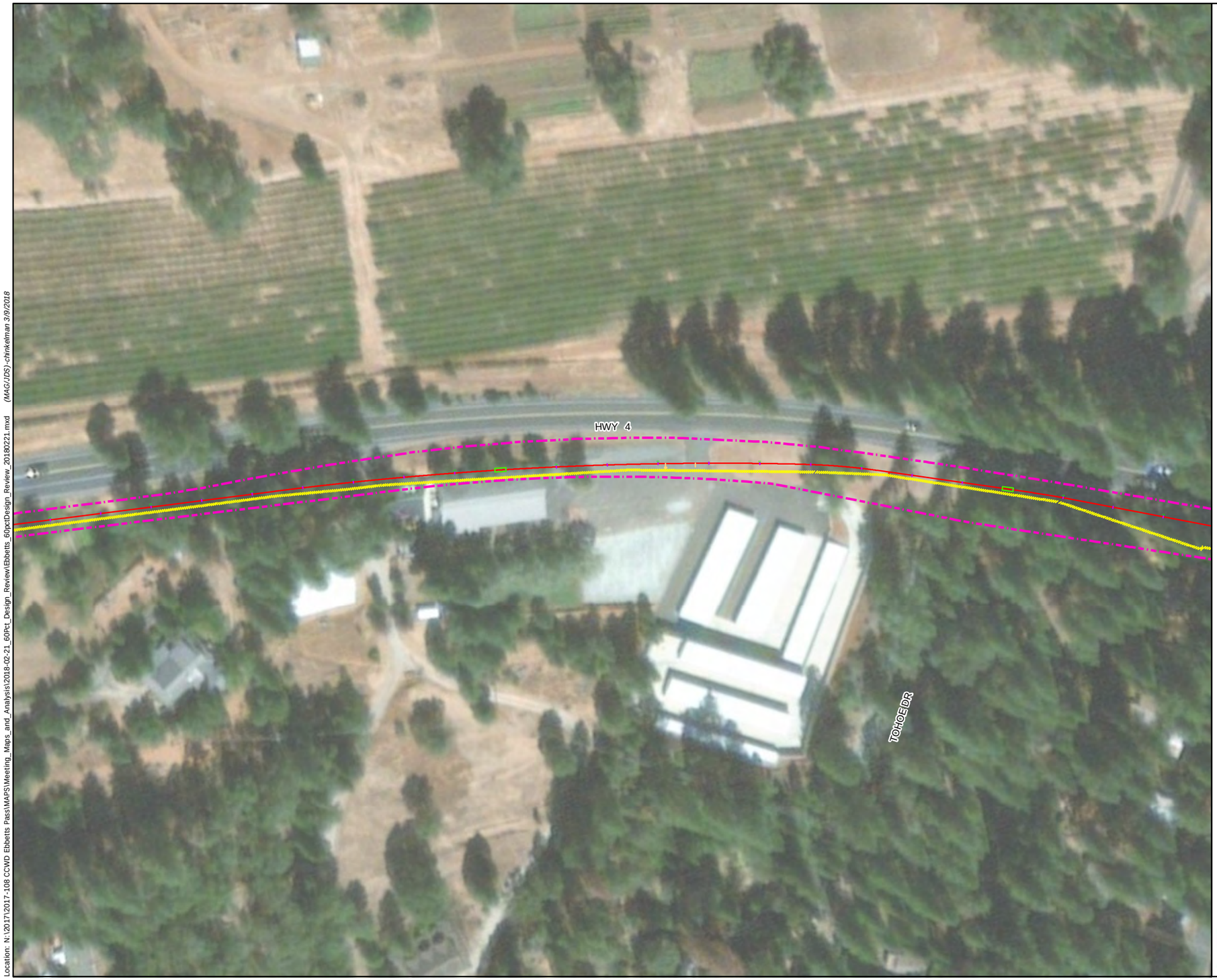
Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018



60% Design and Study Area Review Sheet 6 of 24

Map Features

Limits of Work (02-27-2018)

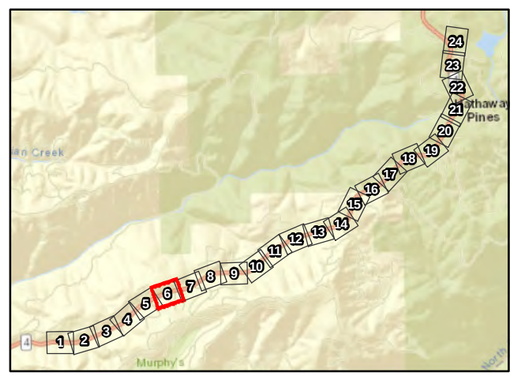
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chrinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 7 of 24

Map Features

Limits of Work (02-27-2018) Stockpile

Layer

Bore pit

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

HWY 4

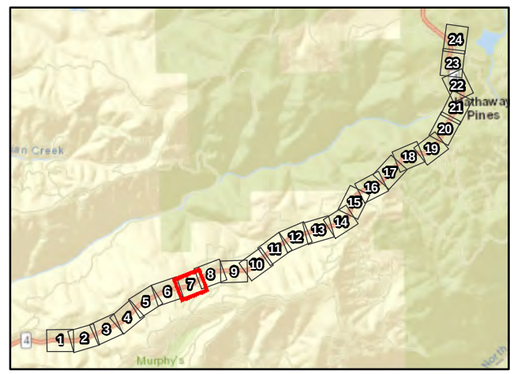
FOREST MEADOWS DR

FOREST MEADOWS DR

CEDAR VISTA DR

LUPINE LN

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

60% Design and Study Area Review Sheet 8 of 24

Map Features

Limits of Work (02-27-2018)

Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

NORTHWOOD DR

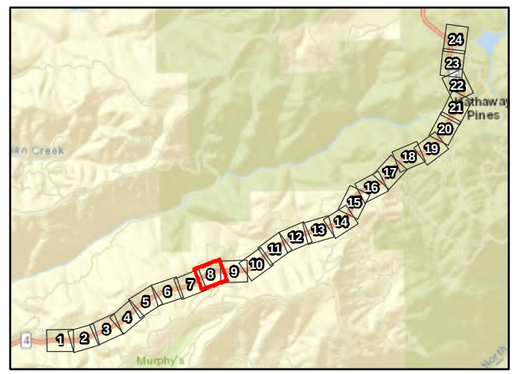
HWY 4

FOREST MEADOWS DR

FOREST MEADOWS DR

LUPINE LN

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

60% Design and Study Area Review Sheet 9 of 24

Map Features

Limits of Work (02-27-2018)

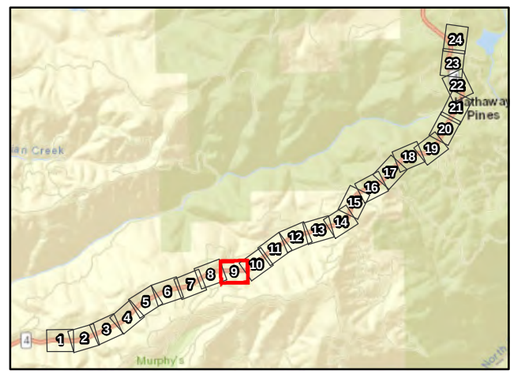
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 10 of 24

HWY 4

Map Features

Limits of Work (02-27-2018)

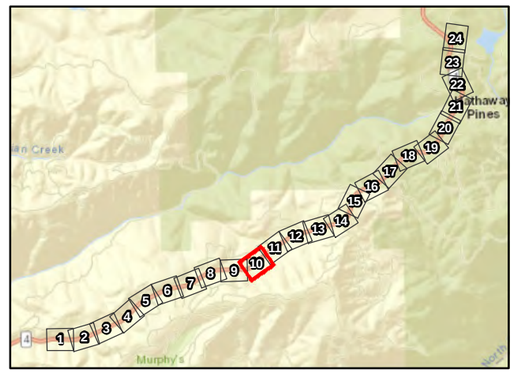
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

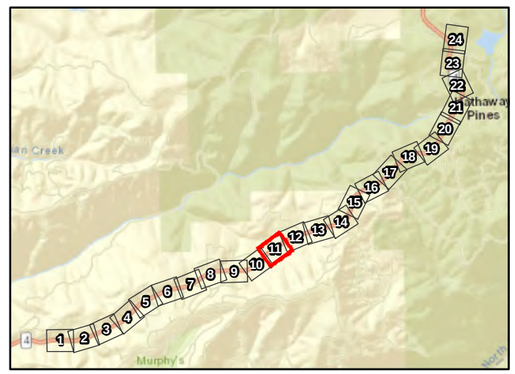
60% Design and Study Area Review Sheet 11 of 24

Map Features

Limits of Work (02-27-2018)

Layer

- Bore pit
- Existing Water Pipeline (to be abandoned)
- New Water Pipeline
- Water: valves



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 12 of 24

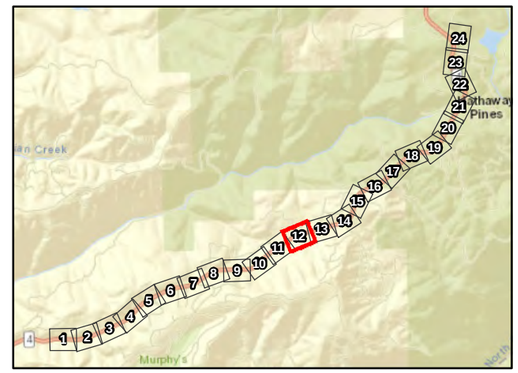
Map Features

- Limits of Work (02-27-2018)

Layer

- Bore pit
- Existing Water Pipeline (to be abandoned)
- New Water Pipeline
- Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60PctDesign_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chrinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 13 of 24

Map Features

Limits of Work (02-27-2018)

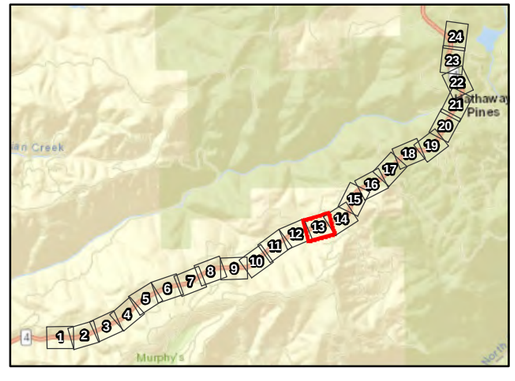
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chrinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 14 of 24

Map Features

Limits of Work (02-27-2018)

Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

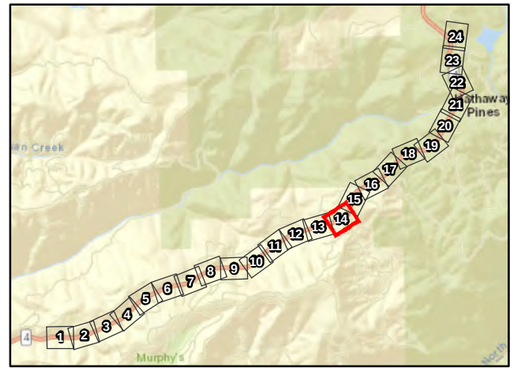
Water: valves

HWY 4

RED APPLE RD

DARBY RUSSELL RD

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

60% Design and Study Area Review Sheet 15 of 24

Map Features

Limits of Work (02-27-2018)

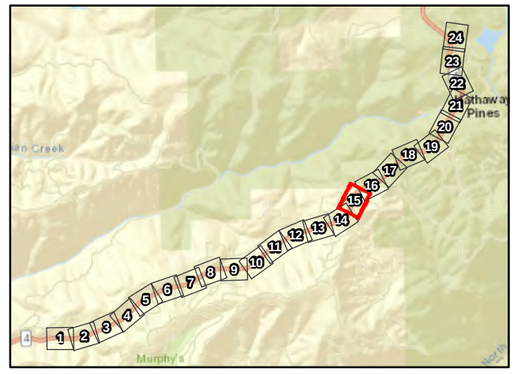
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60PctDesign_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chrinkelman 3/9/2018

60% Design and Study Area Review Sheet 16 of 24

Map Features

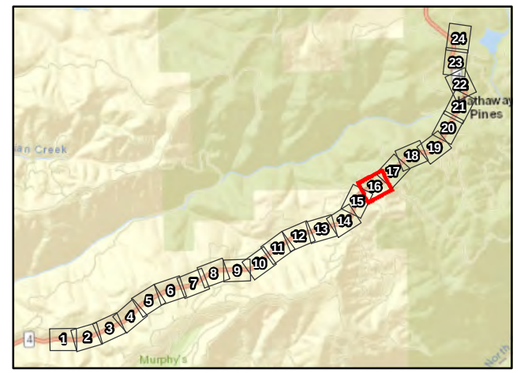
Limits of Work (02-27-2018)

Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 17 of 24

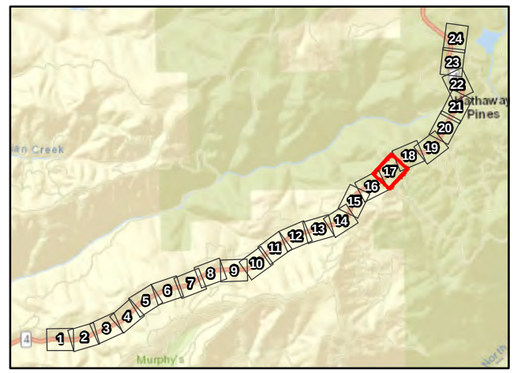
Map Features

Limits of Work (02-27-2018)

Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chrinkelman 3/9/2018

60% Design and Study Area Review Sheet 18 of 24

HWY 4

CRESTA VISTA DR

HORSESHOE DR

Map Features

Limits of Work (02-27-2018)

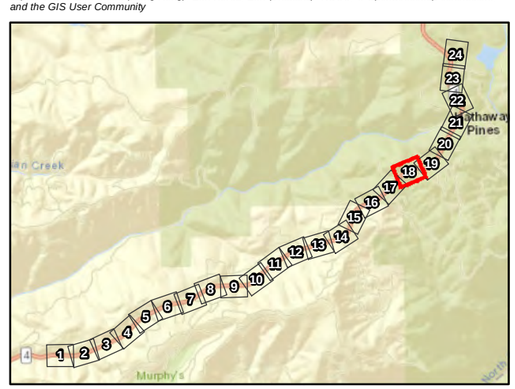
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

60% Design and Study Area Review Sheet 19 of 24

Map Features

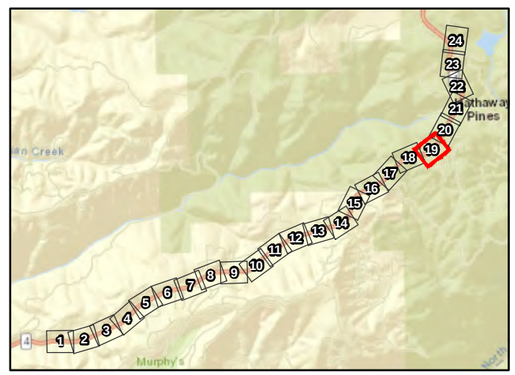
Limits of Work (02-27-2018) Stockpile

Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

60% Design and Study Area Review Sheet 20 of 24

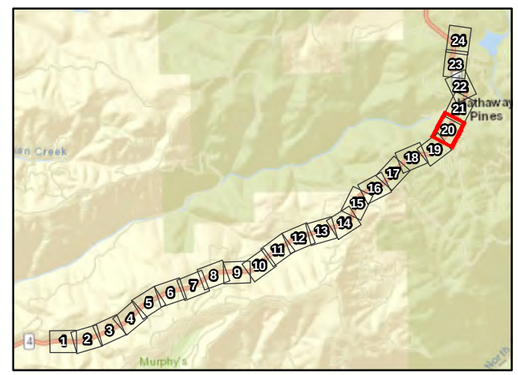
Map Features

- Limits of Work (02-27-2018)

Layer

- Existing Water Pipeline (to be abandoned)
- New Water Pipeline
- Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 21 of 24

BLUE JAY WY

CEDAR DR

HILLCREST DR

HWY 4

CANYON VIEW DR

Map Features

Limits of Work (02-27-2018)

Layer

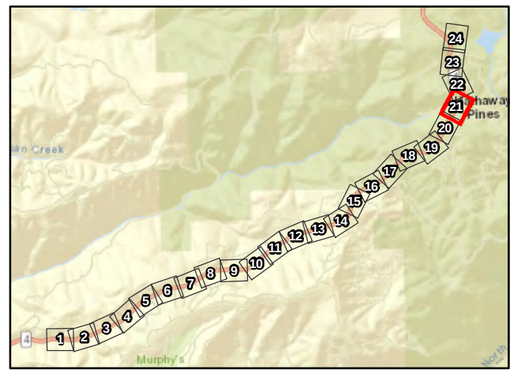
Bore pit

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60PctDesign_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chrinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

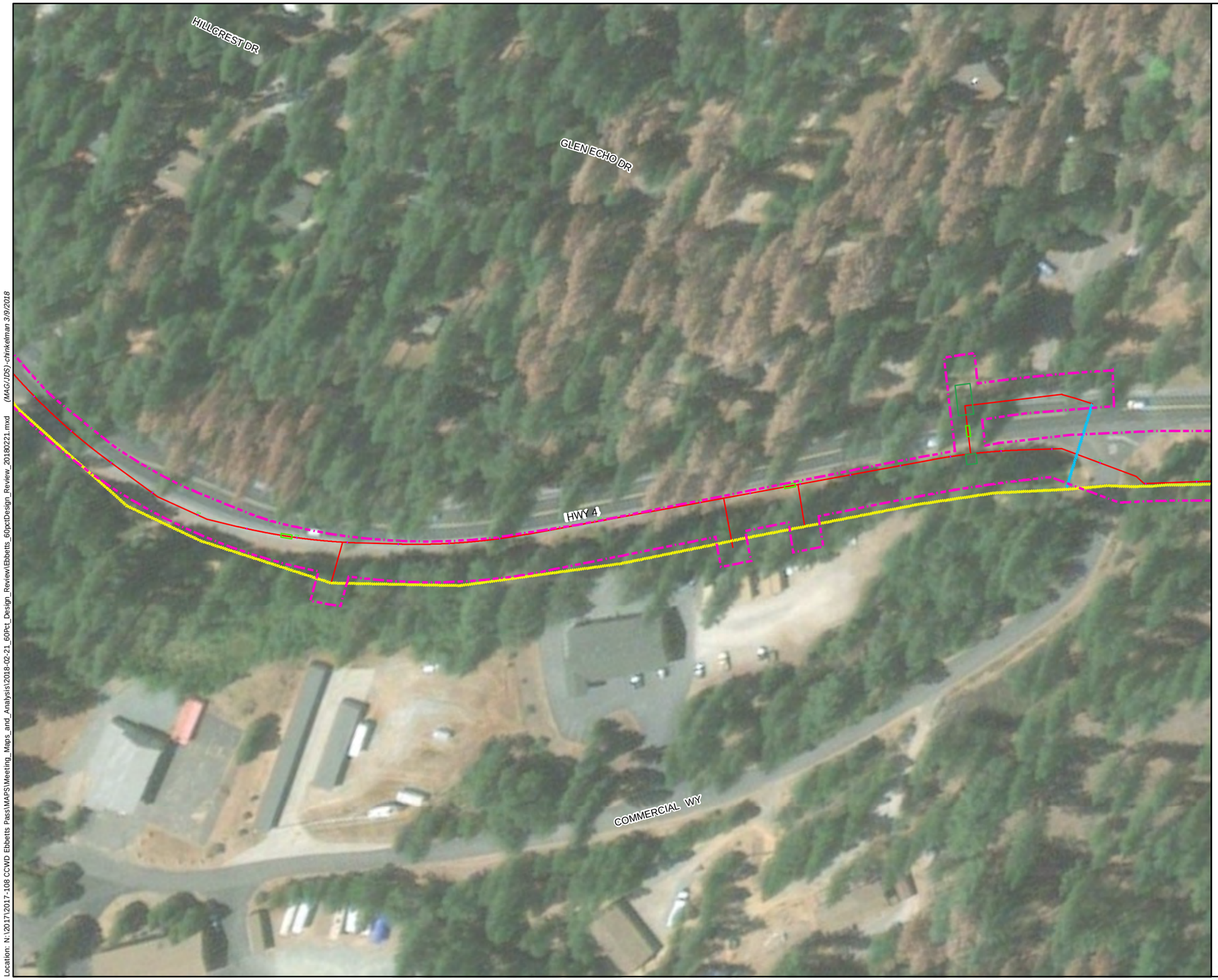
Scale in Feet

0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 22 of 24



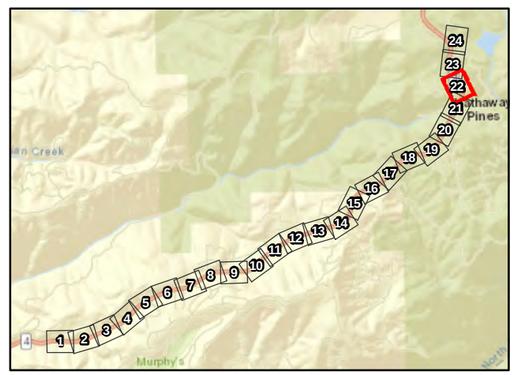
Map Features

- Limits of Work (02-27-2018)

Layer

- Bore pit
- Existing Water Pipeline (to be abandoned)
- New Water Pipeline
- Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 23 of 24

Map Features

Limits of Work (02-27-2018)

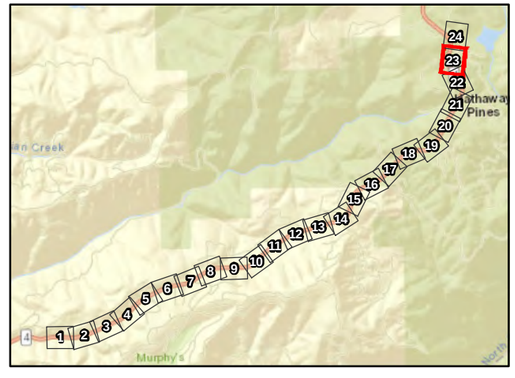
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

60% Design and Study Area Review Sheet 24 of 24

Map Features

Limits of Work (02-27-2018)

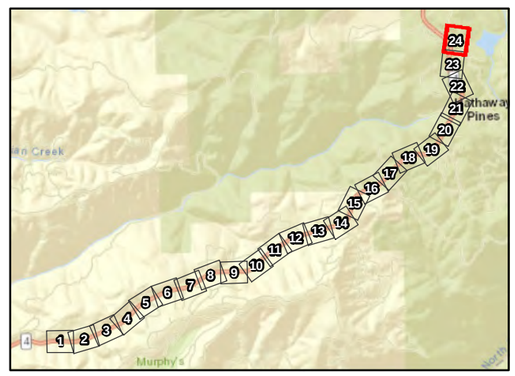
Layer

Existing Water Pipeline (to be abandoned)

New Water Pipeline

Water: valves

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-108 CCWD Ebbetts Pass\MAPS\Meeting_Maps_and_Analysis\2018-02-21_60Pct_Design_Review\Ebbetts_60pctDesign_Review_20180221.mxd (MAG/JDS) chinkelman 3/9/2018

2017-108 CCWD Ebbetts Pass

Scale in Feet
0 100

Photo Source: ESRI, 2016
Design: KASL (02/12/2018)

Map Date: 3/9/2018

www.ecorpconsulting.com

ROCKLIN, CA
(916) 782-9100

REDLANDS, CA
(909) 307-0046

SANTA ANA, CA
(714) 648-0630

SAN DIEGO, CA
(858) 279-4040

CHICO, CA
(530) 809-2585

SANTA FE, NM
(714) 222-5932