

MARCH 2020

Draft Initial Study and Mitigated Negative Declaration

PACIFIC TUNNEL REHABILITATION PROJECT



El Dorado Irrigation District

Prepared for:

EL DORADO IRRIGATION DISTRICT

2890 Mosquito Rd, Placerville, CA 95667

Contact: Michael Baron

(530) 642-4064

mbaron@eid.org

Prepared by

DUDEK

853 Lincoln Way, Suite 208

Auburn, CA 95603

530.863.4643 • dudek.com

Contact: Markus Lang

DRAFT

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Contact: Michael Baron, Environmental Compliance Analyst

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Auburn, California 95603

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1 Introduction

1.1 Project Overview

The Pacific Tunnel Rehabilitation Project (Project) consists of a complete replacement of the upstream and downstream portals and replacement of the existing timber invert and timber sidewalls within the existing canal tunnel using air-placed concrete. The Pacific Tunnel is part of the El Dorado Irrigation District's (EID, District) El Dorado Hydroelectric Project (FERC Project No. 184) and conveys water between two open sections of the El Dorado Canal. Construction related to the tunnel would include removal of the timber sidewalls, clearing of the invert, and installation of self-consolidating concrete to the final invert level to fill voids and uneven surfaces in the floor of the tunnel. Rock anchors would be installed along the floor and sidewalls of the tunnel and steel rebar and welded wire-mesh would be tied to the rock anchors to reinforce the new concrete floor and sidewalls. Air-placed concrete would be applied over the rock anchors and steel reinforcements and would form the new interior surface of the tunnel. The existing timber tunnel support sets would remain in place.

Road improvements would be necessary to provide construction access. These improvements would include minor surface grading to address rutting and/or potholing within the existing footprint of Park Creek Road and the portion of the Canal Access Road between Park Creek Road and Tunnel Access Road. To allow for construction access, approximately 1,200 feet of Tunnel Access Road between Canal Access Road and the tunnel site would require re-alignment and grading to provide an even slope with a 12-foot wide cross-section and a compacted subgrade. Project plans are included as Appendix A.

1.2 California Environmental Quality Act Compliance

The proposed Project is subject to review under the California Environmental Quality Act (CEQA). In accordance with Section 15051 of the CEQA Guidelines, "Criteria for Identifying the Lead Agency," the El Dorado Irrigation District (EID), as a public agency proposing to carry out the Project, is the Lead Agency.

This document is an Initial Study (IS) and proposed Mitigated Negative Declaration (MND) prepared by EID pursuant to Title 14 of the California Code of Regulations, Section 15063 of the California Environmental Quality Act (CEQA) Guidelines. Section 15063 of the Guidelines requires the Lead Agency to prepare an IS to analyze the potential environmental impacts associated with a Project to determine if the Project could have a significant effect on the environment. This IS/MND has been prepared (per CEQA Guidelines Sections 15070-15075) to identify potential environmental impacts of the proposed Project and to identify mitigation measures to avoid or reduce the significance of those impacts. CEQA requires the Lead Agency to adopt a mitigation monitoring and reporting program (MMRP) for all required mitigation measures. The MMRP is attached as Appendix B to this IS/MND.

1.3 Public Review Process

The proposed IS/MND is subject to a 30-day public review period. Consideration and adoption of the IS/MND will be considered by EID's Board of Directors at a public hearing. The public is encouraged to provide written comments during the 30-day review, and/or attend the Board of Director's hearing.

Comments may be submitted to EID at mbaron@eid.org or by U.S. mail at

El Dorado Irrigation District
2890 Mosquito Road
Placerville, California 95667

The Notice of Intent to adopt a mitigated negative declaration pursuant to Sections 21092 and 21092.3 of the Public Resources Code and CEQA Guidelines Section 15072 is provided on the following page. The Notice of Intent identifies the location, time and date of the public hearing at which EID's Board of Directors will consider approval of the proposed Project and this Initial Study and Mitigated Negative Declaration.



**NOTICE OF INTENT TO ADOPT A NEGATIVE DECLARATION
AND NOTICE OF PUBLIC HEARING
EL DORADO IRRIGATION DISTRICT
PACIFIC TUNNEL REHABILITATION PROJECT**

The El Dorado Irrigation District (EID) proposes to adopt a Mitigated Negative Declaration (MND) pursuant to the California Environmental Quality Act (CEQA) (Section 15000 et seq., Title 14, California Code of Regulations) for the Pacific Tunnel Rehabilitation Project (proposed Project). The proposed Project consists of a complete replacement of the upstream and downstream portals and replacement of the existing timber invert and timber sidewalls within the existing canal tunnel using air-placed concrete as a replacement for the timber components. The proposed Project would also require improvements to existing access roads, including minor surface grading and realignment. The approximately 14-acre project site is located south of State Route (SR) 50 in unincorporated El Dorado County near Fresh Pond, approximately 15 miles east of Placerville and 4 miles east of Pollock Pines. Portions of the project site are within the Eldorado National Forest and lands owned by EID.

Tunnel rehabilitation would consist of the complete replacement of the upstream and downstream portals, removing the existing timber invert and timber sidewalls within the tunnel, and relining the tunnel with air-placed concrete. Road improvements would be necessary to provide construction access. These improvements would include minor surface grading to address rutting and/or potholing within the existing footprint of Park Creek Road and Canal Access Road. Approximately 1,200 feet of Tunnel Access Road between Canal Access Road and the tunnel site would require re-alignment and grading to provide safe all-weather access. Project construction is anticipated to take approximately 6 months. The project site is not identified on the lists specified in Government Code section 65962.5.

EID is the lead agency under CEQA for the proposed Project and has directed the preparation of an Initial Study (IS) on the proposed Project in accordance with the requirements of CEQA, the State CEQA Guidelines, and EID's guidelines. The IS describes the proposed Project and assesses the proposed Project's potentially significant adverse impacts on the physical environment. It concludes that the proposed Project's potentially significant or significant adverse effects on the environment could be mitigated to less-than-significant levels; therefore, a proposed MND has been prepared.

Agencies and members of the public are invited to comment on the proposed IS/MND. The comment period is from April 1, 2020 to April 30, 2020. The proposed IS/MND can be reviewed at EID's Customer Service Building, 2890 Mosquito Road, Placerville, CA 95667 or on the EID website at www.eid.org/ceqa. Comments must be received by 5:00 p.m. on April 30, 2020. Comments can be sent to Michael Baron, Environmental Review Analyst, El Dorado Irrigation District, at the address above or by email at mbaron@eid.org. The EID Board of Directors will hold a public hearing to consider the IS/MND on May 11, 2020, or at a subsequent regularly scheduled board meeting. Meetings typically begin at 9:00 a.m. Please check EID's website for information regarding the meeting format: <https://www.eid.org/about-us/board-of-directors/meetings-agendas-and-minutes>

In accordance with the Americans with Disabilities Act (ADA) and California law, it is the policy of the El Dorado Irrigation District to offer its public programs, services and meetings in a manner that is readily accessible to everyone, including individuals with disabilities. If you are a person with a disability and require information or materials in an appropriate alternative format; or if you require any other accommodation for this meeting, please contact the EID ADA coordinator at 530.642.4045 or email at adacoordinator@eid.org at least 72 hours prior to the meeting. Advance notification within this guideline will enable the District to make reasonable accommodations to ensure accessibility.

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2 Summary of Findings

2.1 Environmental Factors Potentially Affected

This Initial Study analyzes the environmental impacts of the Project consistent with the format and analysis prompts provided in Appendix G of the CEQA Guidelines. The analysis determined that the Project would result in impacts associated with the following resource categories: Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Noise, and Tribal Cultural Resources. The analysis determined that all impacts identified in this Initial Study would be less than significant with implementation of mitigation measures to avoid or minimize the impacts identified. Detailed analyses of impacts is provided under each resource section evaluated in this Initial Study

2.2 Environmental Determination

EID finds that this Initial Study identifies potentially significant impacts, but that implementing the mitigation measures identified in Table 2-1 would avoid or minimize the impacts such that they would be less than significant. The proposed Project would result in no impacts that would remain significant following implementation of mitigation measures. All mitigation measures are identified by analysis topic in Table 2-1.

**Table 2-1
Mitigation Measures**

Number	Mitigation Measure
Air Quality	
AIR-1	<p>Construction activities shall comply with El Dorado County Air Quality Management District's Rule 223-1: Fugitive Dust- Construction, Bulk Material Handling, Blasting, other Earthmoving activities and Carryout and Trackout Prevention. The Project Contractor shall implement applicable Best Management Practices outlined in Table 1 of Rule 223-1, including but not limited to:</p> <ul style="list-style-type: none">• stabilization of backfill material,• pre-water soils prior to cut and fill activities,• re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 50 feet in any direction,• stabilize staging areas during use and at Project completion,• utilizing trackout prevention at construction access points. <p>Best management practices shall be contained in a Fugitive Dust Control Plan prepared by the Contractor and approved by the District's Engineer.</p>
Biological Resources	
BIO-1	<p>The following measures shall be implemented to avoid, minimize or reduce impacts to special-status plant species:</p> <ul style="list-style-type: none">• Prior to ground-disturbance, a qualified botanist familiar with common and rare plant species of the Sierra Nevada region shall conduct surveys of all areas of potential Project disturbance during the appropriate blooming period for potentially occurring special-status plant species.

	<p>The purpose of the survey shall be to delineate and flag populations of special-status plant species for avoidance. If no special-status plants are identified, no further mitigation is necessary. Special-status plant populations identified during the pre-construction survey shall be mapped using a hand-held GPS unit and avoided where possible. Plant individuals or populations plus a 10-foot buffer shall be temporarily fenced during construction activities with high-visibility fencing or prominently flagged. If complete avoidance of populations is infeasible, further measures, as described below, shall be necessary.</p> <ul style="list-style-type: none"> If avoidance of special-status plant species is not feasible, a qualified botanist shall prepare a Rare Plant Salvage and Translocation Plan prior to Project implementation. The Rare Plant Salvage and Translocation Plan shall be reviewed and approved by CDFW or the USFS, as applicable, and shall include the following, at a minimum: identification of occupied habitat to be preserved and occupied habitat to be removed; identification of on-site or off-site preservation, restoration, or enhancement locations; methods for preservation, restoration, enhancement, and/or translocation; goals and objectives for preservation, restoration, enhancement, and/or translocation; replacement ratio and success standard of 1:1 for impacted-to-established acreage; a monitoring program to ensure mitigation success; adaptive management and remedial measures in the event that the performance standards are not achieved; and financial assurances for conservation of mitigation lands; and a mechanism for conservation of any mitigation lands required in perpetuity.
BIO-2	<p>California spotted owls were detected during surveys conducted in 2019, and are therefore assumed to be present in the project area. To be protective of active nesting that could occur in the project area, EID shall schedule tree removal and/or road improvement activities to begin August 16 or later to avoid the "limited operating period" stipulated by the U.S. Forest Service, which coincides with the California spotted owl nesting season of March 1 through August 15. If vegetation removal, construction or road improvements must occur during the nesting season for this species, a qualified biologist shall conduct a nesting survey within 2 weeks prior to said activities to determine if any spotted owls are nesting on or near the proposed areas of disturbance (including a 500-foot buffer). Nesting surveys conducted for spotted owl, required if construction activities are within 0.25 mile of a known Protected Activity Center, shall follow appropriate U.S. Forest Service survey protocols. If any active nests are observed during surveys, a suitable avoidance buffer from the nests shall be determined and flagged by the qualified biologist based on location and the timing and extent of planned ground-disturbance activities. Consultation with USFW and/or CDFW may be required to determine appropriate avoidance buffer distances. Ground-disturbing activities within the established buffers shall be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. These measures will also serve to avoid/minimize direct and indirect impacts on native nesting birds, including other raptor species, and their active nests which are protected by regulations in the California Fish and Game Code. However, avoidance buffers can potentially be less than that established for nesting spotted owls depending on the species and timing/extent/location of proposed ground-disturbance activities.</p>
BIO-3	<p>Removal of potential roost habitat identified during the assessment shall be avoided during the bat maternity season (May 1 through August 15). A qualified biologist experienced with Sierra Nevada bat species shall conduct a survey to search for evidence of bat roosts in trees and structures subject to removal if the Project activities would occur during the bat maternity season. If removal of potential roost habitat occurs outside of the maternity season, no further mitigation shall be required. If removal of potential roost habitat must be conducted during the maternity season, pre-construction inspections for bats must be conducted using appropriate methods (e.g., camera inspection, exit survey with night optics, acoustic survey) within 2 weeks prior to said activities. If bats are found during inspections, removal of that roost feature must be delayed until the end of the maternity season or until a qualified bat biologist has determined that the young are capable of flight.</p>
Cultural Resources	

CUL-1	In the event that unanticipated archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082) the archaeologist may record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the archaeologist observes the discovery to be potentially significant under CEQA or Section 106 of the National Historic Preservation Act, additional efforts may be warranted as recommended by the qualified archaeologist.
CUL-2	In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found the county coroner shall be immediately notified of the discovery. The coroner will provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, shall occur until a determination has been made. If the county coroner determines that the remains are, or are believed to be, Native American, they shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendent (MLD) from the deceased Native American. Within 48 hours of their notification, the MLD will recommend to the lead agency their preferred treatment of the remains and associated grave goods.
Geology and Soils	
GEO-1	In order to reduce runoff and erosion, and minimize the potential of sedimentation as a result of the Project, EID shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for all construction activities.
GEO-2	EID shall ensure that disturbed areas are protected through reseeding, and/or laying out mulch or gravel. A seed mix approved by the Forest Service will be used to revegetate disturbed areas and reduce potential for erosion and sedimentation.
Hazards and Hazardous Materials	
HAZ-1	<p>The following measures shall be implemented prior to and during construction and shall be incorporated into Project plans and specifications.</p> <ul style="list-style-type: none"> • All equipment shall be inspected by the contractor for leaks prior to the start of construction and regularly throughout Project construction. Leaks from any equipment shall be contained and the leak remedied before the equipment is used again on the site. • BMPs for spill prevention shall be incorporated into Project plans and specifications and shall contain measures for secondary containment and safe handling procedures according to the product Material Safety Data Sheets. • A spill kit shall be maintained on site throughout all construction activities and shall contain appropriate items to absorb, contain, neutralize, or remove hazardous materials stored or used in large quantities during construction. • Project plans and specifications shall identify construction staging areas and designated areas where equipment refueling, lubrication, and maintenance may occur. Areas designated for refueling, lubrication, and maintenance of equipment shall be approved by EID. • In the event of any spill or release of any chemical or wastewater during construction, the contractor shall immediately notify EID. • Hazardous substances shall be handled in accordance with the Project 184 Hazardous Substances Plan, which prescribes measures to appropriately manage hazardous substances, including requirements for storage, spill prevention and response and reporting procedures.
HAZ.2	In order to minimize the risk of accidental ignition of surrounding wildlands, EID shall prepare a Fire Prevention Plan, per Eldorado National Forest guidelines. EID and its Contractor shall abide by the

	requirements of the Fire Prevention Plan. Measures may include but are not limited to adhering to the Fire Prevention Period (typically June 1 to October 15); obtaining permits from the Forest Service for certain activities such as welding and blasting; fire suppression equipment requirements; designating a fire supervisor on site; smoking and fire rules; requirements for parking and equipment and materials storage and storage areas; and designating a fire patrol person.
Noise	
NOISE-1	To avoid high noise levels during nighttime hours, construction truck traffic along Park Creek Road shall be limited to daytime periods between 7 a.m. and 7 p.m., Monday through Friday and 8 a.m. and 5 p.m. on weekends, and on federally-recognized holidays, whenever feasible.
Tribal Cultural Resources	
TCR-1	<p>Address Previously Undiscovered Historic Properties and Archaeological Resources.</p> <p>EID shall implement the following measure to reduce or avoid impacts on undiscovered historic properties, archaeological resources, and tribal cultural resources. If interested Native American Tribes provide information demonstrating the significance of the project location and tangible evidence supporting the determination the site is highly sensitive for prehistoric archaeological resources or tribal cultural resources, EID will retain a qualified archaeologist to 1) monitor for potential prehistoric archaeological resources during initial ground disturbing activities, 2) prepare a worker awareness brochure, 3) invite tribal representatives to review the worker awareness brochure, and 4) conduct training of personnel involved in Project implementation. If buried or previously unidentified historic properties or archaeological resources are discovered during Project activities, all work within a 100-foot radius of the find shall cease. EID shall retain a professional archaeologist meeting the Secretary of the Interior's Professional Standards for Archaeologists to assess the discovery and recommend what, if any, further treatment or investigation is necessary for the find. Interested Native American Tribes will also be contacted. Any necessary treatment/investigation shall be developed with interested Native American Tribes providing recommendations and shall be coordinated with the State Historic Preservation Officer. Necessary treatment/investigation shall be completed before Project activities continue in the vicinity of the find.</p>

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3 Initial Study Checklist

1. Project title:

Pacific Tunnel Rehabilitation

2. Lead agency name and address:

El Dorado Irrigation District
2890 Mosquito Rd,
Placerville, CA 95667

3. Contact person and phone number:

Contact: Michael Baron
Phone: (530) 622-4513
Email: mbaron@eid.org

4. Project location:

The approximately 14-acre project site is located on EID property and lands managed by the Eldorado National Forest, south of State Route (SR) 50 near Fresh Pond, California, approximately 15 miles east of Placerville and 4 miles east of Pollock Pines, as shown in Figures 1 and 2. From SR 50, the site is accessed via Sly Park Road, Park Creek Road, Canal Access Road, and Tunnel Access Road. The site is located in Sections 32, 33, and 34, Township 11 North, and Range 13 East of the "Pollock Pines, CA" U.S. Geological Survey 7.5-minute quadrangle. A sliver of the project site, near the southeastern extent, is located in Sections 2 and 3, Township 10 North, and Range 13 east of the "Sly Park, CA" quadrangle. The approximate center of the site corresponds to 38°44'59.82" North latitude and 120°31'52.14" West longitude. The project location is shown in Figure 1 - Site & Vicinity Map, and Figure 2 - Project Aerial Map.

5. Project sponsor's name and address:

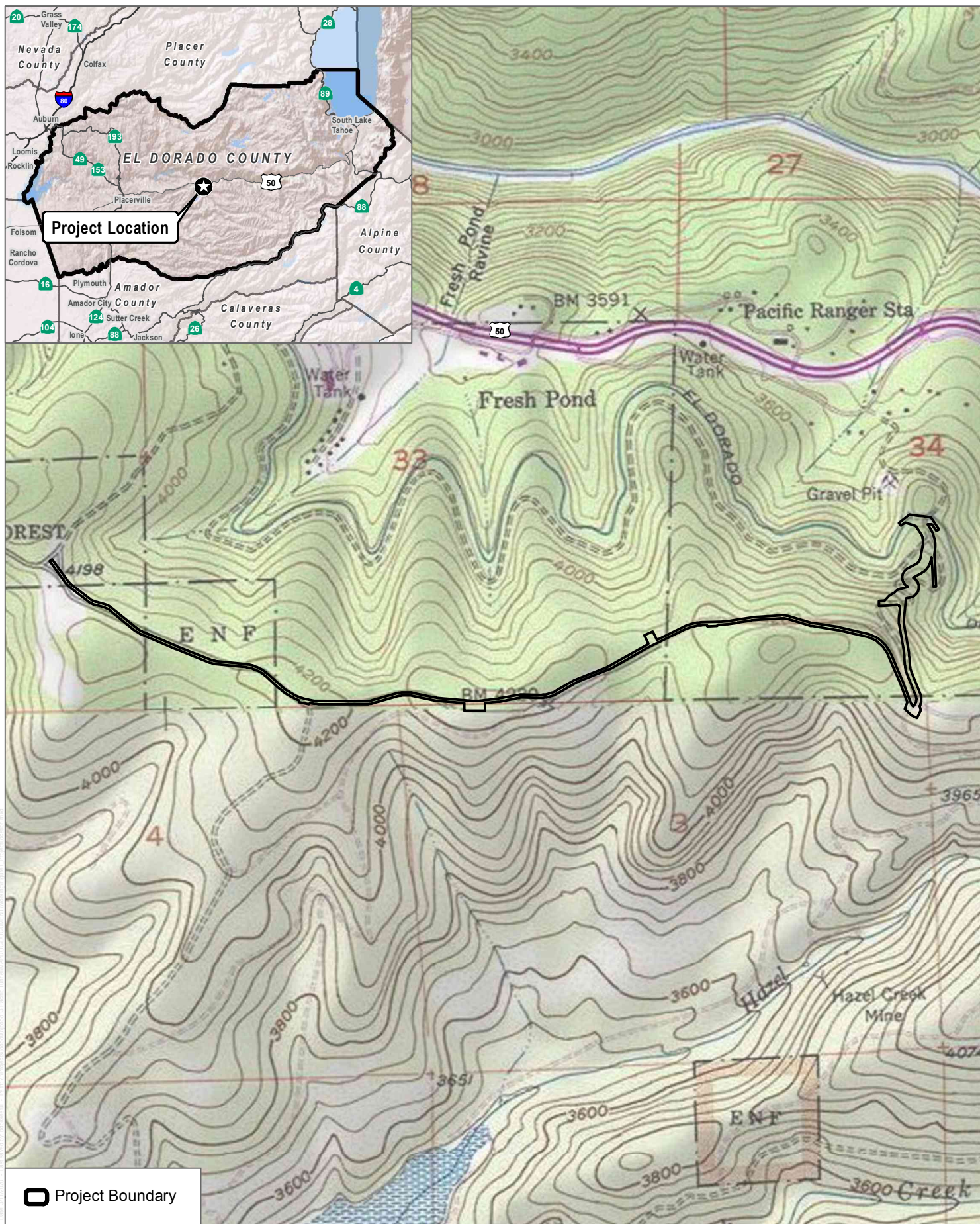
El Dorado Irrigation District
2890 Mosquito Rd,
Placerville, CA 95667

6. General plan designation:

Natural Resources (NR)

7. Zoning:

Timber Production Zone (TPZ) and Forest Resource – 160-acre minimum lot size (FR-160)



SOURCE: USGS 7.5 Minute Series Pollock Pines & Sly Park Quadrangle(s)
 Township 10N / Range 13E / Sections 2-4, 32-34

FIGURE 1

Site & Vicinity

Pacific Tunnel Rehabilitation Project



SOURCE: USDA 2016

FIGURE 2
Project Aerial
Pacific Tunnel Rehabilitation Project

PROJECT DESCRIPTION

Background and Context

The Pacific Tunnel is approximately 187-feet long and is a water conveyance component of the El Dorado Canal, which is part of FERC Project No. 184. Most of the tunnel is unlined and approximately seven feet wide by seven feet high with a modified horseshoe section. The tunnel has a timber plank invert, timber sets, and timber sidewall. The tunnel sidewalls, invert, and upstream and downstream portals were re-constructed in 2002 with untreated timber. The untreated timber had a design-span of approximately seven years. The untreated timber is 14-years old and degraded, resulting in a potential lack of support at the portals. The proposed Project would replace aging support timbers and rehabilitate the existing tunnel to ensure reliable flows and safe operation of the canal. The proposed Project is described in greater detail, below; Project plans are attached as Appendix A.

Tunnel Rehabilitation

The Project includes rehabilitating the existing Pacific Tunnel, which would consist of the complete replacement of the upstream and downstream portals, removing the existing timber invert and timber sidewalls within the tunnel, and relining the tunnel with air-placed concrete. Relining the tunnel would include replacing the existing timber invert with self-consolidating concrete and replacing the timber sidewalls with air-placed concrete to fill uneven surfaces in the tunnel. Rock anchors would be used to tie in steel rebar and welded wire-mesh that would reinforce the new concrete placed on the floor and sidewalls of the tunnel. Replacement of the portals, which generally consist of the first five feet of the tunnel extending inward from the entrance and the exit, would reflect the current geometry of the portals and include the addition of a cantilevered eyebrow above the portal to deflect rocks and debris away from the channel. The tunnel rehabilitation work would place approximately 55 cubic yards (CY) of self-consolidating concrete on the floor of the tunnel and 140 CY of air-placed concrete on the sidewalls and crown. The Project does not include removing the existing timber tunnel support sets; though tunnel support sets would be subject to evaluation during construction and replaced if necessary. All work on the tunnel will conform to the FERC guidelines for water conveyance structures.

Park Creek Road

Construction access to the site would be via SR 50 to Sly Park Road, to Park Creek Road, to Canal Access Road, to Tunnel Access Road. Approximately 1.93 miles of Park Creek Road, from its intersection with Old Carson Road to Canal Access Road, would require minor surface improvements to accommodate construction traffic access for the Project. Minor improvements and maintenance along Park Creek Road would include grading, the use of aggregate base, riprap (loose stone), and drainage controls to improve surface drainage.

Canal Access Road and Tunnel Access Road

Canal Access Road and Tunnel Access Road would provide access to the project site from Park Creek Road. Canal Access Road would require minor surface grading. Tunnel Access Road would require re-alignment, grading, and widening to 12-feet with compacted sub-grade to allow construction and ongoing operations and maintenance access. Tree removal would be required for these activities.

Construction Activities and Methods

Construction activities and methodology would be consistent with the following:

- Clearing and grubbing of trees and shrubs, including stumps within the footprint. Cleared and grubbed vegetation will be removed or disposed of off-site at an approved location.
- Wood from the tunnel will be removed with care taken to protect the existing timber sets from damage. The debris from the tunnel demolition will be removed and disposed of at an off-site approved location.
- Conventional open-cut soil excavation methods will be used for access road improvements. Excavated material from the foundation preparation will be used for the haul routes if suitable. Excess grading material will be stockpiled on-site and used on-site or hauled to an off-site location for disposal or use. Grading quantities are provided in Table 3-1.
- Self-consolidating concrete for the tunnel invert will be obtained from existing commercial concrete plants and the concrete will be transported to the site and placement areas using ready-mix concrete trucks.
- Demobilization and reclamation of disturbed areas will include removing construction equipment and debris, removing temporary facilities, placing a layer of topsoil and seeding, fertilizing, and mulching the areas. Disturbed areas include areas impacted by construction activities, areas topped with erosion protection, and permanent access roads.
- It is assumed that construction activities will be performed continuously during daylight hours throughout a 6-month period (including mobilization to demobilization). Construction of haul roads may happen as early as August 2020. Work in the tunnel would be limited by the District's system shut-down scheduled from October 1, 2020 to December 15, 2020..
- Supervision and inspection includes contractor, owner, construction management, and technical field staff to coordinate and oversee construction activities.

Lighting

The proposed Project may require the use of lighting in the event of nighttime construction. No lighting would be necessary during operation.

Tree Removal

The Project would require the removal of approximately 30 trees, ranging from 10 inches to 48 inches diameter at breast height (dbh). An estimated 10 additional trees with dbh less than 10 inches would be removed. Tree removal would primarily be required for road grading, re-alignment and widening. The tree species proposed for removal include fir, cedar, oak, and pine trees. Tree removal within the Eldorado National Forest would be coordinated with the Forest Service through a Timber Sale Contract.

Grading and Road Improvements

Construction access to the project site would require use of Park Creek Road, which is not improved for all-weather access and can be impassable during winter and rain events and thus would require improvements in order to be used for the proposed Project. Access to Pacific Tunnel from Park Creek Road would be provided by the existing Canal Access Road and Tunnel Access Road. To accommodate construction traffic, Tunnel Access Road would be re-aligned, graded, widened, and resurfaced with compacted subgrade to provide all-weather access. Grading quantities estimated for the Project are as given in Table 3-1.

Table 3-1. Estimated Grading Quantities

Project Component	Total Quantity (Cubic Yards)
Park Creek Road Improvements	0 (cut) 1,150 (fill)
Canal Access Road and Tunnel Access Road Improvements	2,200 (cut) 650 (fill)

Materials Storage Areas and Equipment Staging

The proposed Project includes a 1,000 square-foot gravel laydown area for storing materials and equipment during construction. Materials and equipment would be stored less than 100 feet north of the Pacific Tunnel. After construction, any materials not used for the proposed Project would be hauled off-site and disposed of in a landfill or recycled at a recycling facility.

Project Construction Schedule and Phasing

Project construction (from mobilization to demobilization) is anticipated to take approximately 6 months and would occur in a single phase. Construction of the Project would occur during the regular fall maintenance outage of the El Dorado Project 184 facilities from October to December 2020. It is estimated that completion of the Pacific Tunnel Rehabilitation Project will require up to 1,000 highway truck trips and 400 on-site haul trips. On-site haul trips would consist of trips from the tunnel area to Park Creek Road.

9. Surrounding land uses and setting

The project site consists of an approximately 14-acre area of potential disturbance that includes the 187-foot Pacific Tunnel, 2,300 feet of access roadway between Pacific Tunnel and Park Creek Road (Canal Access Road and Tunnel Access Road), an approximately 1.9 mile segment of Park Creek Road between Old Carson Road and Tunnel Access Road, and staging area (Figures 1 and 2). The project site is located within the northern high Sierra Nevada geographic subdivision of the California Floristic Province and is surrounded by dense, mostly coniferous forest interspersed with patches of commercially logged forest lands. Elevation on the project site ranges from 3,855 to 4,275 feet. A majority of the project site, beginning from the west, is a dirt/gravel road situated along an east-west ridge with relatively flat topography, while the northeastern extent of the project site is located on a north-facing, densely forested hillside.

The tunnel site is located on District-owned property. Access to the site crosses through a mixture of public and private lands owned by the U.S. Forest Service, Sierra Pacific Industries, District property, and SMUD. The nearest residences are located along Mill Run Road, approximately 1,000 feet north of the Pacific Tunnel site.

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

The following permits and approvals could be required to carry out the proposed Project:

- U.S. Forest Service: Consistency with existing Special Use Permit and/or Timber Sale Permit
- State Water Resources Control Board, Central Valley Region: NPDES General Permit

Per California Government Code Section 53091(d) and 53091(e), the County cannot prohibit the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy. Thus, the proposed Project is not in conflict with the existing land use designation or zoning code.

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.

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

Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- ☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.



Michael C. Baron, Environmental Review Analyst

March 30, 2020
Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from “Earlier Analyses,” as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a. Earlier Analysis Used. Identify and state where they are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c. Mitigation Measures. For effects that are “Less Than Significant With Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a. The significance criteria or threshold, if any, used to evaluate each question; and
 - b. The mitigation measure identified, if any, to reduce the impact to less than significance

3.1 Aesthetics

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

Setting

The area surrounding the project site is characterized by steep, mountainous terrain, canyons and dense forestlands. Land uses in the surrounding area include other infrastructure associated with Project 184, undeveloped forest, commercial logging, and outdoor recreation. Elevations on the project site range from 3,855 to 4,275 feet above mean sea level. A majority of the project site, beginning from the west, is located along a dirt/gravel road that is situated along an east/west ridge with relatively flat topography, and the northeastern extent of the project site is located on a north-facing, densely forested hillside. The tunnel site is located on a steep slope approximately 0.5-mile south of the South Fork of the American River at an elevation of approximately 3,900 feet. SR 50 roughly follows the course of the river at the bottom of the canyon at an elevation of approximately 3,300 feet in the vicinity of the project site (Figure 1). Park Creek Road is south of SR 50. SR 50 is designated as a federal, state, and/or county scenic routes in the project area. The Forest Service, Caltrans, and El Dorado County each have jurisdiction over lands within the viewshed of SR 50 and may regulate development and advertising along the roadway, perform roadway or vegetation maintenance, and perform/regulate other improvements along the roadway. The project site is not visible from SR 50.

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

Please refer to the discussion under c), below.

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

Please refer to the discussion under c), below.

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

As discussed in *Setting*, above, the project site is not visible from SR 50, a designated State Scenic Highway. Passing motorists would not be able to see the project site. The view south of SR 50 to the project site is obstructed by dense forestland and intervening topography.

The proposed Project activities include roadway improvements and rehabilitation of an existing water conveyance tunnel. In general, any outwardly visible constructed features would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Specifically, the roadway improvements and replacement of existing tunnel structures would not result in noticeable changes because these activities would be performed where existing facilities are present and the post-Project conditions would be similar to the current visible condition. The Pacific Tunnel reconstruction would likely not be visible from surrounding vantage points because these features are generally located at grade and would largely be concealed by existing vegetative screening from trees downslope. Because post-Project conditions would be similar to the current visible conditions, the Project would not result in a substantial change in the visual element of the tunnel as viewed from surrounding roadways or vantage points. The project site is not visible from any formally-designated scenic vista or viewpoint.

Proposed roadway improvements would require removal of approximately 30 trees equal to or greater than 10 inches dbh. Most Project elements would be screened from view by dense surrounding forest and steep slopes following tree removal. Areas upslope of the tunnel where tree removal is necessary may not be completely screened by surrounding forest and some change in the appearance of the site may be detectable as viewed from surrounding roadways or vantage points. However, removal of 30 trees would result in no change in the overall visual character of the project site. Therefore, tree removal associated with the Project would not result in a substantial change in the visual character as viewed from surrounding roadways or vantage points.

During Project implementation, construction equipment and materials may be temporarily visible from vantage points, but construction activities would be temporary and intermittent, occurring only during active construction periods and would not result in a substantial change in the visual character of the site and its surroundings.

The Project would not cause a substantial change in the existing visual condition of the project area as viewed from SR 50, Pollock Pines, and surrounding areas. Therefore, impacts to scenic vistas, scenic resources within a scenic highway, and degradation of the existing visual character or quality of the site and the surrounding area would be **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?*

The Project includes no new lighting for security or other purposes. Construction may occur over nighttime hours and would introduce temporary sources of light to areas that are normally not illuminated, but construction activities would be short term, if necessary at all. No sources of light or glare would occur during ongoing operations of the canal aside from future maintenance or emergency repair activities that could be required at night and occur in the existing condition. Impacts associated with light or glare would be **less than significant**.

3.2 Agriculture and Forestry Resources

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

Setting

The Project would occur on land within the Eldorado National Forest as well as some private lands where EID has existing access for Project 184 operations and maintenance. No Farmland designations apply to the project site, according to review of the Farmland Mapping and Monitoring Program (CDC 2020). The project site is within Timber Production Zone (TPZ) and Forest Resource - 160 Acres (FR-160) zone districts and the El Dorado County General Plan applies a Natural Resources (NR) land use designation to the site. Tree removal as part of the proposed Project would be coordinated with the Forest Service through a Timber Sale Contract.

- 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?***

The Project would occur within the boundaries of the Eldorado National Forest and within private lands that carry no formal Farmland designation and would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation, to non-agricultural use (CDC 2020). Therefore, the Project would have **no impact**.

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

The Project would occur within the boundaries of the Eldorado National Forest or on private land where EID has existing access for Project 184 operation and maintenance and would not conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, the Project would have **no impact**.

- 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))?***

The Project would occur on land where EID has existing access for Project 184 operations and maintenance, and would not necessitate rezoning and would not conflict with existing zoning, which allows for water utilities and utility access. Therefore, there will be **no impact**.

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

The Project would require the removal of approximately 30 trees in to re-align Tunnel Access Road. However, no loss or conversion of forest land would occur because lands within the Project area that are disturbed by the Project would be available to reestablish to forest land over time through natural recruitment. Therefore, the Project would not result in permanent loss or conversion of forest land to non-forest uses. The Project would not result in permanent loss or conversion of forest land, and therefore, impacts associated with loss of forest land would be **less than significant**.

- 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?*

The Project would not result in the conversion of Farmland to non-agricultural use or forestland to non-forest use. Therefore, **no impact** would occur.

3.3 Air Quality

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

Setting

The Project is located within the Mountain Counties Air Basin (MCAB) and is within the jurisdictional boundaries of the El Dorado County Air Quality Management District (EDCAQMD), which has jurisdiction over El Dorado County. Primary sources of air pollution in the Project vicinity include local vehicle and equipment emissions, industrial emissions from nearby metropolitan areas, emissions associated with wildfire and wood-burning appliances, and dust particulates. Sensitive receptors in the vicinity of the Project include rural residential areas north of the project site off of Mill Run road near SR 50, the nearest of which is approximately 1,000 feet north of Pacific Tunnel.

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants that are evaluated include volatile organic compounds (VOCs, also referred to as reactive organic gases (ROGs)), oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), particulate matter with an aerodynamic diameter less than or equal to 10 microns in size (PM₁₀), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns in size (PM_{2.5}). VOCs and NO_x are important because they are precursors to ozone (O₃) formation. Criteria air pollutant emissions from construction activities is typically associated with operation of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicle trips.

Operational emission sources for a utility project such as a flume or canal replacement would typically include mobile (vehicle) sources related to maintenance and operation, and area sources associated with use of consumer products, as well as energy use associated with facility operations (power generation).

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), which provides guidance that a Project would have a significant environmental impact if it would:

- Conflict with or obstruct the implementation of the applicable air quality plan (AQP)
- Violate any air quality standard or contribute substantially to an existing or Projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O₃ precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

In addition, Appendix G of the CEQA Guidelines indicates that where available, the significance criteria established by the applicable air quality management district may be relied upon to determine whether a project would have a significant impact on air quality. The EDCAQMD has adopted thresholds to address the significance of air quality impacts resulting from a Project. These thresholds are identified in Table 3-2. According to the EDCAQMD, if ROG and NO_x are less than significant during construction, then exhaust CO and PM₁₀ are also considered to be less than significant. During operation, if ROG and NO_x are less than significant, then exhaust CO, NO₂, SO₂, and PM₁₀ would also be considered less than significant.

Table 3-2. EDCAQMD Air Quality Significance Thresholds

Pollutant	Construction	Operation
Criteria Pollutants Mass Daily Thresholds		
ROG	82 lbs/day	82 lbs/day
NO _x	82 lbs/day	82 lbs/day

Source: EDCAQMD 2002.

Notes:

Construction Screening: If ROG and NO_x are less than significant during construction, then exhaust CO and PM₁₀ would also be less than significant.

Operational Screening: If ROG and NO_x are less than significant during operation, then exhaust CO, NO₂, SO₂, and PM₁₀ would also be less than significant.

EDCAQMD = El Dorado County Air Quality Management District; lb/day = pounds per day; ROG = Reactive Organic Gases; NO₂ = nitrogen oxides; NO₂ = nitrogen dioxide; CO = carbon monoxide; SO₂ = sulfur dioxide; PM₁₀ = coarse particulate matter.

For qualitative screening, ROG and NO_x Emissions may be assumed to not be significant during construction if:

- The project encompasses 12 acres or less of ground that is being worked at one time during construction and at least one of the recommended mitigation measures related to such pollutants is incorporated into the construction of the project; or

- The project proponent commits to pay mitigation fees in accordance with the provisions of an established mitigation fee program in the district (or such program in another air pollution control district that is acceptable to EDCAQMD); or
- Daily average fuel use is less than 337 gallons per day for equipment from 1995 or earlier, or 402 gallons per day for equipment from 1996 or later

For fugitive dust, if dust suppression measures will prevent visible emissions beyond the boundaries of the project, further calculations to determine particulate emissions are not necessary. For the other criteria pollutants, including CO, PM₁₀, SO₂, NO₂, sulfates, lead, and H₂S, a project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of the applicable national or state ambient air quality standard(s).

Naturally occurring asbestos (NOA) is also a concern in El Dorado County because it is known to be present in certain soils and can pose a health risk if released into the air. The EDCAQMD has adopted an El Dorado County Naturally Occurring Asbestos Review Area Map that identifies those areas more likely to contain NOA (El Dorado County 2005).

The *Guide to Air Quality Assessment* also includes a Table (Table 5.2) listing project types with potentially significant emissions during operations.

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

The MCAB is currently non-attainment for ozone (O₃) (state and federal ambient standards) and particulate matter (PM₁₀) (state ambient standard). While an air quality plan exists for ozone, none currently exists for particulate matter. The Sacramento Regional 2008 NAAQS (National Ambient Air Quality Standards) 8-Hour Ozone Attainment Plan and Reasonable Further Progress Plan (Ozone Attainment Plan) was developed for application within the Sacramento region, including the MCAB portion of El Dorado County (EDCAQMD *et al.* 2017). If a project can demonstrate consistency with the Ozone Attainment Plan for ROG and NO_x emissions, it would be determined to not have a significant cumulative impact with respect to ozone.

Projects within the MCAB portion of the County must demonstrate Ozone Attainment Plan consistency with the following four indicators:

1. The project does not require a change in the existing land use designation (e.g., a general plan amendment or rezone), or projected emissions of ROG and NO_x from a project are equal to or less than the emissions anticipated for the site if development under the existing land use designation;
2. The project does not exceed the “project alone” significance criteria;
3. The lead agency for the project requires the project to implement any applicable emission reduction measures contained in and/or derived from SMAQMD’s Ozone Attainment Plan; and
4. The project complies with all applicable district rules and regulations.

The first way to assess project compliance with the Ozone Attainment Plan is to ensure that the population density and land use are consistent with the growth assumptions used in the plans for the MCAB. The Project includes no uses that would generate a long-term increase in population or vehicle miles traveled and does not propose additional land for development or require a change in land use designations applied to the project site. The Project, as proposed, would result in no long-term increase in population or vehicle miles traveled in the region. Furthermore, the Project would not directly induce substantial population growth in the area. The Project primarily consists of the rehabilitation of the Pacific Tunnel including access road improvements to the project site. Construction activities associated with the Project include clearing and grubbing of trees and shrubs, demolition of the existing wood liner and portals, excavation and grading of access roads, and placement of self-consolidating concrete and welded wire fabric. Once construction activities are completed, minimal operational activities associated with the Project would occur (infrequent maintenance including use operation of equipment or vehicle trips). Therefore, the Project would be consistent with the regional growth forecasts and would not conflict with or exceed the assumptions of the Ozone Attainment Plan.

The second criterion assesses a project's contribution to existing air quality violations. Criteria air pollutant emissions associated with construction of the Project were estimated using California Emissions Estimator Model (CalEEMod) Version 2016.3.2 for the following emission sources: operation of off-road construction equipment, on-road vendor (material delivery and off-site hauling) trucks, and worker vehicles. As discussed in b) below, it was determined that the Project would not contribute to an air quality violation because construction emissions would not exceed the EDCAQMD thresholds of significance for ROG or NO_x emissions.

The third criterion is compliance with control measures in the Ozone Attainment Plan. Most of the control strategies in the Ozone Attainment Plan include measures in the categories of transportation and stationary sources. The non-regulatory control measures include; on-road and off-road mobile incentive programs, and an emerging/voluntary urban forest development program. These are followed by the regulatory control measures, which include; indirect source rules and a variety of stationary and area-wide source control measures (CARB 2008). The California Air Resources Board's (CARB's) strategy for reducing mobile source emissions includes the following: new engine standards, reducing emissions from in-use fleet, requiring the use of cleaner fuels, supporting the use of alternative fuels, and pursuing long-term advanced technology measures. The Project would result in no conflict with CARB's strategy for controlling mobile source emissions. The Project does not include extensive application of architectural coatings or operation of large water heaters or boilers and therefore would not conflict with the control strategies relative to stationary and area source control measures in the Ozone Attainment Plan that are specific to the EDCAQMD.

The final criterion is compliance with EDCAQMD rules and regulations. EID would implement the Project in compliance with all applicable EDCAQMD rules. The EDCAQMD has adopted rules designed specifically to address a variety of air quality impacts through measures that construction and operational related air quality emissions. Rules designed to control air pollutant emissions and which may be applicable to the Project include.

- Rule 210 related to the discharge of air contaminants
- Rule 223 related to fugitive dust

- Rule 223-1 related to construction related fugitive dust
- Rule 223-2 related to asbestos

Notably, pursuant to Rule 223-1, any activities associated with future plans for grading and construction would require a Fugitive Dust Control Plan (FDCP) for grading and construction activities. Such a plan would address grading measures and operation of equipment to minimize and reduce the level of defined particulate matter exposure and/or emissions to a less than significant level.

In summary, the Project does not conflict with the growth assumptions for the region, does not exceed the EDCAQMD significance thresholds, would be consistent with all control measures of the Ozone Attainment Plan, and would comply with applicable EDCAQMD rules. The Project would not conflict with or obstruct implementation of an applicable air quality plan and would therefore result in **no impact** associated with conflict or obstruction of an applicable air quality plan.

b) *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

The geographic scope of the area for the Project cumulative analysis includes El Dorado County and surrounding areas within the Sacramento Federal Nonattainment Area for Ozone. The Sacramento Federal Nonattainment Area includes the counties of Sacramento, Yolo, Solano (partial), Sutter (partial), Placer (except Lake Tahoe Air Basin), and El Dorado (except Lake Tahoe Air Basin).

Non-attainment pollutants of concern include O₃ and PM₁₀. If a Project exceeds the identified thresholds of significance, its emissions would result in significant adverse air quality impacts to the region's existing air quality conditions. The following discussion evaluates the potential for the Project's construction and operational emissions to result in a considerable contribution to the region's cumulative air quality impact.

Construction

Because the Project does not require permitting from the County, the Project is not subject to EDCAQMD thresholds. However, the EDCAQMD thresholds do provide guidance as the District does not maintain its own set of air quality thresholds; therefore, the EDCAQMD thresholds are used in the analysis of the Project's impacts on air quality. Construction of the Project would result in an increase of pollutants to the local air shed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Therefore, such emission levels can only be estimated, with a corresponding uncertainty in precise ambient air quality impacts. Fugitive dust (PM₁₀ and PM_{2.5}) emissions would primarily result from earthwork activities. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles.

Construction of the Project is anticipated to occur over a 6-month period. Construction activities would begin after August 15, 2020 and could be completed by December 2020. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, are based on information provided by the applicant and CalEEMod generated default values. Detailed construction assumptions are included in

the CalEEMod analysis provided in Appendix C. Table 3-3 presents the estimated maximum unmitigated daily construction emissions generated during construction of the Project.

Table 3-3. Maximum Daily Construction Emissions

Year	ROG	NO _x
	<i>Pounds per Day</i>	
2020	5.79	73.96
<i>EDCAQMD Threshold</i>	82	82
Threshold exceeded?	No	No

Source: See Appendix C for detailed results.

Notes: EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_x = oxides of nitrogen
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 3-3, ROG and NO_x emissions during construction would not exceed the EDCAQMD significance thresholds; therefore the Project would have a less than significant impact. According to the EDCAQMD guidance, if ROG and NO_x are less than significant during construction, then exhaust CO and PM₁₀ emissions are also assumed to be less than significant. Although, the EDCAQMD does not have quantitative significance thresholds specifically for PM₁₀ and PM_{2.5} emissions, the Project would implement Mitigation Measure AIR-1, which requires all applicable BMPs to control fugitive dust emissions during construction that are required by EDCAQMD's Rule 223-1. With the implementation of Mitigation Measure AIR-1, the Project would have a **less than significant** impact in regards to construction-related criteria pollutants and precursors

Operation

Because the Project does not require permitting from the County, the Project is not subject to EDCAQMD thresholds. However, the EDCAQMD thresholds do provide guidance as the District does not maintain its own set of air quality thresholds; therefore, the EDCAQMD thresholds are used in the analysis of the Project's impacts on air quality. The EDCAQMD provides preliminary screening thresholds for determining significance of operational-related impacts associated with ROG and NO_x. The Project would not generate substantial criteria pollutant emissions or related impacts associated with operational activities. Once Project construction is complete, minimal operational activities associated with the Project would occur, including infrequent maintenance and operational visits. However, maintenance and operations visits would be less frequent than in the existing condition since the Project would address existing deficiencies in the tunnel and access roadways. Therefore, the Project would have a **less than significant** impact in regards to operational related criteria pollutants and precursors.

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

The CEQA Guidelines (14 CCR 15000) identify sensitive receptors as facilities that house or attract children, the elderly, people with illnesses, or others that are especially sensitive to the effects of air pollutants. Hospitals, schools, and convalescent hospitals are examples of sensitive receptors. The discussion below reviews the significance of emissions within the context of potential impacts to sensitive receptors. The nearest sensitive receptor near the Project is a single family residence approximately 1,000 feet north of the project site.

Toxic Air Contaminants

Because the Project does not require permitting from the County, the Project is not subject to EDCAQMD thresholds. However, the EDCAQMD thresholds provide guidance as the District does not maintain its own set of Toxic Air Contaminants (TACs) thresholds; therefore, the EDCAQMD thresholds are used in the analysis of the Project's impacts on air quality. TACs are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The EDCAQMD recommends an incremental cancer risk threshold of 10 in 1 million (with implementation of best available control technology for toxics). "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard California Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. EDCAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) non-carcinogenic effects. The TAC that would potentially be emitted during construction activities associated with development of the proposed Project would be diesel particulate matter (DPM).

Diesel particulate matter emissions would be emitted from heavy equipment operations and heavy-duty trucks. Heavy-duty construction equipment is subject to a CARB Airborne Toxics Control Measure for diesel construction equipment to reduce diesel particulate emissions. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period and duration of activities associated with the proposed project. The 6-month duration of the proposed construction activities would only constitute about 1.67% of the total 30-year exposure period. The active construction period for the Project would be approximately 111 workdays, after which construction-related TAC emissions would cease. EDCAQMD considers implementation of "project alone" mitigation requirements, and compliance with all applicable emission limits and mitigation measures required by the U.S. Environmental Protection Agency, CARB, EDCAQMD rules and regulations, and local ordinances sufficient for a finding of less than significant related to TACs. As discussed previously, the Project would result in a less than significant impact pertaining to exhaust PM₁₀ emissions, which is a surrogate for DPM. Due to the relatively short period of exposure, the substantial distance to the nearest sensitive receptor, and minimal particulate emissions generated, TACs emitted during construction would not be expected to result in concentrations causing significant health risks, which would result in a less than significant impact.

NOA is also a TAC that could be generated during earthmoving activities in areas of El Dorado County. The project site is not in an area containing NOA as identified on the El Dorado County Asbestos Review Area Map (El Dorado County 2018) and therefore no impacts would occur associated with NOA disturbance.

Following completion of on-site construction activities, the Project would not involve routine operational activities that would generate TAC emissions. Operation of the Project would not result in any non-permitted direct emissions (e.g., those from a point source such as diesel generators). For the reasons previously described, the Project would not result in substantial TAC exposure to sensitive receptors and impacts would be less than significant.

Health Effects of Criteria Air Pollutants

Because the Project does not require permitting from the County, the Project is not subject to EDCAQMD thresholds. However, the EDCAQMD thresholds do provide guidance as the District does not maintain its own set of criteria air pollutants thresholds; therefore, the EDCAQMD thresholds are used in the analysis of the Project's impacts on air quality. Construction of the Project would generate criteria air pollutant emissions; however, the Project would not exceed the EDCAQMD emission thresholds and construction and operations activities would be carried out in compliance with applicable EDCAQMD rules. The MCAB is a nonattainment area for O₃ and PM₁₀, under the NAAQS and/or California Ambient Air Quality Standards (CAAQS).

ROG and NO_x are precursors to O₃, for which the MCAB is designated as nonattainment with respect to the NAAQS and CAAQS. Thus, existing O₃ levels in the MCAB are at unhealthy levels during certain periods. The health effects associated with O₃ are generally associated with reduced lung function. Because the Project involves construction and operational activities that would not result in ROG or NO_x emissions that would exceed the EDCAQMD thresholds, the Project is not anticipated to substantially contribute to regional O₃ concentrations and the associated health impacts.

CO, PM₁₀, and other pollutants are evaluated for significance by comparison against the NAAQS and CAAQS. A Project would be considered significant if it is projected to cause a violation of any NAAQS and/or CAAQS. The MCAB portion of El Dorado County is classified as attainment (or unclassified) for all NAAQS and CAAQS for CO, PM_{2.5}, NO₂, SO₂, sulfates, lead, and H₂S, and is classified as nonattainment for the state 24-hour PM₁₀ standard.

Emissions of CO, PM₁₀, and other pollutants generated from operation of the Project would be considered significant if:

1. The Project's contribution by itself would cause a violation of the AAQS, or
2. The Project's contribution plus the background level would result in a violation of the AAQS and either
 - a. A sensitive receptor is located within a quarter-mile of the Project, or
 - b. The Project's contribution exceeds 5% of the AAQS

The EDCAQMD considers projects that fall below the significance levels for ROG and NO_x emissions to also fall below significance thresholds for CO, NO₂, PM₁₀, and SO₂. As discussed in 2.2.2 above, Project ROG and NO_x emission would be below the thresholds of significance during construction and operations. Therefore, Project emissions of CO, NO₂, PM₁₀, and SO₂ are assumed to be less than significant in accordance with EDCAQMD guidance for impact evaluation. Additionally, the Project would implement Mitigation Measure AIR-1, which would require compliance with Rule 223-1, which would reduce fugitive dust emissions within the project site as discussed in 2.2.2, above.

The EDCAQMD considers lead, sulfates, and H₂S to be less than significant except from industrial sources that result in these pollutants being directly emitted. The Project would not include these sources and thus any potential emissions of lead, sulfates, and H₂S would be less than significant.

Visibility impacts are controlled through state and federal regulatory programs that govern vehicle emissions and through mitigation required for O₃ precursors and particulate matter. Due to these regulatory controls, EDCAQMD assumes that visibility impacts from projects in the MCAB portion of the County are less than significant.

Therefore, for the reasons discussed above, health effects associated with emissions of criteria air pollutants related to the Project would be **less than significant**.

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

It is possible that odors could be released during construction activities associated with the Project. Diesel exhaust and reactive organic compounds would be emitted during construction activities from vehicle exhaust and other construction activities. However, emissions would disperse rapidly from the area where the construction activities would be located, and thus would not reach an objectionable level at the nearest sensitive receptors. The potential release of odors associated with construction equipment would be minor, temporary, and unlikely to impact people other than construction personnel in the immediate construction area; therefore, impacts are considered **less than significant**.

Common sources of odors include wastewater treatment plants, landfills, transfer stations, composting facilities, refineries, chemical plants, and food processing plants (EDCAQMD 2002). The Project does not include any of these land uses or other land uses that would result odor-causing emissions. Therefore, the Project would not create any new sources of odor during operation and the impact from generation of offensive odors would be **less than significant**.

Mitigation Measures

AIR-1: Construction activities shall comply with El Dorado County Air Quality Management District's Rule 223-1: Fugitive Dust- Construction, Bulk Material Handling, Blasting, other Earthmoving activities and Carryout and Trackout Prevention. The Project Contractor shall implement applicable Best Management Practices outlined in Table 1 of Rule 223-1, including but not limited to:

- stabilization of backfill material,
- pre-water soils prior to cut and fill activities,
- re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 50 feet in any direction,
- utilizing trackout prevention at construction access points.

Best management practices shall be contained in a Fugitive Dust Control Plan prepared by the Contractor and approved by the District Engineer.

3.4 Biological Resources

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

Setting

The project site is located within the northern High Sierra Nevada geographic subdivision of the California Floristic Province. The site is surrounded by dense forestlands with interstitial patches of logged areas. Elevations on the project site range from 3,855 to 4,275 feet. A majority of the project site, beginning from the west, is centered around a dirt/gravel road that is situated along an east/west ridge with mild topography, and the northeastern extent of the project site is located on a north-facing, densely forested hillside. The region surrounding the project site receives approximately 52 inches of precipitation and 61 inches of snowfall annually. Average temperatures range from approximate 28°F to 92°F.

A biological resources field survey of the approximately 14-acre project site was conducted on November 25, 2019. The findings and recommendations of the field survey are included in a biological resources assessment attached as Appendix D to this Initial Study. The field survey included an inventory and mapping of vegetation

communities on-site and an assessment, based on habitat conditions, of the potential for special-status plant and animal species to occur within the project site. Pursuant to documented USFS protocols, Dudek wildlife biologists also conducted nocturnal call station surveys for California spotted owl (*Strix occidentalis* ssp. *occidentalis*) on the Project site on August 7, 14, and 22, 2018, and daytime follow-up surveys on August 16 and 23, 2019. In addition, Dudek wildlife biologists conducted a survey for nesting raptors, including northern goshawk (*Accipiter gentilis*) and California spotted owl, on August 22, 2019, in areas where tree removal will likely occur in association with proposed road re-alignment/improvement activities.

One natural vegetation community and two terrestrial land cover types exist on the project site: incense cedar–Ponderosa pine forest, disturbed/ruderal, and developed. No aquatic land cover types, such as wetlands or other waters, were identified on the project site. The constructed El Dorado Canal runs through a portion of the project site.

Special-Status Plants: Results of USFWS, CNDDDB, CNPS, and USFS Region 5 searches revealed 34 special-status plant species that have potential to occur or that are known to occur in the project region. Of these, 28 special-status plant species were removed from consideration due to lack of suitable habitat within or adjacent to the project site, or due to the site being outside of the species' known geographic or elevation range. The remaining six special-status plant species determined to have some potential to occur on the project site include three-bracted onion (*Allium tribracteatum*), Pleasant Valley mariposa lily (*Calochortus clavatus* var. *avius*), Red Hills soaproot (*Chlorogalum grandiflorum*), Yellow bur navarretia (*Navarretia prolifera* ssp. *lutea*), Stebbins' phacelia (*Phacelia stebbinsi*), and Sierra blue grass (*Poa sierrae*).

Special-Status Wildlife: Results of the USFWS, CNDDDB, and USFS Region 5 searches revealed 24 special-status wildlife species as present or potentially present in the project region. Of these, 18 species were removed from consideration due to lack of suitable habitat on or adjacent to the project site, or due to the site being outside of the species' known geographic or elevation range. The following were determined to have some potential to occur on the project site: Northern goshawk (*Accipiter gentilis*), California spotted owl (*Strix occidentalis* ssp. *occidentalis*), native and migratory birds, native bats (including Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), fringed myotis (*Myotis thysanodes*), Pacific marten (*Martes caurina*), Ringtail (*Bassariscus astutus*).

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

The potential for special-status plants to occur on the project site is generally low, since the project site is generally limited to existing disturbed roadways and roadway edge areas. Of the six special-status plant species with a potential to occur, five have a low potential to occur (three-bracted onion, Pleasant Valley mariposa lily, Red Hills soaproot, Stebbins' phacelia, and Sierra blue grass), and one species, yellow bur navarretia, was recorded within or adjacent to the project site in 2011. No plant species with federal or state listing status pursuant to FESA or CESA have a potential to occur on or adjacent to the project site. Implementation of the Project could result in impacts to special-status plant species if they occur on the project site. Impacts could include the destruction of individual plants or populations of plants that may become established in the construction footprint prior to ground disturbance. With implementation of Mitigation Measure BIO-1, which requires a plant survey before ground disturbance and implementation of avoidance and minimization measures if special-status plants are discovered, potential impacts to special-status plants would be less than significant.

The proposed Project would involve tree and vegetation removal, which has the potential to impact native and migratory birds, including special-status species with a moderate to high potential to occur on site, such as northern goshawk and California spotted owl, if Project activities disturb active nest sites. It is unlikely that special-status birds with a low potential to occur on site would be impacted by the Project. However, implementation of Mitigation Measure BIO-2 would ensure that surveys for nesting birds be carried out prior to any Project activities that occur during the nesting season, and that impact avoidance and minimization measures are appropriately implemented if any nests are discovered during surveys. Implementation of Mitigation Measure BIO-2 would ensure that any potential impacts to nesting birds would be less than significant.

Construction of the proposed Project may result in temporary and permanent impacts to native bats if construction activities involving removal of roosting habitat occurs during the maternity season (May 1 through August 15). If native bats are roosting on the project site or vicinity, direct impacts may result from the permanent removal of roosting sites, such as trees and snags. Temporary impacts to native bats may result from Project-related noise disturbance to an occupied roosting site in the vicinity of construction. With implementation of the Mitigation Measure BIO-3, which requires surveys prior to construction to identify active roosts and implement impact avoidance and minimization measures if any roost sites are discovered, potential impacts to native bats would be less than significant.

Ringtail is a CDFW Fully Protected Species with a low to moderate potential to occur on the project site. This species normally occurs in riparian, forest, and shrub-type habitats from 0 to 4,595 feet above mean sea level (ADW 2020). Ringtail is a nocturnal species normally found not more than 0.6 mile from permanent water (CDFW 2020). Denning/nesting occurs in tree hollows, rock recesses, boulder piles, logs, snags, and abandoned burrows, and foraging normally takes place near water where food resources are more abundant (CDFW 2020; ADW 2020). Ringtail predators are presumed to include bobcats, raccoons, foxes, and especially large owls (CDFW 2019a; ADW 2020). The project site lacks permanent, year-round water, riparian habitat, rocky areas, and other microhabitat features preferred by this species. However, ringtails could migrate through the project site, especially at night or dusk, but this species is considered to have low potential to establish dens in or adjacent to the project site as the site provides limited denning and foraging opportunities and well-developed riparian habitat with year-round water is more than 0.6 mile from the project site. Project construction is scheduled outside of the ringtail breeding season, which is from February through May, and no impact to ringtail is anticipated as a result of the proposed Project.

The biological resources assessment concluded that there is low potential for other special-status mammals to occur in or adjacent to the project site. No impact to other special-status mammals is anticipated to occur as a result of the Project.

Impacts to special-status species would be **less than significant with mitigation incorporated**.

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 Game or U.S. Fish and Wildlife Service?*

There are no sensitive natural vegetation communities on the project site, which is generally limited to a disturbed dirt or gravel roadway. Construction of the proposed Project would result in direct impacts to the incense cedar–ponderosa pine forest community present on the project site. Temporary direct impacts to vegetation may be necessary to facilitate equipment access during construction. Permanent

direct impacts to vegetation would result from re-aligning Tunnel Access Road. Construction of the proposed Project is not expected to result in direct impacts to special-status vegetation communities, since none are present on site. Therefore, the proposed Project would have a **less than significant impact**.

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

The biological resources assessment conducted for the project site included a preliminary evaluation of potentially jurisdictional wetlands or other waters and determined that none of the upland drainage features within the surveyed area have potential to meet criteria for state or federally protected wetlands or other waters. No areas containing a dominance of wetland plants or linear features with an ordinary high water mark were observed in or adjacent to the project site. There are multiple upland ditches along the gravel and dirt access road on the project site, but these are human-made stormwater control features constructed in uplands to treat and convey stormwater, and therefore do not qualify as wetlands or other waters of the United States or state. In addition, the ditches do not drain into any potential wetlands or other waters, based on conditions observed in the field. The existing canal on the project site is a constructed feature built in an area that historically lacked a drainage; as such, the canal is considered part of the built environment and does not qualify as a water of the United States or state. Therefore, the proposed Project would have **no impact**.

- 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?***

The Project would not substantially alter the path of a stream or drainage channel and would maintain the integrity of the canals and streams; therefore, the Project would not interfere substantially with the movement of any native resident or migratory fish. The Project includes rehabilitation of existing water tunnel as a part of a canal system. The Project would result in no new permanent impediment to wildlife movement and would not impede the use of any established or known native wildlife nursery sites. Project construction could temporarily disturb wildlife movement in the project area as wildlife are anticipated to avoid the site during construction activities. Impacts to wildlife movement and nursery sites would be **less than significant**.

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

No local policies or ordinances for the protection of biological resources apply to the Project and no conflict with local policies and ordinances protecting biological resources would occur. **No impact**.

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

No Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan applies to the project site and activities. **No impact**.

Mitigation Measures

BIO-1: The following measures shall be implemented to avoid, minimize or reduce impacts to special-status plant species:

- Prior to ground disturbance, a qualified botanist familiar with common and rare plant species of the Sierra Nevada region shall conduct surveys of all areas of potential Project disturbance during the appropriate blooming period for potentially occurring special-status plant species. The purpose of the survey shall be to delineate and flag populations of special-status plant species for avoidance. If no special-status plants are identified, no further mitigation is necessary. Special-status plant populations identified during the pre-construction survey shall be mapped and avoided where possible. Plant individuals or populations plus a 10-foot buffer shall be temporarily fenced during construction activities with high-visibility fencing or prominently flagged. If complete avoidance of populations is infeasible, further measures, as described below, shall be necessary.
- If avoidance of special-status plant species is not feasible, a qualified botanist shall prepare a Rare Plant Salvage and Translocation Plan prior to implementation. The Rare Plant Salvage and Translocation Plan shall be reviewed and approved by CDFW or the USFS, as applicable, and shall include the following, at a minimum: identification of occupied habitat to be preserved and occupied habitat to be removed; identification of on-site or off-site preservation, restoration, or enhancement locations; methods for preservation, restoration, enhancement, and/or translocation; goals and objectives for preservation, restoration, enhancement, and/or translocation; replacement ratio and success standard of 1:1 for impacted-to-established acreage; a monitoring program to ensure mitigation success; adaptive management and remedial measures in the event that the performance standards are not achieved; and financial assurances for conservation of mitigation lands; and a mechanism for conservation of any mitigation lands required in perpetuity.

BIO-2: California spotted owls were detected during surveys conducted in 2019, and are therefore assumed to be present in the project area. To be protective of active nesting that could occur in the project area, EID shall schedule tree removal and/or road improvement activities to begin August 16 or later to avoid the “limited operating period” stipulated by the U.S. Forest Service, which coincides with the California spotted owl nesting season of March 1 through August 15. If vegetation removal, construction or road improvements must occur during the nesting season for this species, a qualified biologist shall conduct a nesting survey within 2 weeks prior to said activities to determine if any spotted owls are nesting on or near the proposed areas of disturbance (including a 500-foot buffer). Nesting surveys conducted for spotted owl, required if construction activities are within 0.25 mile of a known Protected Activity Center, shall follow appropriate U.S. Forest Service survey protocols. If any active nests are observed during surveys, a suitable avoidance buffer from the nests shall be determined and flagged by the qualified biologist based on location and the timing and extent of planned ground-disturbance activities. Consultation with USFW and/or CDFW may be required to determine appropriate avoidance buffer distances. Ground-disturbing activities within the established buffers shall be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified

biologist. These measures will also serve to avoid/minimize direct and indirect impacts on native nesting birds, including other raptor species, and their active nests which are protected by regulations in the California Fish and Game Code. However, avoidance buffers can potentially be less than that established for nesting spotted owls depending on the species and timing/extent/location of proposed ground-disturbance activities.

- BIO-3:** Removal of potential roost habitat identified during the assessment shall be avoided during the bat maternity season (May 1 through August 15). A qualified biologist experienced with Sierra Nevada bat species shall conduct a survey to search for evidence of bat roosts in trees and structures subject to removal if the Project activities would occur during the bat maternity season. If removal of potential roost habitat occurs outside of the maternity season, no further mitigation shall be required. If removal of potential roost habitat must be conducted during the maternity season, pre-construction inspections for bats must be conducted using appropriate methods (e.g., camera inspection, exit survey with night optics, acoustic survey) within 2 weeks prior to said activities. If bats are found during inspections, removal of that roost feature must be delayed until the end of the maternity season or until a qualified bat biologist has determined that the young are capable of flight.

3.5 Cultural Resources

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

Setting

The discussion of existing conditions and analysis of potential impacts included in this section rely on information contained in a cultural resources inventory report prepared for the project site (Appendix E [confidential]). The cultural resources inventory report is available for review upon request from EID.

The cultural resources assessment identified no prehistoric or historic resources within the project site. The following provides a context for cultural resources within the project region.

California's archaeological assemblage composition is generally accepted as falling within the following overarching patterns: Paleoindian (pre-5500 BC), Archaic (8000 BC – AD 500), Late Prehistoric (AD 500–1750), Ethnohistoric/Historic (post-AD 1769). Occupation of the Sierra is likely to have occurred at least 9,000 years ago,

however, only a handful of Paleoindian Period lithic bifacial points have been recorded (Appendix E). The primary examples of the Paleoindian pattern, to which such fluted and stemmed points are generally assigned, have been recorded east of the Sierra Nevada. The Tahoe Reach is currently the most commonly applied cultural temporal sequence within the specific region. The sequence includes the Washoe Lake Phase, Tahoe Reach Phase, Spooner Phase, Martis Complex, and Kings Beach Complex. Of these, the Martis Complex and the Kings Beach Complex are most applicable to the current project area.

The El Dorado Canal - The history of the El Dorado Canal may be traced back to the 1850s with the construction of the South Fork Canal, a mining ditch installed along the South and Silver Forks of the American River to provide water for mining as well as to divert water from the river so that the riverbed itself could be prospected for gold. The water system was sold in 1873 to the El Dorado Water and Deep Gravel Mining Company (El Dorado Company). The El Dorado Company poured money into the water project and, along with a large Chinese work force, was able to construct most of the dams, tunnels, earthen ditch, and flume system between 1873 and 1876. The result was a remarkable feat of engineering that incorporated the area's granite rock as a primary building material, lending support not only as retaining walls for the earthen ditch but as trestles for wooden flumes and as lining for the Canal itself.

Between 1922 and 1924 the Canal system was redeveloped for use in generating hydroelectric power. This involved construction of a powerhouse, new tunnels and siphons, increasing reservoir capacity, expanding ditches and flumes, and lining ditches with timber or gunite (a concrete mixture) to reduce leakage and increase water conveyance along the Canal. Labor for reconstruction of the Canal system between 1922 and 1924 was provided by approximately 2,000 male workers housed in 20-30 temporary construction camps. The camps were distributed along 40 miles of the system between the powerhouse site and Caples Lake, with headquarters at the old road station of 14-Mile House, where the Pollock Pines Safeway shopping center is located at present. In 1927, only three years after its completion, Western States, the owner at the time, merged with Pacific Gas and Electric Company, which subsequently assumed control of the Canal and all of its associated facilities. Automation, along with the construction of maintenance roads along the Canal and other transportation improvements, resulted in a significant decrease in the number of employees needed at the ditch camps between the late 1940s and the late 1970s. In the late 1990s, Pacific Gas and Electric transferred the System to EID and it continues to operate as a source of water and power for El Dorado County and its municipalities (Appendix E).

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

The Project would not result in a significant impact to the significance of a historical resource with incorporation of Mitigation Measure **CUL-1**, as discussed further in b) below.

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

NCIC records indicate that two (2) historical-era sites have been identified near the project disturbance area. These include El Dorado Canal (P-09-000599) and Mormon-Carson Emigrant Trail (P-09-000545). While two sections, Segment 7 and Segment 8, of the Emigrant Trail intersect the project disturbance area along the route of present-day graded access roads, the portions of the segments within the project disturbance area have been determined non-contributors to the significance of P-09-000545. As such, disturbance associated with the proposed Project would result in no impact to cultural resources. El Dorado Canal facilities, specifically the Pacific Tunnel, have been determined to not be eligible for NRHP

listing and SHPO has provided concurrence with this determination. Based on discussions with EID and review of Project plans, the Project would result in no impacts to Segment 7 of P-09-000545

The NAHC was contacted by Dudek on November 13, 2019, to request a search of the Sacred Lands File. Results of this search identified no Native American cultural resources within the project area. The NAHC provided a list of Native American tribal representatives that have traditional associations to the project area. Dudek contacted all NAHC-listed representatives by email on December 23, 2019, and by phone on December 31, 2019. Darrel Cruz, THPO of the Washoe Tribe of Nevada and California deferred to the Shingle Springs Band of Miwok Indians. No other responses to these have been received to date.

All portions of the APE were surveyed by Dudek archaeologists on November 25, 2019. No new cultural resources were identified during the survey. Based on the results of the NCIC records search, intensive pedestrian survey, NAHC and tribal correspondence, and review of previous technical studies for this area, no mitigation measures are necessary. All work for the Project is planned within areas that have been subject to reoccurring grading, construction, or other improvements to EID canals, roads, and facilities. In consideration of the severity of past disturbance to native soils, the likelihood of encountering unanticipated significant subsurface archaeological deposits of features is considered very low. Mitigation Measure CUL-1 outlines the course of action in the event of an unanticipated archeological discovery to ensure appropriate actions are taken to minimize impacts to any unanticipated discovery that could occur during construction. Therefore, the proposed Project would have a **less than significant impact with mitigation incorporated**.

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

While unlikely, there is some potential that earth disturbance associated with the Project could disturb or uncover human remains. With the implementation of Mitigation Measure CUL-2, which prescribes measures to appropriately address the inadvertent discovery of human remains, Project impacts from potential disturbance of human remains would be **less than significant with mitigation**.

Mitigation Measures

- CUL-1:** In the event that unanticipated archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082) the archaeologist may record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the archaeologist observes the discovery to be potentially significant under CEQA or Section 106 of the National Historic Preservation Act, additional efforts may be warranted as recommended by the qualified archaeologist.
- CUL-2:** In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found the county coroner shall be immediately notified of the discovery. The coroner will provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, shall occur until a determination has been made. If the county coroner determines that the remains

are, or are believed to be, Native American, they shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendent (MLD) from the deceased Native American. Within 48 hours of their notification, the MLD will recommend to the lead agency their preferred treatment of the remains and associated grave goods.

3.6 Energy

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

Setting

There are federal regulations addressing energy efficiency in the built environment, fuel efficiency for motor vehicles, energy sources used by the United States, and national conservation goals; none of these regulations and policies applies directly to the Project. Appendix F of the CEQA Guidelines calls for discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. The State of California has passed several laws governing energy usage. AB 32 establishes regulatory, reporting, and market procedures to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions; the most significant proposed GHG reductions are recommended through improving emission standards for light-duty vehicles, implementation of the Low-Carbon Fuel Standard, energy efficiency measures in buildings and appliances, and a renewable portfolio standard for electricity production. Title 24 sets the energy efficiency standards for residential and nonresidential buildings and the 2013 California Green Building Standards Code, or CALGreen Code (24 CCR 11), which took effect on January 1, 2014, requires buildings to reduce energy and water consumption and establishes specific performance standards that appliances and fixtures must meet. Under Senate Bill 350, signed into law in October 2015, the Clean Energy and Pollution Reduction Act of 2015 updates the Renewables Portfolio Standard and applies to all electricity retailers in California.

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

Energy Consumption: The short-term construction and long-term operation of the Project would require the consumption of energy resources in several forms at the project site and within the project area. Construction and operational energy consumption is evaluated in detail below.

Construction Energy Use

Electricity

Temporary electric power for as-necessary lighting and electronic equipment would be utilized by EID or an approved contractor. The amount of electricity used during construction would be minimal, because typical demand would stem from electrically powered hand tools. The electricity used for construction activities would be temporary and minimal and generally related to charging hand tools or provided by onsite generators; therefore, Project construction would not result in wasteful, inefficient, or unnecessary consumption of electricity.

Natural Gas

Natural gas is not anticipated to be required during construction of the Project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the “petroleum” subsection. Any minor amounts of natural gas that may be consumed as a result of Project construction would have a negligible contribution to the Project’s overall energy consumption.

Petroleum

Heavy-duty construction equipment associated with construction activities would rely on diesel fuel, as would haul and vendor trucks involved in the soil export from, and delivery of materials to, the project site. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed in this analysis that construction workers would travel to and from the site in gasoline-powered light-duty vehicles.

Heavy-duty construction equipment of various types would be used during each phase of project construction. Appendix C lists the assumed equipment usage for each phase of construction. The Project’s construction equipment is estimated to operate a total combined 4,480 hours based on the assumptions identified by the CalEEMod emissions modeling tool.

Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO₂) emissions from each construction phase to gallons using the conversion factors for CO₂ to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton CO₂ per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO₂ per gallon (The Climate Registry 2019). The estimated diesel fuel usage from construction equipment is shown in Table 3-4.

Table 3-4. Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO ₂ (MT)	Kg CO ₂ /Gallon	Gallons
Install Site Environmental Measures	4	33.74	10.21	3,304.38
Mobilization	0	0.00	10.21	0.00
Access Road and Staging Areas	5	60.79	10.21	5,953.51
Demolition of wood liner and portals	6	16.33	10.21	1,599.76
Substrate Cleaning	3	5.16	10.21	505.78
Place Self-Consolidating Concrete Invert	6	7.75	10.21	759.34
Place Welded Wire Fabric	7	8.36	10.21	818.46
Place Shotcrete and Portals	5	12.53	10.21	1,227.70
Demobilization	0	0.00	10.21	0.00
Total				14,168.93

Sources: Pieces of equipment and equipment CO₂ (Appendix C); kg CO₂/Gallon (The Climate Registry 2019).

Notes: CO₂ = carbon dioxide; MT = metric ton; kg = kilogram.

Fuel estimates for total worker vehicles, vendor truck, and haul truck fuel consumption are provided in Table 3-5.

Table 3-5. Construction Worker, Vendor, and Haul Truck Petroleum Demand

Phase	Trips	Vehicle MT CO ₂	Kg CO ₂ /Gallon	Gallons
Worker Vehicles (Gasoline)				
Install Site Environmental Measures	100	1.09	8.78	123.59
Mobilization	160	1.74	8.78	197.73
Access Road and Staging Areas	280	3.04	8.78	346.04
Demolition of wood liner and portals	80	0.87	8.78	98.86
Substrate Cleaning	20	0.22	8.78	24.72
Place Self-Consolidating Concrete Invert	80	0.87	8.78	98.86
Place Welded Wire Fabric	80	0.87	8.78	98.86
Place Shotcrete and Portals	120	1.30	8.78	148.30

Table 3-5. Construction Worker, Vendor, and Haul Truck Petroleum Demand

Phase	Trips	Vehicle MT CO ₂	Kg CO ₂ / Gallon	Gallons
Demobilization	20	0.22	8.78	24.72
Total				1,161.67
Vendor Trucks (Diesel)				
Install Site Environmental Measures	80	1.87	10.21	183.07
Mobilization	0	0.00	10.21	0.00
Access Road and Staging Areas	40	0.93	10.21	91.53
Demolition of wood liner and portals	10	0.23	10.21	22.88
Substrate Cleaning	5	0.12	10.21	11.44
Place Self-Consolidating Concrete Invert	40	0.93	10.21	91.53
Place Welded Wire Fabric	40	0.93	10.21	91.53
Place Shotcrete and Portals	60	1.40	10.21	137.30
Demobilization	10	0.23	10.21	22.88
Total				652.14
Haul Trucks (Diesel)				
Install Site Environmental Measures	242	9.39	10.21	919.32
Mobilization	0	0.00	10.21	0.00
Access Road and Staging Areas	353	13.69	10.21	1,341.00
Demolition of wood liner and portals	187	7.25	10.21	710.39
Substrate Cleaning	159	6.17	10.21	604.03
Place Self-Consolidating Concrete Invert	0	0.00	10.21	0.00
Place Welded Wire Fabric	0	0.00	10.21	0.00
Place Shotcrete and Portals	0	0.00	10.21	0.00
Demobilization	159	6.17	10.21	604.03
Total				4,178.77

Sources: Trips and vehicle CO₂ (Appendix C); kg CO₂/Gallon (The Climate Registry 2019).

Notes: MT = metric ton; CO₂ = carbon dioxide; kg = kilogram.

In summary, construction of the Project is conservatively anticipated to consume 20,162 gallons of petroleum over a period of approximately 6-months. By comparison, approximately 11 billion gallons of petroleum would be consumed in California over the course of the Project's construction phase, based on the California daily petroleum consumption estimate of approximately 78.6 million gallons per day (EIA 2019). Overall, because petroleum use during construction would be temporary, and would be used in compliant vehicles that would not result in wasteful or inefficient use of petroleum, impacts associated with unnecessary, wasteful, or inefficient use of energy would be **less than significant**.

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

The Project would require minimal electricity from the local provider sourced in compliance with applicable plans for renewable energy sources. Construction would be temporary and would be carried out using light-duty and heavy equipment operated in compliance with applicable fuel and emissions standards. Worker vehicles would meet the applicable standards of Assembly Bill (AB) 1493 (vehicles manufactured 2009 or later), which ensures that vehicles meet fuel efficiency standards and that older vehicles are replaced. Operation of the Project would require little or no energy in addition to the existing condition. The Project would result in **no impact** associated with any conflict or obstruction of a state or local plan for renewable energy or energy efficiency.

3.7 Geology and Soils

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

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

El Dorado County does not contain any known Alquist-Priolo Earthquake Fault Zones, as listed by the California Geological Survey. According to the Fault Activity Map of California and Adjacent Areas, no active faults are located on the project site (California Department of Conservation, 2010). According to the Natural Resources Conservation Service's Web Soil Survey, four soil types are mapped on the project site: Iron Mountain very rocky sandy loam, 3% to 50% slopes; McCarthy cobbly loam, 9% to 50% slopes; Cohasset cobbly loam, 15% to 50% slopes; and Diamond Springs gravelly sandy loam, grayish subsoil variant, 30% to 50% slopes. The Iron Mountain series consists of shallow, well to somewhat excessively drained soils formed in material weathered from andesitic tuff breccia. The McCarthy series consists of moderately deep, well-drained soils formed in material weathered from andesitic mudflows. The Cohasset series consists of deep and very deep, well-drained soils that formed in material weathered from volcanic rock; and the Diamond Springs series consist of well-drained soils formed in material weathered from acid igneous rock.

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

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

ii) ***Strong seismic ground shaking?***

iii) ***Seismic-related ground failure, including liquefaction?***

iv) ***Landslides?***

The Project would replace degraded segments of tunnel with new facilities designed and constructed in accordance with Uniform Building Code Zone 3 standards and the recommendations of a California registered Engineering Geologist and would thereby reduce the risk of structural failure as a result of seismic activity. El Dorado County does not contain any known Alquist-Priolo Earthquake Fault Zones, as listed by the California Geological Survey. According to the Fault Activity Map of California and Adjacent Areas, no active faults are located on the project site. The closest fault is the Melones Fault Zone, located near Placerville approximately 30 miles west of the project site. Risks associated with seismic-related activity such as rupture of a fault, strong ground shaking, and ground failure would be less than significant as a result of compliance with applicable codes. The Project includes no elements that would increase the risk or susceptibility of the site to landslides and would repair and stabilize existing areas of

natural slope failure that have occurred by removing unstable soils and directing stormwater runoff around these areas. Risks associated with landslide or seismic activity would be **less than significant**.

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

The Project would result in approximately 14-acres of ground disturbance for the purpose of road realignment, materials and equipment staging, and tunnel component replacement. All areas disturbed during construction would be stabilized in accordance with erosion control best management practices (BMPs) identified in Project plans and as specified in the SWPPP required for the Project and as identified in Mitigation Measure **GEO-1**. The SWPPP would be prepared as required to obtain coverage under the State Construction General Permit and will specify the use of appropriate BMPs for erosion control and spill prevention during and following construction. BMPs would include measures to stabilize work areas including fiber wattles, silt fencing, concrete washout areas, soil stabilizers, revegetation, or other appropriate measures. Revegetation of disturbed areas would be carried out using Forest Service-approved weed-free seed mix, per Mitigation Measure **GEO-2**. With implementation of the SWPPP, impacts from erosion would be **less than significant with mitigation incorporated**.

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?*

Project design and construction would be in accordance with Uniform Building Code Zone 3 standards, which take into account local conditions. Therefore, the Project would have a **less than significant impact** associated with geologic or soils instability.

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

District engineers completed a pre-design inspection in 2019 and determined that the Project as designed would not require geotechnical investigation. Project design and construction would be in accordance with Uniform Building Code Zone 3 standards, which take into account local conditions. Therefore, the Project would have a **less than significant** impact associated with expansive or otherwise unstable soils.

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?*

The Project would not include permanent work or living facilities and thus would not require the use of septic tanks or alternative wastewater disposal systems. Thus, there would be **no impact**.

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

No unique paleontological resources or unique geologic features were uncovered in the records search or during the on-site visit. The geologic formation within the project area is not suitable to support the presence of paleontological resources and no paleontological or unique geological resources are anticipated to occur within the Project site. No Impact.

Mitigation Measures

- GEO-1:** In order to reduce runoff and erosion, and minimize the potential of sedimentation as a result of the Project, EID shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for all construction activities.
- GEO-2:** EID shall ensure that disturbed areas are protected through reseeding, and/or laying out mulch or gravel. A seed mix approved by the U.S. Forest Service shall be used to revegetate disturbed areas and reduce potential for erosion and sedimentation.

3.8 Greenhouse Gas Emissions

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

Setting

Greenhouse gases (GHGs) are gases that absorb infrared radiation in the atmosphere. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect. Principal GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), O₃, and water vapor. If the atmospheric concentrations of GHGs rise, the average temperature of the lower atmosphere will gradually increase. Globally, climate change has the potential to impact numerous environmental resources though uncertain impacts related to future air temperatures and precipitation patterns. Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. Climate change is already affecting California: average temperatures have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP), which varies among GHGs. Total GHG emissions are expressed as a function of how much warming would be caused by

the same mass of CO₂. Thus, GHG emissions are typically measured in terms of pounds or tons of CO₂ equivalent (CO₂e).¹

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs (CAT 2010). This approach is consistent with the *Final Statement of Reasons for Regulatory Action* for amendments to the CEQA Guidelines, which confirms that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009).

GHG emissions associated with construction of the Project were estimated for the following emission sources: operation of off-road construction equipment, on-road hauling and vendor trucks, and worker vehicles. GHG emission sources associated with operation of the Project were evaluated for energy use (generation of electricity consumed by the Project), water supply, area sources (gas-insulated switchgear), and Project-generated vehicle traffic.

CEQA Guidelines

The California Natural Resources Agency adopted amendments to the CEQA Guidelines on December 30, 2009, which became effective on March 18, 2010. With respect to GHG emissions, the amended CEQA Guidelines state in Section 15064.4(a) that lead agencies should “make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate” GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a “model or methodology” to quantify the emissions or by relying on “qualitative analysis or other performance based standards” (14 CCR 15064.4(a)). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment:

- The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Whether a project emissions exceed a threshold of significance that the lead agency determines applies to the Project.
- The extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

CEQA does not provide clear direction on addressing climate change. It requires lead agencies identify project GHG emissions impacts and their “significance,” but is not clear what constitutes a “significant” impact. GHG impacts are inherently cumulative, and since no single project could cause global climate change, the CEQA test is if impacts are “cumulatively considerable.” Not all projects emitting GHG contribute significantly to climate change. CEQA authorizes reliance on previously approved plans (i.e., a Climate Action Plan (CAP), etc.) and mitigation programs adequately analyzing and mitigating GHG emissions to a less than significant level. “Tiering” from such a programmatic-level document is the preferred method to address GHG emissions. El Dorado County

¹ The CO₂e for a gas is derived by multiplying the mass of the gas by the associated GWP, such that metric tons of CO₂e = (metric tons of a GHG) × (GWP of the GHG). CalEEMod assumes that the GWP for CH₄ is 25, which means that emissions of 1 metric ton of CH₄ are equivalent to emissions of 25 metric tons of CO₂, and the GWP for N₂O is 298, based on the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report.

does not have an adopted CAP or similar program-level document; therefore, the project's GHG emissions must be addressed at the project-level.

Unlike thresholds of significance established for criteria air pollutants in EDCAQMD's *Guide to Air Quality Assessment*, the EDCAQMD has not adopted GHG emissions thresholds for land use development projects. In the absence of County adopted thresholds, EDCAQMD recommends using the adopted thresholds of other lead agencies which are based on consistency with the goals of AB 32. Projects exceeding these thresholds would have a potentially significant impact and be required to mitigate those impacts to a less than significant level. Until the County adopts a CAP consistent with CEQA Guidelines Section 15183.5, and/or establishes GHG thresholds, the County will follow an interim approach to evaluating GHG emissions utilizing significance criteria adopted by the San Luis Obispo Air Pollution Control District (SLOAPCD) to determine the significance of GHG emissions, based on substantial evidence (SLOAPCD 2012). These are summarized below:

- The threshold for stationary sources is 10,000 MT CO₂e per year
- For nonstationary sources, the following two separate thresholds have been established:
 - 1,150 MT CO₂e per year
 - 4.9 MT CO₂e per service population per year (Service population is the sum of residents plus employees expected for a development project.)

The quantitative threshold of 1,150 MT CO₂e annually adopted by SLOAPCD is applied to this analysis.

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

Construction

Construction of the Project would result in GHG emissions that are primarily associated with use of off-road construction equipment and on road construction and worker vehicles. CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 3.3, Air Quality. Modeling assumed that construction would occur over a 6-month period beginning in June 2020. On-site sources of GHG emissions include off-road equipment and off-site sources include vendor (material delivery and off-site hauling) trucks and worker vehicles. Emissions from on-site and off-site sources are combined for the purposes of this analysis and are presented below in Table 3-6.

Table 3-6. Estimated Annual Construction GHG Emissions

	CO ₂	CH ₄	N ₂ O	CO ₂ e
Year	<i>Metric Tons per Year</i>			
2020	203.92	0.04	0.00	205.00

Source: See Appendix C for detailed results.

Notes: MT = metric tons; CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂e = carbon dioxide equivalent.

As shown in Table 3-6, estimated total annual construction GHG emissions would be approximately 205 MT CO₂e. Construction GHG emissions are a one-time release and, therefore, typically not expected to generate a significant contribution to global climate change. In order to present a worst-case scenario, the Project's construction-related GHG emissions have been amortized over 25 years (i.e., the lifetime of

commercial projects per SLOACPD). Amortized project construction GHG emissions generated by the Project would be approximately 8.2 MT CO₂e per year. As such, annual GHG emissions would not exceed the applied threshold of 1,150 MT CO₂e per year. Therefore, the Project's GHG contribution would be **less than significant** and would not be cumulatively considerable.

Operation

Once construction is complete, the Project would result in infrequent maintenance activities consisting of operation of off-road equipment and worker vehicles. Because the Project would generate a minimal amount of operational GHG emissions, impacts would be **less than significant**.

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

The CARB Scoping Plan, approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Relatedly, in the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the California Natural Resources Agency observed that "[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual Projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard). To the extent that these regulations are applicable to the Project or its uses, the Project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law.

The Project would also not impede the attainment of the GHG reduction goals for 2030 or 2050 identified in Senate Bill (SB) 32 and Executive Order (EO) S-3-05, respectively. EO S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. SB 32 establishes for a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. While there are no established protocols or thresholds of significance for that future year analysis; CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by Assembly Bill (AB) 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update states the following (CARB 2014):

This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in the Second Update, which states (CARB 2017):

The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197.

The Project would be consistent with the applicable strategies and measures in the Scoping Plan and would not impede the state's trajectory toward future GHG reductions for 2030 or 2050. In addition, since the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the Project would be speculative and cannot be identified at this time. The Project's consistency would assist in meeting the County's contribution to GHG emission reduction targets in California. With respect to future GHG targets under the SB 32 and EO S-3-05, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet EO S-3-05's 80% reduction target in 2050. This legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets.

Finally, the Project would not exceed the significance threshold of 1,150 MT CO_{2e} per year during construction or operations. Because the Project would not exceed the threshold, this analysis provides support for the conclusion that the Project would not conflict with EO S-3-05's GHG reduction goals for California. Therefore, this impact would be less than significant.

As such, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and no mitigation is required. This impact would be **less than significant**.

3.9 Hazards and Hazardous Materials

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

Setting

Hazardous materials stored and used in the area surrounding the project site would likely be associated with common materials used in utility work, residential uses, and recreational activities, such as paints, cleaning solvents, bonding agents, and small quantity petroleum fuels and lubricants. A search of the state Geotracker database determined that no hazardous materials cleanup sites are located on site (SWRCB 2015). The nearest site included on the GeoTracker databases is shown as a leaking underground storage tank cleanup site at a Chevron station northwest of the project site off Highway 50. As of 1996, this case is closed. No school exists within 0.25 mile of the project site and the site is not near any private airstrip or within the boundaries of an airport land use plan.

a) *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

The Project would not require the routine transport, use, or disposal of hazardous materials. Construction activities would involve the use of common hazardous materials used in construction, including bonding agents, paints and sealant coatings, and petroleum-based fuels, hydraulic fluids, and lubricants used in vehicles and equipment. Large quantities of these materials would not be stored at or transported to the construction site. All construction waste materials would be disposed of in compliance with state and federal hazardous waste requirements and at appropriate facilities. EID would further minimize the hazards of using these materials by operating in compliance with the Project 184 Hazardous Substances Plan. The plan prescribes measures to appropriately manage hazardous substances within the boundary of Project 184, including requirements for storage, spill prevention and response and reporting procedures, and by implementing spill prevention measures included in the SWPPP (see Sections 3.7 and 3.10 and Mitigation Measure **GEO-1**). Additionally, Mitigation Measure **HAZ-1** requires specific measures for spill prevention and containment of hazardous materials on the project site during construction. Impacts associated with transport, use, or disposal of hazardous materials would be **less than significant with mitigation incorporated** and implementation of requirements identified above.

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?*

Construction of the Project would involve temporary use of hazardous materials, including fuel for construction equipment, paints, solvents, and sealants. Storage, handling, and use of these materials would occur in accordance with standard construction BMPs to minimize the potential for spill or release and ensure that any such spill or release would be controlled on site. Construction plans and specifications would include standard construction BMPs for handling, storage, use and disposal of hazardous materials, such as requirement to contain materials inside buildings or under other cover, vehicle specifications for hazardous material transport and disposal, procedures for safe storage, and training requirements for those handling hazardous materials. All hazardous materials would be handled in compliance with the Project 184 Hazardous Substances Plan, which identifies and prescribes measures to appropriately manage hazardous substances within the boundary of Project 184, including requirements for storage, spill prevention and response and reporting procedures, and the SWPPP. Additionally, Mitigation Measure **HAZ-1** requires specific measures for spill prevention and containment of hazardous materials on the Project site during construction. Compliance with standard construction specifications, the Hazardous Substances Plan, and Mitigation Measure **HAZ-1** would ensure that impacts would be **less than significant with mitigation incorporated**.

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?*

The project site is not within ¼ mile of an existing or proposed school; thus, the Project would have **no impact**.

- d) *Would the project be located on a site that 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?*

The project site is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, therefore, will have **no 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 result in a safety hazard or excessive noise for people residing or working in the project area?*

There are neither airports nor airstrips within the vicinity of the project site. **No impact**.

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

The Project would occur within a remote area in the Eldorado National Forest. The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and, would result in **no impact**.

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

In the operational phase, maintenance of the Canal would occur as in the existing condition and no increase in risks associated with increased fire hazard would result.

Construction of the Project would temporarily introduce potential sources of fire ignition as a result of equipment operation and other construction site activities, which would temporarily increase the risk of wildfire. The Project is within a Very High Fire Hazard Severity Zone where an increased risk of wildfire would represent a significant impact to the environment and surrounding development and residents. Construction crews would adhere to a Fire Prevention Plan required by the Forest Service as a condition of Project approval. The Fire Prevention Plan require that fire safe practices be followed and that basic fire suppression equipment is maintained on site at all times. Mitigation Measure **HAZ-2** requires that the Fire Prevention Plan approved by the Forest Service be implemented in all areas during construction. The Fire Prevention Plan outlines measures to reduce the risk of fire associated with construction activities. Through compliance with existing codes and implementation of the Fire Prevention Plan as required by Mitigation Measure **HAZ-2**, risks associated with an elevated risk of wildfire would be **less than significant with mitigation incorporated**.

Mitigation Measures

- HAZ-1:** The following measures shall be implemented prior to and during construction and shall be incorporated into Project plans and specifications.

- All equipment shall be inspected by the contractor for leaks prior to the start of construction and regularly throughout Project construction. Leaks from any equipment shall be contained and the leak remedied before the equipment is used again on the site.
- BMPs for spill prevention shall be incorporated into Project plans and specifications and shall contain measures for secondary containment and safe handling procedures according to the product Material Safety Data Sheets.
- A spill kit shall be maintained on site throughout all construction activities and shall contain appropriate items to absorb, contain, neutralize, or remove hazardous materials stored or used in large quantities during construction.
- Project plans and specifications shall identify construction staging areas and designated areas where equipment refueling, lubrication, and maintenance may occur. Areas designated for refueling, lubrication, and maintenance of equipment shall be approved by EID.
- In the event of any spill or release of any chemical or wastewater during construction, the contractor shall immediately notify District.
- Hazardous substances shall be handled in accordance with the Project 184 Hazardous Substances Plan, which prescribes measures to appropriately manage hazardous substances, including requirements for storage, spill prevention and response and reporting procedures.

HAZ-2:

In order to minimize the risk of accidental ignition of surrounding wildlands, EID shall prepare a Fire Prevention Plan, per Eldorado National Forest guidelines. EID and its Contractor shall abide by the requirements of the Fire Prevention Plan. Measures may include but are not limited to adhering to the Fire Prevention Period (typically June 1 to October 15); obtaining permits from the Forest Service for certain activities such as welding and blasting; fire suppression equipment requirements; designating a fire supervisor on site; smoking and fire rules; requirements for parking and equipment and materials storage and storage areas; and designating a fire patrol person.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on or off site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The project site is located within the northern High Sierra Nevada geographic subdivision of the California Floristic Province. The site is surrounded by dense forest with interstitial patches of logged forest. Elevations on the project site range from 3,855 to 4,275 feet above mean sea level. A majority of the project site, beginning from the west, is centered around a dirt/gravel road that is situated along an east/west ridge with mild topography, and the northeastern extent of the project site is located on a north-facing, densely forested hillside. The region surrounding the project site receives approximately 52 inches of precipitation and 61 inches of snowfall annually. Average temperatures range from approximate 28°F to 92°F. Precipitation occurs primarily in winter, generally between November and April, with no appreciable precipitation during summer except for occasional thundershowers. The National Weather Service cooperative weather station closest to the study area is the Pacific House station in Pacific House, California, at an approximate elevation of 3,440 feet above mean sea level. The average annual precipitation at Pacific House is 51.66 inches, with 61 inches of snowfall (WRCC 2016).

A majority of the project site is located along the boundary between the Upper South Fork American River watershed and the Camp Creek watershed, which collectively drain approximately 79 square miles of land in El Dorado County. The National Wetlands Inventory identifies two potential waters of the United States or state on

the project site. No wetlands or other waters were observed on site during the field survey. Surface runoff on the project site is generally directed to roadside ditches along Park Creek Road or Tunnel Access Road, or as sheet flow down hillsides and ravines occurring adjacent to the project site.

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

The Project is subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) program. This program requires EID to submit a Notice of Intent, apply for a waste discharge ID, comply with waste discharge requirements issued by the Regional Water Quality Control Board, and implement a SWPPP during construction to ensure that runoff from the site does not violate any water quality standards or waste discharge requirements. As discussed in Section 3.7, Geology and Soils, a SWPPP would be prepared for the Project to protect water quality during and following construction (see Mitigation Measure GEO-1). Compliance with these regulatory standards would ensure that impacts would be **less than significant with mitigation incorporated**.

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

The Project includes no use of groundwater and would result in **no impact** associated with depletion of groundwater supply or recharge.

- c) ***Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:***

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

The Project would result in minor temporary changes in site hydrology resulting from construction disturbance such as grading and excavation, equipment use, and vegetation removal. As discussed in Section 3.7, construction may result in erosion of top soil and increased sedimentation. Implementation of Mitigation Measure GEO-1 (SWPPP) would ensure that erosion is minimized during construction. The Project would result in no substantial change in the pattern of drainage through the project site and would result in no change in on- or off-site flooding or create or contribute runoff that would exceed the capacity of stormwater drainage systems. The Project would result in no impact associated with a substantial alteration of the course of a stream or river or through the addition of impervious surfaces that would result in substantial erosion or siltation, a substantial increase in runoff leading to flooding, exceedance of capacity in an existing stormwater system, or substantial additional sources of polluted runoff.

As discussed in Section 3.9, Hazards and Hazardous Materials, construction of the Project would involve temporary use of common hazardous materials used for construction purposes. However, implementation of Mitigation Measure **GEO-1** and appropriate materials handling and spill prevention measures required by Mitigation Measure **HAZ-1** would ensure that water quality would not be degraded by materials used during construction or inadvertent release of those materials. Impacts would be **less than significant with mitigation incorporated**.

- d) *In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

The project site is not located in a coastal area subject to tsunami, near the shores of a body of water that could result in a seiche, or in areas with high susceptibility to mudflow (see Section 3.7 for a discussion of site geological conditions). Impacts associated with risk of inundation by seiche, tsunami, or mudflow would be **less than significant**.

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

The proposed Project would have **no impact** on groundwater and would therefore have no impact associated with a conflict with or obstructing a groundwater management plan.

3.11 Land Use and Planning

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

Setting

The project site is on land owned by the Eldorado National Forest with Project activities occurring primarily within the FERC Project 184 boundary. The project site is within vacant forested land and is not within an established community. No natural community conservation plan or habitat conservation plan applies to the project site.

- a) *Would the project physically divide an established community?*

The Project would rehabilitate existing tunnel and would not physically divide an established community. **No impact.**

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

The Project would improve and reconstruct an existing facility. The project area is located within El Dorado County on land owned by the Eldorado National Forest. The Project is subject to review and approval by the Forest Service and would be required to comply with applicable provisions of the Eldorado National Forest Land and Resource Management Plan. El Dorado County regulations are utilized throughout this Initial Study to analyze impacts associated with the Project. Compliance with other applicable regulations such as the Clean Water Act and the California Fish and Game Code are evaluated in other sections of this Initial Study. The Project would result in **no impact** associated with any conflict with applicable plans, policies, or regulations of an agency with jurisdiction over the Project.

3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The Project involves repair and replacement of existing facilities associated with Project 184. The project area is on land owned by the Eldorado National Forest with Project activities occurring primarily within the FERC boundary. No mineral resources are known from the site and no mineral extraction operations exist in the vicinity of the Project.

- 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?*

Please refer to the discussion under b), below.

- 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?*

Mineral resources are not known to exist in or near the project site and no mining operations occur within the project site. **No impact.**

3.13 Noise

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The project site is located in an undeveloped area of the Eldorado National Forest and is not near any significant noise sources. Traffic-generated noise from SR 50 and noise from wind are typical sources of noise in the area. The existing Canal generates noise from water flowing and occasional maintenance activities. Noise-sensitive land uses in the area include residences approximately 1,000 feet north of the project site.

The El Dorado County Municipal Code includes Chapter 9.16, Noise. While making it “unlawful for any person to produce or emit any loud or raucous noise,” it also offers an exemption for “the noise produced by a vehicle necessary to propel the vehicle” (County of El Dorado 2016). The County Code addresses unmuffled engines, saying that it is “unlawful for any person to operate an internal combustion engine in the unincorporated territory of the County that is not equipped with a muffler designed for use with the engine, which is in good operating condition and is not equipped with a cutout, bypass or similar device” (County of El Dorado 2016).

The Public Health, Safety, and Noise Element of the El Dorado County General Plan includes goals and policies related to acceptable noise levels (County of El Dorado 2015):

Policy 6.5.1.2 Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of [Table 3-4 in this Initial Study] at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the Project design.

Policy 6.5.1.3 Where noise mitigation measures are required to achieve the standards of [Tables 3-4 and 3-5 in this Initial Study], the emphasis of such measures shall be placed upon site planning and Project design.

Policy 6.5.1.11 The standards outlined in [additional] Tables [included in the Noise Element of the General Plan] shall not apply to those activities associated with actual construction of a Project as long as such construction occurs between the hours of 7 a.m. and 7 p.m., Monday through Friday and 8 a.m. and 5 p.m. on weekends, and on federally-recognized holidays.

Policy 6.5.1.12 When determining the significance of impacts and appropriate mitigation for new development Projects, the following criteria shall be taken into consideration.

- A. Where existing or Projected future traffic noise levels are less than 60 dBA L_{dn} at the outdoor activity areas of residential uses, an increase of more than 5 dBA L_{dn} caused by a new transportation noise source will be considered significant
- B. Where existing or Projected future traffic noise levels range between 60 and 65 dBA L_{dn} at the outdoor activity areas of residential uses, an increase of more than 3 dBA L_{dn} caused by a new transportation noise source will be considered significant
- C. Where existing or Projected future traffic noise levels are greater than 65 dBA L_{dn} at the outdoor activity areas of residential uses, an increase of more than 1.5 dBA L_{dn} caused by a new transportation noise source will be considered significant

Table 3-7. Noise Level Performance Protection Standards for Noise Sensitive Land Uses Affected by Non-Transportation Sources*

Noise Level Descriptor	Daytime 7:00 a.m.–7:00 p.m.		Evening 7:00 p.m.–10:00 p.m.		Night 10:00 p.m.–7:00 a.m.	
	<i>Community</i>	<i>Rural</i>	<i>Community</i>	<i>Rural</i>	<i>Community</i>	<i>Rural</i>
Hourly L_{eq} , dB	55	50	50	45	45	40
Maximum level, dB	70	60	60	55	55	50

Source: County of El Dorado 2015

Notes:

Each of the noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

The County can impose noise level standards that are up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.

In Community areas the exterior noise level standard shall be applied to the property line of the receiving property. In Rural Areas the exterior noise level standard shall be applied at a point 100 feet away from the residence. The above standards shall be measured only on property containing a noise sensitive land use as defined in Objective 6.5.1. This measurement standard may be amended to provide for measurement at the boundary of a recorded noise easement between all effected property owners and approved by the County.

* For the purposes of the Noise Element, transportation noise sources are defined as traffic on public roadways, railroad line operations, and aircraft in flight. Control of noise from these sources is preempted by federal and state regulations. Control of noise from facilities of regulated public facilities is preempted by California Public Utilities Commission regulations. All other noise sources are subject to local regulations. Non-transportation noise sources may include industrial operations, outdoor recreation facilities, HVAC units, schools, hospitals, commercial land uses, other outdoor land use, etc.

Table 3-8. Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹ L _{dn} /CNEL, dB	Interior Spaces	
		L _{dn} /CNEL, dB	L _{dn} , dB ²
Residential	60 ³	45	—
Transient lodging	60 ³	45	—
Hospitals, nursing homes	60 ³	45	—
Theaters, auditoriums, music halls	—	—	35
Churches, meeting halls, schools	60 ³	—	40
Office buildings	—	—	45
Libraries, museums	—	—	45
Playgrounds, neighborhood parks	70	—	—

Source: County of El Dorado 2015

Notes:

- ¹ In Communities and Rural Centers, where the location of outdoor activity areas is not clearly defined, the exterior noise level standard shall be applied to the property line of the receiving land use. For residential uses with front yards facing the identified noise source, an exterior noise level criterion of 65 dB L_{dn} shall be applied at the building facade, in addition to a 60 dB L_{dn} criterion at the outdoor activity area. In Rural Regions, an exterior noise level criterion of 60 dB L_{dn} shall be applied at a 100-foot radius from the residence unless it is within Platted Lands where the underlying land use designation is consistent with Community Region densities, in which case the 65 dB L_{dn} may apply. The 100-foot radius applies to properties that are 5 acres and larger; the balance will fall under the property line requirement.
- ² As determined for a typical worst-case hour during periods of use.
- ³ Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

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

Construction noise and vibration are temporary phenomena. Construction noise and vibration levels vary from hour-to-hour and day-to-day, depending on the equipment in use, the operations being performed, and the distance between the source and receptor.

The Federal Transit Administration has compiled data regarding the noise-generating characteristics of specific types of construction equipment. The typical noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 3-9.

Equipment operates in alternating cycles of full power and low power, thus producing noise levels less than the maximum level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of the construction during that time period.

Table 3-9. Construction Equipment Noise Emissions Levels

Equipment	Typical Sound Level (dBA) 50 Feet from Source
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, derrick	88
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jackhammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller	74
Saw	76
Truck	88

Source: FTA 2006

The residential buildings north of the project site are located approximately 1,000 feet from the Pacific Tunnel site. The proposed Project would result in a temporary increase in ambient noise levels in the immediate vicinity of the active construction area during construction of the proposed Project. Mitigation Measure **NOISE-1** limits noise-generating construction activities to Monday through Friday 7am to 7pm and requires that all vehicles be equipped with appropriate mufflers and that other noise-reducing measures. Implementation of Mitigation Measure **NOISE-1** would be consistent with County noise policies and would ensure that impacts associated with noise in excess of local policies would be **less than significant with mitigation incorporated**.

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

The Project would not have the potential to generate long-term groundborne vibration or noise. Ground vibrations from construction activities do not often reach the levels that can damage structures or affect activities that are not vibration-sensitive, although the vibrations may be felt by nearby persons in close proximity and result in annoyance (FTA 2006). As a guide, major construction activity within 200 feet and pile driving within 600 feet may be potentially disruptive to sensitive operations (Caltrans 2002). The Project construction activity would not include pile driving. In addition, there are no vibration sensitive structures or land uses located within 200 feet of the construction zone. Consequently, groundborne vibration impacts would be **less than significant**.

- c) *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

The Project is not within an airport land use plan or within two miles of a public airport or public use airport. Therefore, the Project will have **no impact**.

Mitigation Measures

- NOISE-1:** To avoid high noise levels during nighttime hours, construction truck traffic along Park Creek Road shall be limited to daytime periods between 7:00 a.m. and 7:00 p.m., Monday through Friday and 8:00 a.m. and 5:00 p.m. on weekends, and on federally recognized holidays, whenever feasible.

3.14 Population and Housing

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The Project area is primarily within the boundaries of Project 184 on land owned by EID and within the Eldorado National Forest. No existing housing occurs within or adjacent to the project site.

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

Please refer to the discussion under b), below.

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

The Project would construct no new homes or businesses, increase capacity of existing facilities, proposed a change in land use or zoning designations that would allow for greater development density,

or extend public roads or other public infrastructure into areas where these facilities do not currently exist. The Project would not remove housing or displace people. All improvements and construction would be confined to areas within Project 184 boundaries or to improve existing access to Project 184 facilities. The Project would have **no impact** associated with inducing population growth or displacing housing or people.

3.15 Public Services

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

Setting

The project site is in a remote area and is primarily within the boundaries of Project 184 on land owned by the Eldorado National Forest, SPI and EID. No existing housing occurs within or adjacent to the project site.

- a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:*

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

All improvements and construction would be confined to areas already within the existing boundaries of Project 184 or associated with access to Project 184 facilities. The Project would result in a temporary increase in people in the project area during construction but would result in no permanent increase in population in the area or visitation to the project area and thus would require no new or expanded facilities to support adequate fire or police protection, schools, parks or other public facilities; therefore, the Project would result in **no impact** from physical impacts associated with providing new or modified facilities

3.16 Recreation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The Project 184 Canal system passes through lands under the jurisdiction of the Eldorado National Forest that are used for public recreational activities such as hunting, camping, off-highway vehicle use, as well as snowmobiling and other winter recreational pursuits. EID discourages public access to Canal facilities to protect the public from hazardous conditions associated with flowing water through the various conveyances (e.g., flumes, canals, siphons, tunnels).

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?*

The Project would not increase the use of existing neighborhood parks or recreational facilities. The Project would not increase local or regional residential population and would not increase demand for neighborhood or regional parks. The Project would have **no impact** on existing neighborhood and regional parks.

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?*

The Project would not increase demand for recreational facilities and does not require or include construction or expansion of recreational facilities. The Project would have no adverse physical effect on the environment and therefore **no impact** resulting from construction or expansion of recreational facilities.

3.17 Transportation

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

Setting

Access to the project site is via SR 50, Sly Park Road, Park Creek Road, Canal Access Road, and Tunnel Access Road. Sly Park Road is a local collector, while Park Creek Road is a gravel-surfaced roadway. Canal Access Road and Tunnel Access Road are dirt roads used for canal maintenance. Park Creek Road, Tunnel Access Road, and Canal Access Road are not accessible during winter snow conditions.

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

The proposed Project would result in no new vehicle trips for operations and maintenance of the tunnel once construction is completed. Construction of the proposed Project would result in a temporary increase in traffic for construction vehicle trips over a period of 6 months. It is anticipated that construction would generate up to 1,000 highway haul truck trips over the duration of the project and up to 10 employee vehicle trips per day. Traffic from construction vehicles could result in minor additional delays at key intersections and roadways, but any change in traffic functioning would be temporary and intermittent during active construction periods and would result in no permanent change in roadway functions. Construction staging would be less than 100 feet north of the Pacific Tunnel. The proposed Project would not increase the population in the area or have any long-term effect on traffic levels on roadways serving the project site and is not expected not result in any conflict with any program, plan, ordinance, or policy addressing transit, roadway, bicycle, or pedestrian facilities. No detours or traffic management plan is expected to be required to accommodate construction traffic. While minor delays could result on Park Creek Road during roadway maintenance, Park Creek Road receives light use and any delays during Project activities would be minimal. Therefore, the proposed Project would have a **less than significant** impact.

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

Per Senate Bill 743, CEQA Guidelines Section 15064.3 establishes vehicle miles traveled (VMT) as the most appropriate measure of transportation impacts, shifting away from the level of service (LOS) analysis that has generally been used to evaluate a project's impacts on traffic conditions on nearby roadways and intersections. The proposed Project does not include land uses that would result in a permanent increase in VMT nor does it involve the construction of a transportation project. Additionally, it is noted that revisions requiring VMT analysis do not apply statewide until July 1, 2020. Therefore, CEQA Guidelines Section 15064.3, subdivision (b) does not apply to the proposed Project. Thus, the proposed Project would have **no impact**.

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

The proposed Project would not add roadways and does not propose uses that would be inconsistent with existing land use or zoning designations. The slopes of existing roads would be modified to be usable by construction traffic but would not result in a hazard due to geometric design. It is expected that the proposed Project would result in **no impact** associated with any roadway hazard.

d) Would the project result in inadequate emergency access?

The proposed Project would replace the components of the existing Pacific Tunnel and would result in only minor and temporary traffic control on a segment of Park Creek Road. Access would be maintained to the project site at all times during construction to provide access in the event of an emergency. Therefore, the proposed Project would have **no impact** resulting from inadequate emergency access.

3.18 Tribal Cultural Resources

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

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?				

Setting

The NAHC was contacted by Dudek on November 13, 2019 to request a search of the Sacred Lands File. A letter response from the NAHC dated November 21, 2019 stated that a search of the Sacred Lands File returned negative results. A contact list of Native American tribal representatives was received from the NAHC. Dudek has contacted all nine NAHC-listed tribal representatives by email on December 23, 2019 and phone on December 31, 2019 (Table 3-7).

Table 3-7. Record of Tribal Outreach Completed as Part of Cultural Inventory

Name and Title	Tribe / Organization	Date of Tribal Outreach		Response Received?
		Telephone	E-mail	
Mr. Darrel Cruz, Cultural Resources Department	Washoe Tribe of Nevada and California	December 31, 2019	December 23, 2019	Yes
Ms. Pamela Cubbler, Treasurer	Colfax-Todds Valley Consolidated Tribe	December 31, 2019	December 23, 2019	No
Mr. Clyde Prout, Chairman	Colfax-Todds Valley Consolidated Tribe	December 31, 2019	December 23, 2019	No
Ms. Sara Dutschke Setchwaelo, Chairperson	Ione Band of Miwok Indians	December 31, 2019	December 23, 2019	No
Ms. Cosme A. Valdez, Chairperson	Nashville Enterprise Miwok-Maidu-Nishinam Tribe	December 31, 2019	December 23, 2019	No
Ms. Regina Cuellar, Chairperson	Shingle Springs Band of Miwok Indians	December 31, 2019	December 23, 2019	No
Mr. Grayson Coney, Cultural Director	T'si Akim Maidu	December 31, 2019	December 23, 2019	No
Mr. Don Ryberg, Chairperson	T'si Akim Maidu	December 31, 2019	December 23, 2019	No
Mr. Gene Whitehouse, Chairperson	United Auburn Indian Community of the Auburn Rancheria	December 31, 2019	December 23, 2019	No

An email response was received from Darrel Cruz, Washoe Tribe of Nevada and California THPO on January 3, 2020 deferring to the Shingle Springs Band of Miwok Indians. No other responses to Dudek outreach efforts have been received to date. Any future responses received will be provided to EID. Pursuant to AB 52, EID is also presently conducting ongoing consultation with tribal entities that have traditional geographic affiliations to this area.

No TCRs were identified as a result of consultation conducted in accordance with AB 52. A search of NAHC's Sacred Lands File and a CHRIS records search identified no previously recorded cultural resources of Native American origin within the project area or a surrounding half-mile area. No prehistoric Native American resources were identified within the project area during the archaeological survey of the project site (see Section 3.5, Cultural Resources).

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

- a) ***Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?***

Please refer to the discussion under e), below.

- b) ***A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?***

An appropriate approach to potential impacts to tribal cultural resources (TCRs) is developed in response to the identified presence of a TCR by California Native American Tribes. A project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment (California Public Resources Code, Section 21084.2.). Consultation initiated by EID resulted in the identification of no TCRs within or near the project site. No known geographically defined TCRs were identified within, or in the immediate vicinity of, the project site. As such, it is anticipated that the Project would have no impact associated with impacts to TCRs. However, there is potential for inadvertent discovery of unknown resources to occur as a result of earth disturbance associated with Project activities. It is possible that resources inadvertently discovered could be determined to be TCRs upon evaluation by Native American tribes. Mitigation Measure TCR-1 would ensure that Native American tribes are notified of any inadvertent discovery of cultural resources and that appropriate measures are taken to protect any TCRs discovered. With implementation of Mitigation Measure **TCR-1**, impacts to TCRs would be **less than significant with mitigation**.

Mitigation Measures

- TCR-1** EID shall implement the following measure to reduce or avoid impacts on undiscovered historic properties, archaeological resources, and tribal cultural resources. If interested Native American Tribes provide information demonstrating the significance of the project location and tangible evidence supporting the determination the site is highly sensitive for prehistoric archaeological resources or tribal cultural resources, EID will retain a qualified archaeologist to 1) monitor for potential prehistoric archaeological resources during initial ground disturbing activities, 2) prepare a worker awareness brochure, 3) invite tribal representatives to review the worker awareness brochure, and 4) conduct training of personnel involved in Project implementation. If buried or previously unidentified historic properties or archaeological resources are discovered during Project activities, all work within a 100-foot radius of the find shall cease. EID shall retain a professional archaeologist meeting the Secretary of the Interior's Professional Standards for Archaeologists to assess the discovery and recommend what, if any, further treatment or investigation is necessary for the find. Interested Native American Tribes will also be contacted. Any necessary treatment/investigation shall be developed with interested Native American Tribes providing recommendations and shall be coordinated with the State Historic Preservation Officer. Necessary treatment/investigation shall be completed before Project activities continue in the vicinity of the find.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The project site is within the boundaries of Project 184, which encompasses the El Dorado Canal and associated facilities that are operated for reliable delivery of water to downstream users. No water or sewer service is provided within the project site and it is within an undeveloped area primarily within the Eldorado National Forest. Stormwater drainage in the project area is by natural drainages or roadside ditches.

- a) ***Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?***

Please refer to the discussion under e), below.

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

Please refer to the discussion under e), below.

- c) ***Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?***

Please refer to the discussion under e), below.

- d) ***Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?***

Please refer to the discussion under e), below.

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

The Project would replace existing facilities and would result in no change in capacity of the existing system and no change in the demand for water or wastewater treatment or stormwater facilities, and would require no changes in the existing water supply. The Project includes no new homes or businesses and would not extend public roads or other public infrastructure into areas where these facilities do not

currently exist. The Project would not add to the population of the area and will not increase demand for utilities or solid waste disposal such that new facilities would be required. All existing flume and canal materials removed as part of the Project would be repurposed or taken to a disposal facility with adequate permitted capacity to accept construction debris. The Project would result in **no impact**.

3.20 Wildfire

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

Setting

The project site is characterized by oak woodland and grassland situated on east and south facing slopes within the Columbia State Historic Park and low-density rural residential development. The project site is located within a Very High Fire Hazard Severity Zone as mapped by CAL FIRE (CAL FIRE 2019).

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

The proposed Project would maintain and re-align existing roadways to improve all-weather access to Pacific Tunnel and includes no components that would impair implementation of an adopted emergency response or evacuation plan. **No impact.**

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

The proposed Project would improve existing roadways and rehabilitate the Pacific Tunnel. The Project would result in no change in population in the Project area and **no impact** associated with exposure of occupants of the Project to hazards associated with wildfire. Please refer to Section 3.9(g) for a discussion of potential impacts related to exposure of people to risk of wildfire and mitigation measures required to reduce the risk of wildfire.

- c) *Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

The proposed Project would construct improvements to existing roads and would replace components of an existing water conveyance tunnel. Access for operations and maintenance of the tunnel would be via existing roads and are not expected to require any more trips for operations and maintenance than in the existing condition. As such, it is anticipated that the Project would result in **no impact** from increased risk of wildland fire.

- d) *Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

The proposed Project would construct improvements to existing roads and would replace components of an existing water conveyance tunnel. All temporary disturbance areas would be revegetated or stabilized following construction and the Project would not significantly alter the slopes, soils, or drainage of the project site. It is anticipated that the proposed Project would result in **no impact** associated with exposure of people or structures to significant risks from post-fire flooding or soils instability.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

Please refer to the discussion under c), below.

- 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)?*

Please refer to the discussion under c), below.

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

Sections 3.1 through 3.20 of this Initial Study provide an analysis of potential environmental impacts of the Project, including adverse effect on human beings. Mitigation measures to avoid, minimize, or compensate for potential impacts identified are included in Section 3.4, Biological Resources; Section 3.5, Cultural Resources; Section 3.7, Geology and Soils; Section 3.9, Hazards and Hazardous Materials; Section 3.13, Noise; and Section 3.18, Tribal Cultural Resources. Regarding impacts associated with degrading the quality of the environment or damaging or eliminating important examples of cultural history or prehistory, the proposed Project would result in **less-than-significant impacts with mitigation incorporated**.

The proposed Project would consist of a complete replacement of the upstream and downstream portals, and replacement of the existing timber invert and timber sidewalls within the tunnel using air-placed concrete as a replacement to the timber components. Since the proposed Project involves upgrading and replacing existing facilities, would not increase capacity of those facilities, requires no change in land use

or zoning designations, and impacts would primarily be temporary during construction, the impacts of the proposed Project would not be cumulatively considerable when considered with other regional projects.

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4 References and Preparers

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4.2 List of Preparers

Brian Deason, Environmental Resources Supervisor, EID

Michael Baron, Environmental Review Analyst, EID

Cary Mutschler, P.E., Senior Project Engineer, EID

Markus Lang, Dudek

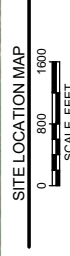
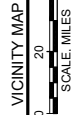
Kimberly Asbury, Dudek

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Appendix A

Project Plans

FRESH POND, CALIFORNIA
EL DORADO IRRIGATION DISTRICT







Approved for Construction

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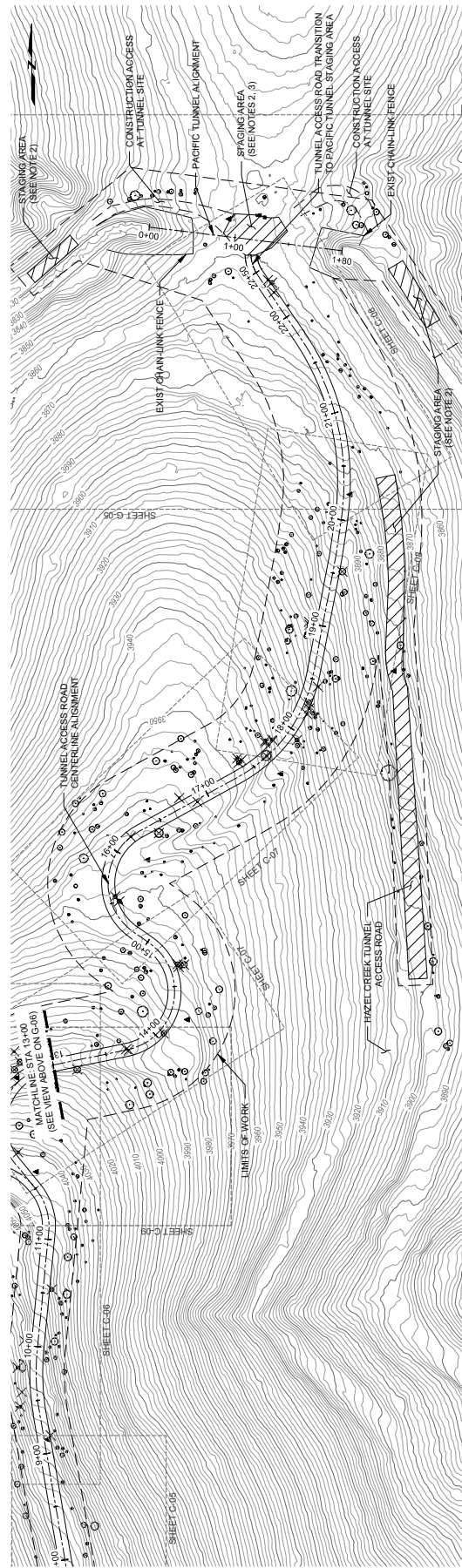
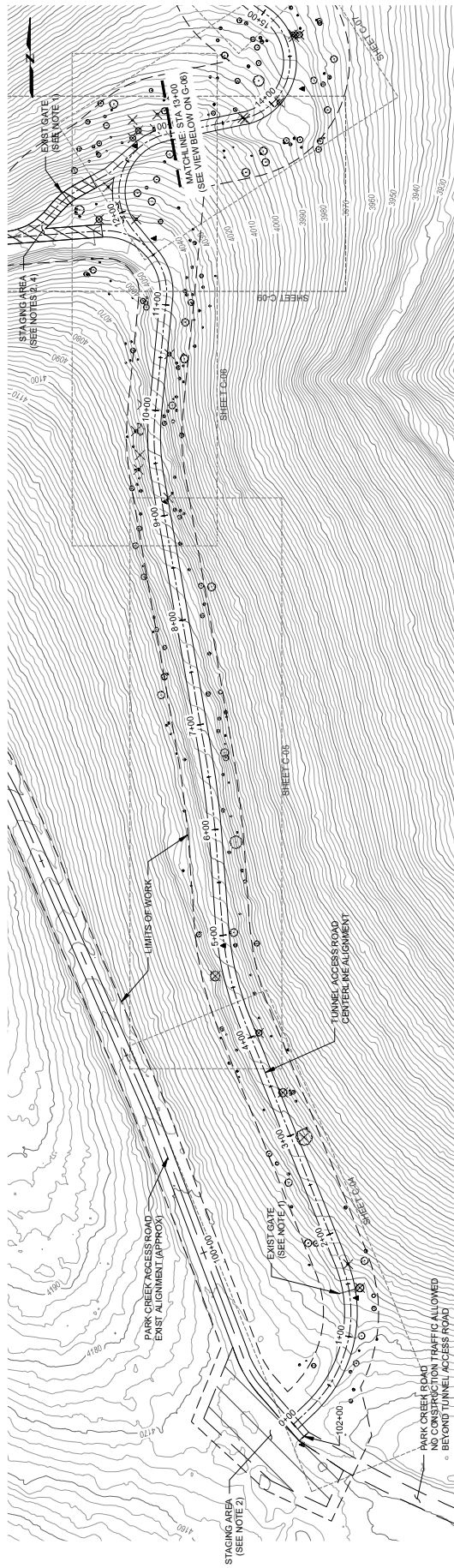
Elizabeth Dawson
Engineering Manager
El Dorado Irrigation District

90% SUBMITTAL
NOT FOR CONSTRUCTION

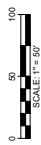
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				DATE: <u>11/8/19</u> EID PROJECT NO. <u>16044.01</u> DWG. NO. <u>_____7</u>	GEI Project 19071152

Pacific Tunnel Rehabilitation Project Fresh Pond, California	TITLE SHEET AND PROJECT LOCATION	<i>DRAFT</i>	DWG. NO.	G-01
			SHEET NO.	1 OF 28
			REV. NO.	A

\\bos01v-fs026\bos01v-fs026\data\shared\work\knowEI\DOE\BAND\IRRIGATION\DISTRICT\1901192\Bnd\Fn\Tunnel Rehab\100_CAD\Design\Sheet\01_G01 Title Sheet.dwg | Location: Men-dan - 11/15/2019



- NOTES:**
1. REMOVE EXISTING GATE.
 2. RESTORE STAGING AREA TO PRE-CONSTRUCTION CONDITIONS.
 3. EXISTING POWER POLE AND ELECTRICAL BOXES TO BE PROTECTED IN PLACE. DO NOT DISTURB.
 4. CANAL ACCESS ROAD TURNOUT RAMPS TO SERVE AS A STAGING AREA DURING CONSTRUCTION.
 5. TREES TO BE REMOVED ARE IDENTIFIED BY TREE TAG ON SHEETS C-04 TO C-08.



Attention:		1" = 50'	
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NO	DATE	ISSUE/REVISION	DES
CH	APP		

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GEI
Consultants
180 Grand Ave., Suite 1410
Placerville, CA 95353-2900
Tel: 510-355-2900
Fax: 510-355-2901
GEI Project 199119-2

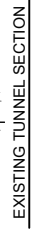
EL DORADO IRRIGATION DISTRICT
2890 Mesquite Road
Placerville, California
DATE: 11/01/19
EID PROJECT NO.: 16044.01
DWG NO.: 7

Pacific Tunnel Rehabilitation Project
Fresh Pond, California
TUNNEL ACCESS ROAD DEMOLITION AND SURVEY CONTROL PLAN

DRAFT
DWG. NO. **G-06**
SHEET NO. **06**

90% Submittal

Sheet G-06: Tunnel Rehabilitation Project, Tunnel Access Road Demolition and Survey Control Plan, 11/01/19

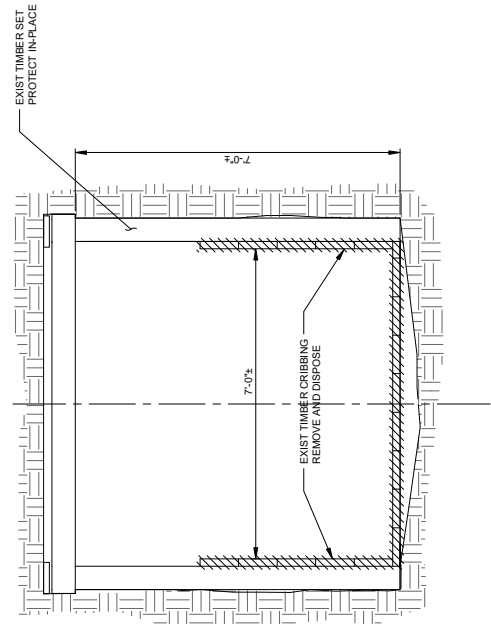
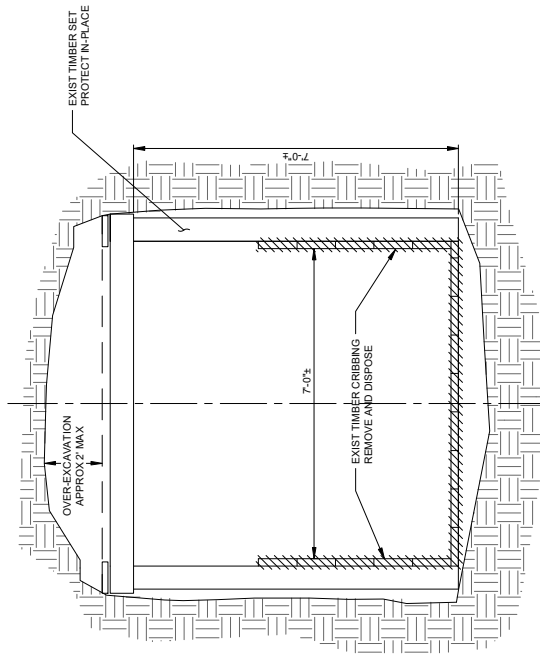
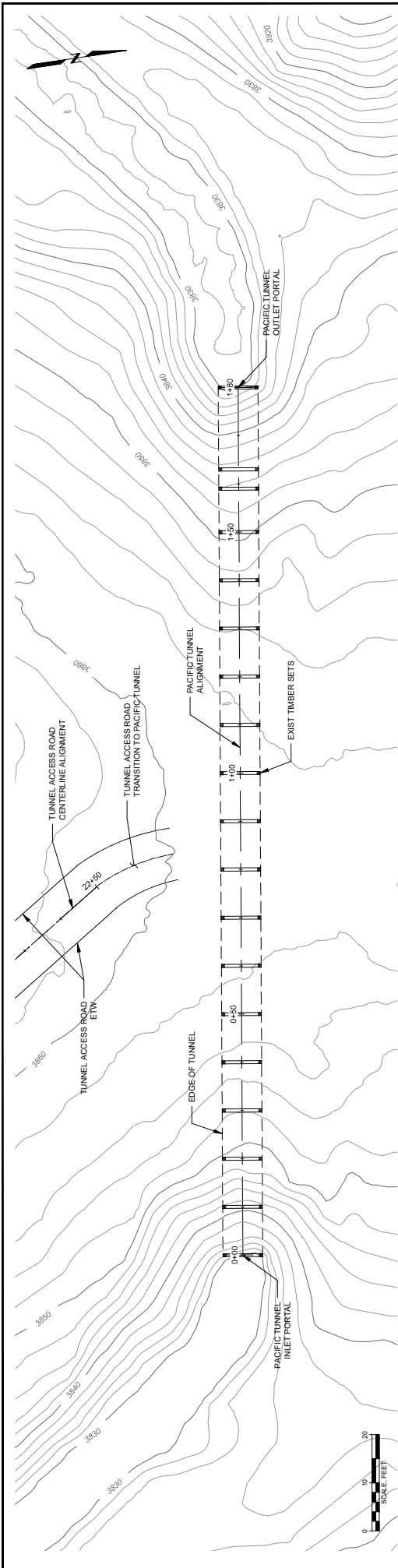


DWG. NO. G-07	SHEET NO. 07
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GEI
Consultants
180 Grand Ave., Suite 1410
Oakland, CA 94612
510-350-2900
GEI Project 190119-2

[illegible]

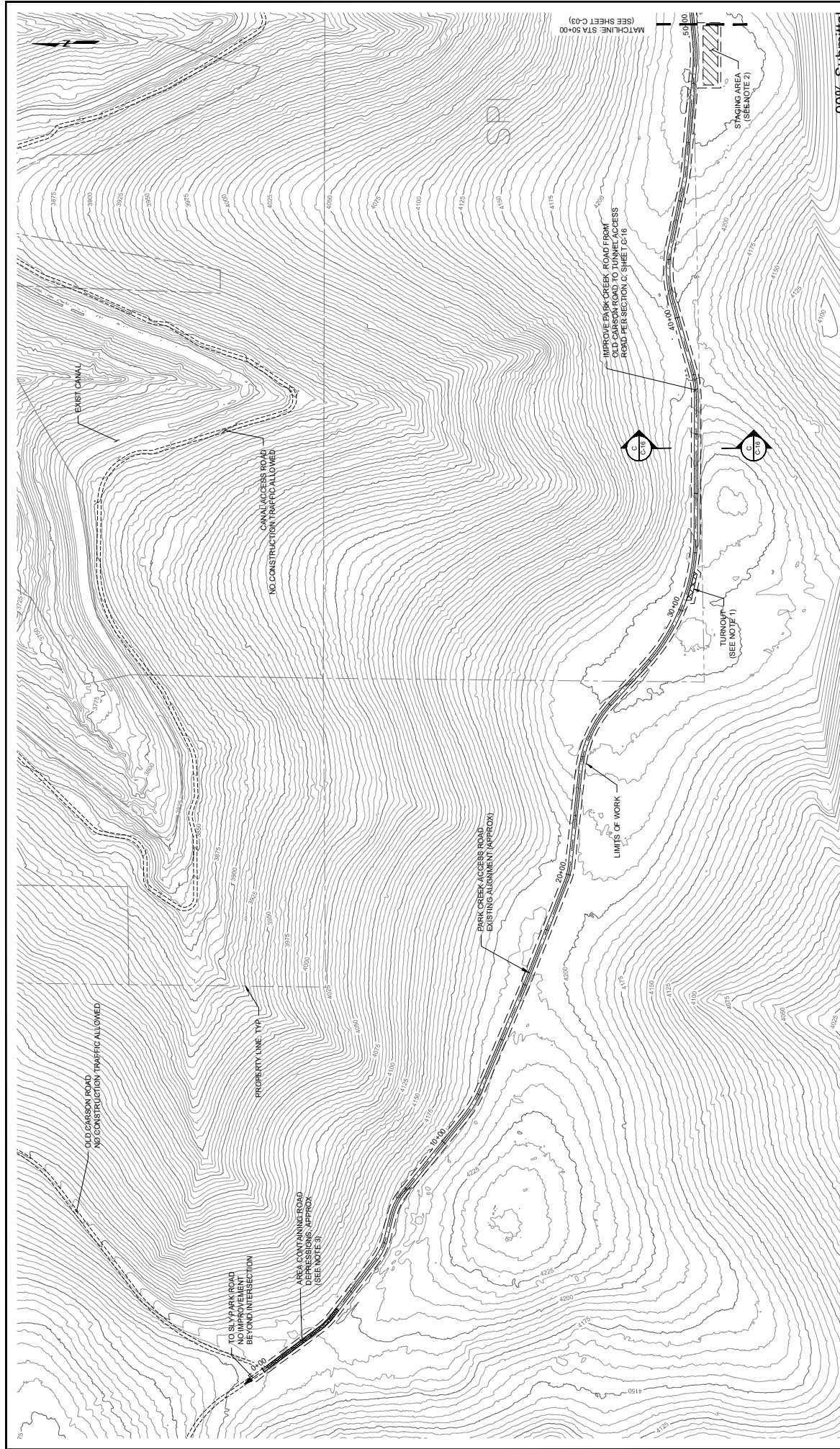
1



EXISTING TUNNEL SECTION
TYP SUPPORT IN VICINITY OF INLET AND OUTLET PORTAL
SCALE: 3/8" = 1'
STA 1+45 TO STA 1+45
STA 1+45 TO STA 1+45

EXISTING TUNNEL SECTION
TYP SUPPORT
SCALE: 3/8" = 1'
STA 1+45 TO STA 1+45
STA 1+45 TO STA 1+45

Attention:		0 1'		If this scale bar does not measure as shown, the drawing is not to scale.		CRITICAL: This document has been designated by El Dorado Irrigation District as containing CRITICAL INFORMATION. DO NOT COPY, RELEASE, OR OTHERWISE DISSEMINATE.		EL DORADO IRRIGATION DISTRICT 2890 Mesquite Road Placerville, California		Pacific Tunnel Rehabilitation Project Fresh Pond, California		DRAFT		DWG. NO. G-08		SHEET NO. 8	
NO		DATE		ISSUE/REVISION		DES		DRN		CH		APP		DATE		11/01/19	
EID PROJECT NO.		11/01/19		16044.01		7		GEI Project 190119-2		11/01/19		11/01/19		11/01/19		11/01/19	



NOTES:

- NOTES:**
1. PARK CREEK ROAD TURNOUT SHALL CONSIST OF A WIDENED CLASS II AB ROAD SECTION 12 FEET BEYOND THE ETW.
 2. RESTORE STAGING AREA TO PRE-CONSTRUCTION CONDITIONS.
 3. REPAIR ROAD DEPRESSIONS AND REPLACE AREAS OF POOR SUBGRADE AS PER SPECIFICATION SECTION 31.22.30.

Attention:



If this scale bar does not measure

1" then drawing is not original scale.

NO.	DATE	ISSUE/REVISION	DES	DMN	CE	APP
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Oakland, CA 94612
510-350-2900



**EL DORADO
IRRIGATION DISTRICT**
2890 Mosquito Road
Placerville, California

11/8/19
ECT NO. 16044.01

Pacific Tunnel Rehabilitation Project
Fresh Pond, California

PARK CREEK ROAD IMPROVEMENTS

DRAFT

WG. NO.

C-02

SHEET NO.

10

00110
\\bos1v4s02\storage\Working\EL DORADO IRRIGATION DISTRICT\1901192 Padfic Turn'd Rehab\00_CAD\Design\Sheets\10_C-02 Park Creek Road Improvements 1 of 2.dwg - 11/5/2019

Appendix B

Mitigation Monitoring and Reporting Plan

APPENDIX B

Draft Mitigation Monitoring and Reporting Program

DRAFT PACIFIC TUNNEL REHABILITATION PROJECT MITIGATION MONITORING AND REPORTING PROGRAM

The California Environmental Quality Act (CEQA) requires that when a lead agency adopts a Mitigated Negative Declaration (MND), it shall prepare a mitigation monitoring and reporting program (MMRP) for all required mitigation measures (CEQA Guidelines Section 15097). This MMRP identifies the monitoring program for mitigation measures identified by the IS/MND to reduce or avoid impacts associated with implementing the proposed Pacific Tunnel Rehabilitation Project. The MMRP shall be maintained by the El Dorado Irrigation District (EID).

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
AIR-1	Construction activities shall comply with El Dorado County Air Quality Management District's Rule 223-1: Fugitive Dust-Construction, Bulk Material Handling, Blasting, other Earthmoving activities and Carryout and Trackout Prevention. The Project Contractor shall implement applicable Best Management Practices outlined in Table 1 of Rule 223-1, including but not limited to: <ul style="list-style-type: none">• stabilization of backfill material,• pre-water soils prior to cut and fill activities,• re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 50 feet in any direction,• stabilize staging areas during use and at Project completion,• utilizing trackout prevention at construction access points.	Contractor/EID	EID	<ul style="list-style-type: none">• Throughout Construction	<ul style="list-style-type: none">• Measures implemented

APPENDIX B (Continued)

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
	Best management practices shall be contained in a Fugitive Dust Control Plan prepared by the Contractor and approved by the District Engineer.				
BIO-1	<p>The following measures shall be implemented to avoid, minimize or reduce impacts to special-status plant species:</p> <ul style="list-style-type: none"> Prior to ground-disturbance, a qualified botanist familiar with common and rare plant species of the Sierra Nevada region shall conduct surveys of all areas of potential project disturbance during the appropriate blooming period for potentially occurring special-status plant species. The purpose of the survey shall be to delineate and flag populations of special-status plant species for avoidance. If no special-status plants are identified, no further mitigation is necessary. Special-status plant populations identified during the pre-construction survey shall be mapped and avoided where possible. Plant individuals or populations plus a 10-foot buffer shall be temporarily fenced during construction activities with high-visibility fencing or prominently flagged. If complete avoidance of populations is infeasible, further measures, as described below, shall be necessary. If avoidance of special-status plant species is not feasible, a qualified 	Contractor/EID	EID	<ul style="list-style-type: none"> Survey within 14 days prior to construction Protective measures throughout construction 	<ul style="list-style-type: none"> Measures implemented Impacts to special-status birds avoided

APPENDIX B (Continued)

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
	botanist shall prepare a Rare Plant Salvage and Translocation Plan prior to project implementation. The Rare Plant Salvage and Translocation Plan shall be reviewed and approved by CDFW or the USFS, as applicable, and shall include the following, at a minimum: identification of occupied habitat to be preserved and occupied habitat to be removed; identification of on-site or off-site preservation, restoration, or enhancement locations; methods for preservation, restoration, enhancement, and/or translocation; goals and objectives for preservation, restoration, enhancement, and/or translocation; replacement ratio and success standard of 1:1 for impacted-to-established acreage; a monitoring program to ensure mitigation success; adaptive management and remedial measures in the event that the performance standards are not achieved; and financial assurances for conservation of mitigation lands; and a mechanism for conservation of any mitigation lands required in perpetuity.				

APPENDIX B (Continued)

BIO-2	<p>California spotted owls were detected during surveys conducted in 2019, and are therefore assumed to be present in the project area. To be protective of active nesting that could occur in the project area, the El Dorado Irrigation District shall schedule tree removal and/or road improvement activities to begin August 16 or later to avoid the "limited operating period" stipulated by the U.S. Forest Service, which coincides with the California spotted owl nesting season of March 1 through August 15. If vegetation removal, construction or road improvements must occur during the nesting season for this species, a qualified biologist shall conduct a nesting survey within 2 weeks prior to said activities to determine if any spotted owls are nesting on or near the proposed areas of disturbance (including a 500-foot buffer). Nesting surveys conducted for spotted owl, required if construction activities are within 0.25 mile of a known Protected Activity Center, shall follow appropriate U.S. Forest Service survey protocols. If any active nests are observed during surveys, a suitable avoidance buffer from the nests shall be determined and flagged by the qualified biologist based on location and the timing and extent of planned ground-disturbance activities. Consultation with USFW and/or CDFW may be required to determine appropriate avoidance buffer distances. Ground-disturbing activities within the established buffers shall be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. These measures will also serve to</p>	Contractor/EID	<ul style="list-style-type: none"> • Contractor • EID 	<ul style="list-style-type: none"> • Within 14 days prior to construction 	<ul style="list-style-type: none"> • Completion of survey • Disturbance of roost habitat avoided during maternity season or to unoccupied habitat as verified by survey
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APPENDIX B (Continued)

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
	avoid/minimize direct and indirect impacts on native nesting birds, including other raptor species, and their active nests which are protected by regulations in the California Fish and Game Code. However, avoidance buffers can potentially be less than that established for nesting spotted owls depending on the species and timing/extent/location of proposed ground-disturbance activities.				
BIO-3	Removal of potential roost habitat identified during the assessment shall be avoided during the bat maternity season (May 1 through August 15). A qualified biologist experienced with Sierra Nevada bat species shall conduct a survey to search for evidence of bat roosts in trees and structures subject to removal if the Project activities would occur during the bat maternity season. If removal of potential roost habitat occurs outside of the maternity season, no further mitigation shall be required. If removal of potential roost habitat must be conducted during the maternity season, pre-construction inspections for bats must be conducted using appropriate methods (e.g., camera inspection, exit survey with night optics, acoustic survey) within 2 weeks prior to said activities. If bats are found during inspections, removal of that roost feature must be delayed until the end of the maternity season or until a qualified bat biologist has determined that the young are capable of flight	Contractor/EID	<ul style="list-style-type: none"> • Contractor • EID 	<ul style="list-style-type: none"> • Before removal of potential bat roosting habitat 	<ul style="list-style-type: none"> • Avoidance of impacts to bats

APPENDIX B (Continued)

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
CUL-1	In the event that unanticipated archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082) the archaeologist may record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the archaeologist observes the discovery to be potentially significant under CEQA or Section 106 of the National Historic Preservation Act, additional efforts may be warranted as recommended by the qualified archaeologist.	Contractor/EID	EID	<ul style="list-style-type: none"> • Throughout construction activity 	<ul style="list-style-type: none"> • Impacts avoided to unanticipated archaeological resources
CUL-2	In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found the county coroner shall be immediately notified of the discovery. The coroner will provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, shall occur until a determination has been made. If the county coroner determines that the remains are, or are believed to be, Native American, they shall notify the Native	Contractor/EID	EID	<ul style="list-style-type: none"> • Throughout construction activity 	<ul style="list-style-type: none"> • Mitigation measure implemented in the event of human remains discovery

APPENDIX B (Continued)

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
	American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendent (MLD) from the deceased Native American. Within 48 hours of their notification, the MLD will recommend to the lead agency their preferred treatment of the remains and associated grave goods.				
GEO-1	In order to reduce runoff and erosion, and minimize the potential of sedimentation as a result of the Project, EID shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for all construction activities.	Contractor/EID	EID	<ul style="list-style-type: none"> • SWPPP prepared prior to construction activities • SWPPP implemented during construction 	<ul style="list-style-type: none"> • SWPPP implemented during construction
GEO-2	EID shall ensure that disturbed areas are protected through reseeding, and/or laying out mulch or gravel. A seed mix approved by the Forest Service shall be used to revegetate disturbed areas and reduce potential for erosion and sedimentation.	Contractor/EID	EID	<ul style="list-style-type: none"> • During and following construction 	<ul style="list-style-type: none"> • Disturbed areas revegetated or stabilized with mulch or gravel
HAZ-1	<p>The following measures shall be implemented prior to and during construction and shall be incorporated into Project plans and specifications.</p> <ul style="list-style-type: none"> • All equipment shall be inspected by the contractor for leaks prior to the start of construction and regularly throughout Project construction. Leaks from any equipment shall be contained and the leak remedied before the equipment is again used on the site. • BMPs for spill prevention shall be incorporated into Project plans and 	Contractor/EID	EID	<ul style="list-style-type: none"> • Prior to and during construction 	<ul style="list-style-type: none"> • Implementation of spill prevention and containment measures.

APPENDIX B (Continued)

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
	<p>specifications and shall contain measures for secondary containment and safe handling procedures according to the product Material Safety Data Sheets.</p> <ul style="list-style-type: none"> • A spill kit shall be maintained on site throughout all construction activities and shall contain appropriate items to absorb, contain, neutralize, or remove hazardous materials stored or used in large quantities during construction. • Project plans and specifications shall identify construction staging areas and designated areas where equipment refueling, lubrication, and maintenance may occur. Areas designated for refueling, lubrication, and maintenance of equipment shall be approved by EID. • In the event of any spill or release of any chemical or wastewater during construction, the contractor shall immediately notify District. • Hazardous substances shall be handled in accordance with the Project 184 Hazardous Substances Plan, which prescribes measures to appropriately manage hazardous substances, including requirements for storage, spill prevention and response and reporting procedures. 				
HAZ.2	In order to minimize the risk of accidental ignition of surrounding wildlands, EID shall prepare a Fire Prevention Plan, per Eldorado National Forest guidelines. EID and its	Contractor/EID	EID	<ul style="list-style-type: none"> • Prior to and during construction 	<ul style="list-style-type: none"> • Approval and implementation of Fire Prevention Plan

APPENDIX B (Continued)

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
	Contractor a) shall abide by the requirements of the Fire Prevention Plan. Measures may include but are not limited to adhering to the Fire Prevention Period (typically June 1 to October 15); obtaining permits from the Forest Service for certain activities such as welding and blasting; fire suppression equipment requirements; designating a fire supervisor on site; smoking and fire rules; requirements for parking and equipment and materials storage and storage areas; and designating a fire patrol person.				
NOISE-1	To avoid high noise levels during nighttime hours, construction truck traffic along Park Creek Road shall be limited to daytime periods between 7 a.m. and 7 p.m., Monday through Friday and 8 a.m. and 5 p.m. on weekends, and on federally-recognized holidays, whenever feasible.	Contractor/EID	EID	<ul style="list-style-type: none"> Throughout the construction process 	<ul style="list-style-type: none"> No construction traffic between 7pm and 7am
TCR-1	EID shall implement the following measure to reduce or avoid impacts on undiscovered historic properties, archaeological resources, and tribal cultural resources. If interested Native American Tribes provide information demonstrating the significance of the project location and tangible evidence supporting the determination the site is highly sensitive for prehistoric archaeological resources or tribal cultural resources, EID will retain a qualified archaeologist to 1) monitor for potential prehistoric archaeological resources during initial ground disturbing activities, 2) prepare a worker awareness brochure, 3) invite tribal representatives to	Contractor/EID	EID	<ul style="list-style-type: none"> Throughout the construction process 	<ul style="list-style-type: none"> Mitigation measure implemented in the event of TCR discovery

APPENDIX B (Continued)

Number	Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing	Performance Evaluation Criteria
	review the worker awareness brochure, and 4) conduct training of personnel involved in project implementation. If buried or previously unidentified historic properties or archaeological resources are discovered during project activities, all work within a 100-foot radius of the find shall cease. EID shall retain a professional archaeologist meeting the Secretary of the Interior's Professional Standards for Archaeologists to assess the discovery and recommend what, if any, further treatment or investigation is necessary for the find. Interested Native American Tribes will also be contacted. Any necessary treatment/investigation shall be developed with interested Native American Tribes providing recommendations and shall be coordinated with the State Historic Preservation Officer. Necessary treatment/investigation shall be completed before project activities continue in the vicinity of the find.				

Appendix C

California Emissions Estimator Model Analysis

CalEEMod Version: CalEEMod.2016.3.2

Date: 2/19/2020 9:45 AM

Pacific Tunnel Rehabilitation Project
El Dorado-Mountain County County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.75	32,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	70
Climate Zone	1			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Pacific Tunnel Rehabilitation Project. El Dorado County.

Land Use - Project area approx 0.75 acres.

Construction Phase - Construction would occur from June 2020 through December 2020.

Off-road Equipment - No equipment assumed.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - No equipment assumed.

Off-road Equipment - Default equipment assumed.

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Annual

Off-road Equipment - Default equipment excluding crane.

Off-road Equipment - Default equipment excluding crane.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Trips and VMT - 1,100 haul truck trips distributed throughout construction duration based.

On-road Fugitive Dust - Assumed 98% paved.

Demolition - Number of haul trucks provided in Trips And VMT tab.

Grading - Number of haul trucks provided in Trips And VMT tab.

Construction Off-road Equipment Mitigation - Application of fugitive dust BMPs - water three times daily and 15 mph on all unpaved roads.

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Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Annual

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Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Annual

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Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Annual

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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					
2020	0.1360	1.4408	0.8965	2.3000e-003	0.8510	0.0578	0.9088	0.1431	0.0538	0.1969	0.0000	203.9175	203.9175	0.0432	0.0000	204.9986
Maximum	0.1360	1.4408	0.8965	2.3000e-003	0.8510	0.0578	0.9088	0.1431	0.0538	0.1969	0.0000	203.9175	203.9175	0.0432	0.0000	204.9986

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					
2020	0.1360	1.4408	0.8965	2.3000e-003	0.4969	0.0578	0.5547	0.0745	0.0538	0.1283	0.0000	203.9174	203.9174	0.0432	0.0000	204.9984
Maximum	0.1360	1.4408	0.8965	2.3000e-003	0.4969	0.0578	0.5547	0.0745	0.0538	0.1283	0.0000	203.9174	203.9174	0.0432	0.0000	204.9984

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	41.61	0.00	38.97	47.93	0.00	34.83	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	Install Site Environmental Measures	Site Preparation	6/9/2020	7/6/2020	5	20	
2	Mobilization	Site Preparation	6/10/2020	8/4/2020	5	40	
3	Develop Access Road and Station Areas	Grading	7/6/2020	8/28/2020	5	40	
4	Demolition of wood liner and portals	Demolition	10/1/2020	10/14/2020	5	10	
5	Substrate Cleaning	Site Preparation	10/15/2020	10/21/2020	5	5	
6	Place Self-Consolidating Concrete (SCC) Invert	Paving	10/19/2020	10/30/2020	5	10	
7	Place Welded Wire Fabric (W/F)	Building Construction	11/2/2020	11/13/2020	5	10	
8	Place Shotcrete and Portals	Building Construction	11/16/2020	12/4/2020	5	15	
9	Demobilization	Site Preparation	12/7/2020	12/11/2020	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

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OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Install Site Environmental Measures	Graders	1	8.00	187	0.41
Install Site Environmental Measures	Off-Highway Trucks	1	8.00	402	0.38
Install Site Environmental Measures	Scrapers	1	8.00	367	0.48
Install Site Environmental Measures	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Mobilization	Graders	0	0.00	187	0.41
Mobilization	Scrapers	0	0.00	367	0.48
Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Develop Access Road and Staging Areas	Graders	1	8.00	187	0.41
Develop Access Road and Staging Areas	Off-Highway Trucks	1	8.00	402	0.38
Develop Access Road and Staging Areas	Rubber Tired Dozers	1	8.00	247	0.40
Develop Access Road and Staging Areas	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition of wood liner and portals	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition of wood liner and portals	Off-Highway Trucks	1	8.00	402	0.38
Demolition of wood liner and portals	Rubber Tired Dozers	1	8.00	247	0.40
Demolition of wood liner and portals	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Substrate Cleaning	Air Compressors	1	8.00	78	0.48
Substrate Cleaning	Off-Highway Trucks	1	8.00	402	0.38
Substrate Cleaning	Pumps	1	8.00	84	0.74
Place Self-Consolidating Concrete (SCC) Invert	Cement and Mortar Mixers	1	8.00	9	0.56
Place Self-Consolidating Concrete (SCC) Invert	Pavers	1	8.00	130	0.42
Place Self-Consolidating Concrete (SCC) Invert	Paving Equipment	1	8.00	132	0.36
Place Self-Consolidating Concrete (SCC) Invert	Rollers	2	8.00	80	0.38
Place Self-Consolidating Concrete (SCC) Invert	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Welded Wire Fabric (WWF)	Forklifts	2	8.00	89	0.20
Place Welded Wire Fabric (WWF)	Generator Sets	1	8.00	84	0.74
Place Welded Wire Fabric (WWF)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Welded Wire Fabric (WWF)	Welders	3	8.00	46	0.45
Place Shotcrete and Portals	Forklifts	2	8.00	89	0.20

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Place Shotcrete and Portals	Generator Sets	1	8.00	84	0.74
Place Shotcrete and Portals	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Shotcrete and Portals	Welders	3	8.00	46	0.45
Demobilization	Graders	0	0.00	187	0.41

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
Install Site	4	10.00	8.00	242.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Environmental Mobilization	0	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Develop Access Road and Staging Areas	5	14.00	2.00	353.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition of wood	6	16.00	2.00	187.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
liner and portals Substrate Cleaning	3	8.00	2.00	159.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Self-Consolidating	6	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Welded Wire Fabric (WWE)	7	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Shotcrete and Portals	7	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	0	8.00	4.00	159.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Install Site Environmental Measures - 2020

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					0.0159	0.0000	0.0159	1.7200e-003	0.0000	1.7200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0234	0.2651	0.1536	3.8000e-004		0.0102	0.0102		9.4200e-003	9.4200e-003	0.0000	33.4672	33.4672	0.0108	0.0000	33.7378
Total	0.0234	0.2651	0.1536	3.8000e-004	0.0159	0.0102	0.0262	1.7200e-003	9.4200e-003	0.0111	0.0000	33.4672	33.4672	0.0108	0.0000	33.7378

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0600e-003	0.0413	0.0118	1.0000e-004	0.0596	1.6000e-004	0.0597	6.2900e-003	1.6000e-004	6.4400e-003	0.0000	9.3863	9.3863	1.2000e-004	0.0000	9.3893
Vendor	3.2000e-004	9.6100e-003	3.2600e-003	2.0000e-005	0.0130	5.0000e-005	0.0131	1.3900e-003	5.0000e-005	1.4400e-003	0.0000	1.8691	1.8691	4.0000e-005	0.0000	1.8701
Worker	7.0000e-004	4.6000e-004	4.7400e-003	1.0000e-005	0.0412	1.0000e-005	0.0412	4.3100e-003	1.0000e-005	4.3200e-003	0.0000	1.0851	1.0851	3.0000e-005	0.0000	1.0859
Total	2.0800e-003	0.0514	0.0198	1.3000e-004	0.1137	2.2000e-004	0.1140	0.0120	2.2000e-004	0.0122	0.0000	12.3405	12.3405	1.9000e-004	0.0000	12.3453

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					6.2000e-003	0.0000	6.2000e-003	6.7000e-004	0.0000	6.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0234	0.2651	0.1536	3.8000e-004		0.0102	0.0102		9.4200e-003	9.4200e-003	0.0000	33.4671	33.4671	0.0108	0.0000	33.7377
Total	0.0234	0.2651	0.1536	3.8000e-004	6.2000e-003	0.0102	0.0164	6.7000e-004	9.4200e-003	0.0101	0.0000	33.4671	33.4671	0.0108	0.0000	33.7377

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0600e-003	0.0413	0.0118	1.0000e-004	0.0372	1.6000e-004	0.0374	4.0600e-003	1.6000e-004	4.2100e-003	0.0000	9.3863	9.3863	1.2000e-004	0.0000	9.3893
Vendor	3.2000e-004	9.6100e-003	3.2600e-003	2.0000e-005	8.1500e-003	5.0000e-005	8.2100e-003	9.0000e-004	5.0000e-005	9.5000e-004	0.0000	1.8691	1.8691	4.0000e-005	0.0000	1.8701
Worker	7.0000e-004	4.6000e-004	4.7400e-003	1.0000e-005	0.0257	1.0000e-005	0.0257	2.7600e-003	1.0000e-005	2.7700e-003	0.0000	1.0851	1.0851	3.0000e-005	0.0000	1.0859
Total	2.0800e-003	0.0514	0.0198	1.3000e-004	0.0711	2.2000e-004	0.0713	7.7200e-003	2.2000e-004	7.9300e-003	0.0000	12.3405	12.3405	1.9000e-004	0.0000	12.3453

3.3 Mobilization - 2020

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	7.3000e-004	7.5800e-003	2.0000e-005	0.0659	1.0000e-005	0.0659	6.8900e-003	1.0000e-005	6.9100e-003	0.0000	1.7361	1.7361	5.0000e-005	0.0000	1.7374
Total	1.1300e-003	7.3000e-004	7.5800e-003	2.0000e-005	0.0659	1.0000e-005	0.0659	6.8900e-003	1.0000e-005	6.9100e-003	0.0000	1.7361	1.7361	5.0000e-005	0.0000	1.7374

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	7.3000e-004	7.5800e-003	2.0000e-005	0.0411	1.0000e-005	0.0411	4.4100e-003	1.0000e-005	4.4300e-003	0.0000	1.7361	1.7361	5.0000e-005	0.0000	1.7374
Total	1.1300e-003	7.3000e-004	7.5800e-003	2.0000e-005	0.0411	1.0000e-005	0.0411	4.4100e-003	1.0000e-005	4.4300e-003	0.0000	1.7361	1.7361	5.0000e-005	0.0000	1.7374

3.4 Develop Access Road and Staging Areas - 2020**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					0.1311	0.0000	0.1311	0.0674	0.0000	0.0674	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0528	0.5638	0.2863	6.9000e-004		0.0251	0.0251		0.0231	0.0231	0.0000	60.7854	60.7854	0.0197	0.0000	61.2769
Total	0.0528	0.5638	0.2863	6.9000e-004	0.1311	0.0251	0.1561	0.0674	0.0231	0.0904	0.0000	60.7854	60.7854	0.0197	0.0000	61.2769

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0602	0.0171	1.4000e-004	0.0869	2.4000e-004	0.0871	9.1700e-003	2.3000e-004	9.4000e-003	0.0000	13.6916	13.6916	1.8000e-004	0.0000	13.6960
Vendor	1.6000e-004	4.8100e-003	1.6300e-003	1.0000e-005	6.5100e-003	3.0000e-005	6.5400e-003	6.9000e-004	3.0000e-005	7.2000e-004	0.0000	0.9345	0.9345	2.0000e-005	0.0000	0.9351
Worker	1.9700e-003	1.2700e-003	0.0133	3.0000e-005	0.1153	3.0000e-005	0.1153	0.0121	2.0000e-005	0.0121	0.0000	3.0382	3.0382	9.0000e-005	0.0000	3.0405
Total	3.6700e-003	0.0663	0.0320	1.8000e-004	0.2086	3.0000e-004	0.2089	0.0219	2.8000e-004	0.0222	0.0000	17.6643	17.6643	2.9000e-004	0.0000	17.6715

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					0.0511	0.0000	0.0511	0.0263	0.0000	0.0263	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0528	0.5638	0.2863	6.9000e-004		0.0251	0.0251		0.0231	0.0231	0.0000	60.7853	60.7853	0.0197	0.0000	61.2768
Total	0.0528	0.5638	0.2863	6.9000e-004	0.0511	0.0251	0.0762	0.0263	0.0231	0.0493	0.0000	60.7853	60.7853	0.0197	0.0000	61.2768

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0602	0.0171	1.4000e-004	0.0543	2.4000e-004	0.0545	5.9200e-003	2.3000e-004	6.1500e-003	0.0000	13.6916	13.6916	1.8000e-004	0.0000	13.6960
Vendor	1.6000e-004	4.8100e-003	1.6300e-003	1.0000e-005	4.0800e-003	3.0000e-005	4.1000e-003	4.5000e-004	3.0000e-005	4.8000e-004	0.0000	0.9345	0.9345	2.0000e-005	0.0000	0.9351
Worker	1.9700e-003	1.2700e-003	0.0133	3.0000e-005	0.0719	3.0000e-005	0.0719	7.7200e-003	2.0000e-005	7.7500e-003	0.0000	3.0382	3.0382	9.0000e-005	0.0000	3.0405
Total	3.6700e-003	0.0663	0.0320	1.8000e-004	0.1303	3.0000e-004	0.1306	0.0141	2.8000e-004	0.0144	0.0000	17.6643	17.6643	2.9000e-004	0.0000	17.6715

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3.5 Demolition of wood liner and portals - 2020**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	0.0140	0.1364	0.0923	1.9000e-004		6.9100e-003	6.9100e-003		6.4400e-003	6.4400e-003	0.0000	16.3336	16.3336	4.5800e-003	0.0000	16.4482
Total	0.0140	0.1364	0.0923	1.9000e-004		6.9100e-003	6.9100e-003		6.4400e-003	6.4400e-003	0.0000	16.3336	16.3336	4.5800e-003	0.0000	16.4482

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	8.2000e-004	0.0319	9.0800e-003	8.0000e-005	0.0460	1.3000e-004	0.0461	4.8600e-003	1.2000e-004	4.9800e-003	0.0000	7.2531	7.2531	9.0000e-005	0.0000	7.2554
Vendor	4.0000e-005	1.2000e-003	4.1000e-004	0.0000	1.6300e-003	1.0000e-005	1.6300e-003	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.2336	0.2336	1.0000e-005	0.0000	0.2338
Worker	5.6000e-004	3.6000e-004	3.7900e-003	1.0000e-005	0.0329	1.0000e-005	0.0329	3.4500e-003	1.0000e-005	3.4500e-003	0.0000	0.8680	0.8680	3.0000e-005	0.0000	0.8687
Total	1.4200e-003	0.0335	0.0133	9.0000e-005	0.0806	1.5000e-004	0.0807	8.4800e-003	1.4000e-004	8.6100e-003	0.0000	8.3548	8.3548	1.3000e-004	0.0000	8.3579

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	0.0140	0.1364	0.0923	1.9000e-004		6.9100e-003	6.9100e-003		6.4400e-003	6.4400e-003	0.0000	16.3336	16.3336	4.5800e-003	0.0000	16.4481
Total	0.0140	0.1364	0.0923	1.9000e-004		6.9100e-003	6.9100e-003		6.4400e-003	6.4400e-003	0.0000	16.3336	16.3336	4.5800e-003	0.0000	16.4481

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	8.2000e-004	0.0319	9.0800e-003	8.0000e-005	0.0288	1.3000e-004	0.0289	3.1300e-003	1.2000e-004	3.2600e-003	0.0000	7.2531	7.2531	9.0000e-005	0.0000	7.2554
Vendor	4.0000e-005	1.2000e-003	4.1000e-004	0.0000	1.0200e-003	1.0000e-005	1.0300e-003	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	0.2336	0.2336	1.0000e-005	0.0000	0.2338
Worker	5.6000e-004	3.6000e-004	3.7900e-003	1.0000e-005	0.0205	1.0000e-005	0.0205	2.2100e-003	1.0000e-005	2.2100e-003	0.0000	0.8680	0.8680	3.0000e-005	0.0000	0.8687
Total	1.4200e-003	0.0335	0.0133	9.0000e-005	0.0503	1.5000e-004	0.0505	5.4500e-003	1.4000e-004	5.5900e-003	0.0000	8.3548	8.3548	1.3000e-004	0.0000	8.3579

3.6 Substrate Cleaning - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5200e-003	0.0302	0.0250	6.0000e-005		1.4600e-003	1.4600e-003		1.4200e-003	1.4200e-003	0.0000	5.1640	5.1640	1.0900e-003	0.0000	5.1912
Total	3.5200e-003	0.0302	0.0250	6.0000e-005	0.0000	1.4600e-003	1.4600e-003	0.0000	1.4200e-003	1.4200e-003	0.0000	5.1640	5.1640	1.0900e-003	0.0000	5.1912

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.9000e-004	0.0271	7.7200e-003	7.0000e-005	0.0391	1.1000e-004	0.0392	4.1300e-003	1.0000e-004	4.2300e-003	0.0000	6.1671	6.1671	8.0000e-005	0.0000	6.1690
Vendor	2.0000e-005	6.0000e-004	2.0000e-004	0.0000	8.1000e-004	0.0000	8.2000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.1168	0.1168	0.0000	0.0000	0.1169
Worker	1.4000e-004	9.0000e-005	9.5000e-004	0.0000	8.2300e-003	0.0000	8.2400e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.2170	0.2170	1.0000e-005	0.0000	0.2172
Total	8.5000e-004	0.0278	8.8700e-003	7.0000e-005	0.0482	1.1000e-004	0.0483	5.0800e-003	1.0000e-004	5.1800e-003	0.0000	6.5009	6.5009	9.0000e-005	0.0000	6.5031

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5200e-003	0.0302	0.0250	6.0000e-005		1.4600e-003	1.4600e-003		1.4200e-003	1.4200e-003	0.0000	5.1640	5.1640	1.0900e-003	0.0000	5.1912
Total	3.5200e-003	0.0302	0.0250	6.0000e-005	0.0000	1.4600e-003	1.4600e-003	0.0000	1.4200e-003	1.4200e-003	0.0000	5.1640	5.1640	1.0900e-003	0.0000	5.1912

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.9000e-004	0.0271	7.7200e-003	7.0000e-005	0.0245	1.1000e-004	0.0246	2.6600e-003	1.0000e-004	2.7700e-003	0.0000	6.1671	6.1671	8.0000e-005	0.0000	6.1690
Vendor	2.0000e-005	6.0000e-004	2.0000e-004	0.0000	5.1000e-004	0.0000	5.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1168	0.1168	0.0000	0.0000	0.1169
Worker	1.4000e-004	9.0000e-005	9.5000e-004	0.0000	5.1300e-003	0.0000	5.1400e-003	5.5000e-004	0.0000	5.5000e-004	0.0000	0.2170	0.2170	1.0000e-005	0.0000	0.2172
Total	8.5000e-004	0.0278	8.8700e-003	7.0000e-005	0.0301	1.1000e-004	0.0302	3.2700e-003	1.0000e-004	3.3800e-003	0.0000	6.5009	6.5009	9.0000e-005	0.0000	6.5031

3.7 Place Self-Consolidating Concrete (SCC) Invert - 2020**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	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143

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	1.6000e-004	4.8100e-003	1.6300e-003	1.0000e-005	6.5100e-003	3.0000e-005	6.5400e-003	6.9000e-004	3.0000e-005	7.2000e-004	0.0000	0.9345	0.9345	2.0000e-005	0.0000	0.9351
Worker	5.6000e-004	3.6000e-004	3.7900e-003	1.0000e-005	0.0329	1.0000e-005	0.0329	3.4500e-003	1.0000e-005	3.4500e-003	0.0000	0.8680	0.8680	3.0000e-005	0.0000	0.8687
Total	7.2000e-004	5.1700e-003	5.4200e-003	2.0000e-005	0.0394	4.0000e-005	0.0395	4.1400e-003	4.0000e-005	4.1700e-003	0.0000	1.8026	1.8026	5.0000e-005	0.0000	1.8038

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	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143

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	1.6000e-004	4.8100e-003	1.6300e-003	1.0000e-005	4.0800e-003	3.0000e-005	4.1000e-003	4.5000e-004	3.0000e-005	4.8000e-004	0.0000	0.9345	0.9345	2.0000e-005	0.0000	0.9351
Worker	5.6000e-004	3.6000e-004	3.7900e-003	1.0000e-005	0.0205	1.0000e-005	0.0205	2.2100e-003	1.0000e-005	2.2100e-003	0.0000	0.8680	0.8680	3.0000e-005	0.0000	0.8687
Total	7.2000e-004	5.1700e-003	5.4200e-003	2.0000e-005	0.0246	4.0000e-005	0.0246	2.6600e-003	4.0000e-005	2.6900e-003	0.0000	1.8026	1.8026	5.0000e-005	0.0000	1.8038

3.8 Place Welded Wire Fabric (WWF) - 2020**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	9.6100e-003	0.0645	0.0682	1.0000e-004		3.9200e-003	3.9200e-003		3.7900e-003	3.7900e-003	0.0000	8.3565	8.3565	1.4500e-003	0.0000	8.3928
Total	9.6100e-003	0.0645	0.0682	1.0000e-004		3.9200e-003	3.9200e-003		3.7900e-003	3.7900e-003	0.0000	8.3565	8.3565	1.4500e-003	0.0000	8.3928

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	1.6000e-004	4.8100e-003	1.6300e-003	1.0000e-005	6.5100e-003	3.0000e-005	6.5400e-003	6.9000e-004	3.0000e-005	7.2000e-004	0.0000	0.9345	0.9345	2.0000e-005	0.0000	0.9351
Worker	5.6000e-004	3.6000e-004	3.7900e-003	1.0000e-005	0.0329	1.0000e-005	0.0329	3.4500e-003	1.0000e-005	3.4500e-003	0.0000	0.8680	0.8680	3.0000e-005	0.0000	0.8687
Total	7.2000e-004	5.1700e-003	5.4200e-003	2.0000e-005	0.0394	4.0000e-005	0.0395	4.1400e-003	4.0000e-005	4.1700e-003	0.0000	1.8026	1.8026	5.0000e-005	0.0000	1.8038

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	9.6100e-003	0.0645	0.0682	1.0000e-004		3.9200e-003	3.9200e-003		3.7900e-003	3.7900e-003	0.0000	8.3565	8.3565	1.4500e-003	0.0000	8.3928
Total	9.6100e-003	0.0645	0.0682	1.0000e-004		3.9200e-003	3.9200e-003		3.7900e-003	3.7900e-003	0.0000	8.3565	8.3565	1.4500e-003	0.0000	8.3928

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	1.6000e-004	4.8100e-003	1.6300e-003	1.0000e-005	4.0800e-003	3.0000e-005	4.1000e-003	4.5000e-004	3.0000e-005	4.8000e-004	0.0000	0.9345	0.9345	2.0000e-005	0.0000	0.9351
Worker	5.6000e-004	3.6000e-004	3.7900e-003	1.0000e-005	0.0205	1.0000e-005	0.0205	2.2100e-003	1.0000e-005	2.2100e-003	0.0000	0.8680	0.8680	3.0000e-005	0.0000	0.8687
Total	7.2000e-004	5.1700e-003	5.4200e-003	2.0000e-005	0.0246	4.0000e-005	0.0246	2.6600e-003	4.0000e-005	2.6900e-003	0.0000	1.8026	1.8026	5.0000e-005	0.0000	1.8038

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Annual

3.9 Place Shotcrete and Portals - 2020**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	0.0144	0.0967	0.1024	1.5000e-004		5.8800e-003	5.8800e-003		5.6800e-003	5.6800e-003	0.0000	12.5348	12.5348	2.1800e-003	0.0000	12.5892
Total	0.0144	0.0967	0.1024	1.5000e-004		5.8800e-003	5.8800e-003		5.6800e-003	5.6800e-003	0.0000	12.5348	12.5348	2.1800e-003	0.0000	12.5892

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	2.4000e-004	7.2100e-003	2.4500e-003	1.0000e-005	9.7700e-003	4.0000e-005	9.8100e-003	1.0400e-003	4.0000e-005	1.0800e-003	0.0000	1.4018	1.4018	3.0000e-005	0.0000	1.4026
Worker	8.4000e-004	5.5000e-004	5.6900e-003	1.0000e-005	0.0494	1.0000e-005	0.0494	5.1700e-003	1.0000e-005	5.1800e-003	0.0000	1.3021	1.3021	4.0000e-005	0.0000	1.3031
Total	1.0800e-003	7.7600e-003	8.1400e-003	2.0000e-005	0.0592	5.0000e-005	0.0592	6.2100e-003	5.0000e-005	6.2600e-003	0.0000	2.7039	2.7039	7.0000e-005	0.0000	2.7056

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	0.0144	0.0967	0.1024	1.5000e-004		5.8800e-003	5.8800e-003		5.6800e-003	5.6800e-003	0.0000	12.5348	12.5348	2.1800e-003	0.0000	12.5892
Total	0.0144	0.0967	0.1024	1.5000e-004		5.8800e-003	5.8800e-003		5.6800e-003	5.6800e-003	0.0000	12.5348	12.5348	2.1800e-003	0.0000	12.5892

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	2.4000e-004	7.2100e-003	2.4500e-003	1.0000e-005	6.1200e-003	4.0000e-005	6.1500e-003	6.8000e-004	4.0000e-005	7.1000e-004	0.0000	1.4018	1.4018	3.0000e-005	0.0000	1.4026
Worker	8.4000e-004	5.5000e-004	5.6900e-003	1.0000e-005	0.0308	1.0000e-005	0.0308	3.3100e-003	1.0000e-005	3.3200e-003	0.0000	1.3021	1.3021	4.0000e-005	0.0000	1.3031
Total	1.0800e-003	7.7600e-003	8.1400e-003	2.0000e-005	0.0369	5.0000e-005	0.0370	3.9900e-003	5.0000e-005	4.0300e-003	0.0000	2.7039	2.7039	7.0000e-005	0.0000	2.7056

3.10 Demobilization - 2020

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.9000e-004	0.0271	7.7200e-003	7.0000e-005	0.0391	1.1000e-004	0.0392	4.1300e-003	1.0000e-004	4.2300e-003	0.0000	6.1671	6.1671	8.0000e-005	0.0000	6.1690
Vendor	4.0000e-005	1.2000e-003	4.1000e-004	0.0000	1.6300e-003	1.0000e-005	1.6300e-003	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.2336	0.2336	1.0000e-005	0.0000	0.2338
Worker	1.4000e-004	9.0000e-005	9.5000e-004	0.0000	8.2300e-003	0.0000	8.2400e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.2170	0.2170	1.0000e-005	0.0000	0.2172
Total	8.7000e-004	0.0284	9.0800e-003	7.0000e-005	0.0490	1.2000e-004	0.0491	5.1600e-003	1.1000e-004	5.2700e-003	0.0000	6.6177	6.6177	1.0000e-004	0.0000	6.6200

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.9000e-004	0.0271	7.7200e-003	7.0000e-005	0.0245	1.1000e-004	0.0246	2.6600e-003	1.0000e-004	2.7700e-003	0.0000	6.1671	6.1671	8.0000e-005	0.0000	6.1690
Vendor	4.0000e-005	1.2000e-003	4.1000e-004	0.0000	1.0200e-003	1.0000e-005	1.0300e-003	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	0.2336	0.2336	1.0000e-005	0.0000	0.2338
Worker	1.4000e-004	9.0000e-005	9.5000e-004	0.0000	5.1300e-003	0.0000	5.1400e-003	5.5000e-004	0.0000	5.5000e-004	0.0000	0.2170	0.2170	1.0000e-005	0.0000	0.2172
Total	8.7000e-004	0.0284	9.0800e-003	7.0000e-005	0.0306	1.2000e-004	0.0307	3.3200e-003	1.1000e-004	3.4400e-003	0.0000	6.6177	6.6177	1.0000e-004	0.0000	6.6200

CalEEMod Version: CalEEMod.2016.3.2

Date: 2/19/2020 9:44 AM

Pacific Tunnel Rehabilitation Project
El Dorado-Mountain County County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.75	32,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	70
Climate Zone	1			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Pacific Tunnel Rehabilitation Project. El Dorado County.

Land Use - Project area approx 0.75 acres.

Construction Phase - Construction would occur from June 2020 through December 2020.

Off-road Equipment - No equipment assumed.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - No equipment assumed.

Off-road Equipment - Default equipment assumed.

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Summer

Off-road Equipment - Default equipment excluding crane.

Off-road Equipment - Default equipment excluding crane.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Trips and VMT - 1,100 haul truck trips distributed throughout construction duration based.

On-road Fugitive Dust - Assumed 98% paved.

Demolition - Number of haul trucks provided in Trips And VMT tab.

Grading - Number of haul trucks provided in Trips And VMT tab.

Construction Off-road Equipment Mitigation - Application of fugitive dust BMPs - water three times daily and 15 mph on all unpaved roads.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_Nonresidential_Exterior	16100	0
tblAreaCoating	Area_Nonresidential_Interior	48300	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	1.00	20.00
tblConstructionPhase	NumDays	1.00	40.00
tblConstructionPhase	NumDays	2.00	40.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	NumDays	100.00	15.00
tblConstructionPhase	NumDays	1.00	5.00
tblFleetMix	HHD	9.4210e-003	0.00
tblFleetMix	LDA	0.52	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.23	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.6630e-003	0.00
tblFleetMix	MCY	5.4760e-003	0.00
tblFleetMix	MDV	0.14	0.00

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Summer

tblFleetMix	MH	1.6340e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.5930e-003	0.00
tblFleetMix	SBUS	8.1300e-004	0.00
tblFleetMix	UBUS	1.1710e-003	0.00
tblLandUse	LandUseSquareFeet	0.00	32,200.00
tblLandUse	LotAcreage	0.00	0.75
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Summer

tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	242.00
tblTripsAndVMT	HaulingTripNumber	0.00	353.00
tblTripsAndVMT	HaulingTripNumber	0.00	187.00
tblTripsAndVMT	HaulingTripNumber	0.00	159.00
tblTripsAndVMT	HaulingTripNumber	0.00	159.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Summer

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	5.00	8.00
tblTripsAndVMT	VendorTripNumber	5.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00
tblTripsAndVMT	WorkerTripNumber	13.00	14.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	14.00	16.00
tblTripsAndVMT	WorkerTripNumber	14.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00

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					
2020	5.7864	73.9572	37.3306	0.1247	63.1612	2.3156	65.5229	9.2838	2.1316	11.4596	0.0000	12,450.9788	12,450.9788	2.3563	0.0000	12,509.8856
Maximum	5.7864	73.9572	37.3306	0.1247	63.1612	2.3156	65.5229	9.2838	2.1316	11.4596	0.0000	12,450.9788	12,450.9788	2.3563	0.0000	12,509.8856

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					
2020	5.7864	73.9572	37.3306	0.1247	37.4350	2.3156	39.7967	5.0490	2.1316	7.2248	0.0000	12,450.9787	12,450.9787	2.3563	0.0000	12,509.8856
Maximum	5.7864	73.9572	37.3306	0.1247	37.4350	2.3156	39.7967	5.0490	2.1316	7.2248	0.0000	12,450.9787	12,450.9787	2.3563	0.0000	12,509.8856

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	40.73	0.00	39.26	45.62	0.00	36.95	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	Install Site Environmental Measures	Site Preparation	6/9/2020	7/6/2020	5	20	
2	Mobilization	Site Preparation	6/10/2020	8/4/2020	5	40	
3	Develop Access Road and Station Areas	Grading	7/6/2020	8/28/2020	5	40	
4	Demolition of wood liner and portals	Demolition	10/1/2020	10/14/2020	5	10	
5	Substrate Cleaning	Site Preparation	10/15/2020	10/21/2020	5	5	
6	Place Self-Consolidating Concrete (SCC) Invert	Paving	10/19/2020	10/30/2020	5	10	
7	Place Welded Wire Fabric (W/F)	Building Construction	11/2/2020	11/13/2020	5	10	
8	Place Shotcrete and Portals	Building Construction	11/16/2020	12/4/2020	5	15	
9	Demobilization	Site Preparation	12/7/2020	12/11/2020	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Install Site Environmental Measures	Graders	1	8.00	187	0.41
Install Site Environmental Measures	Off-Highway Trucks	1	8.00	402	0.38
Install Site Environmental Measures	Scrapers	1	8.00	367	0.48
Install Site Environmental Measures	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Mobilization	Graders	0	0.00	187	0.41
Mobilization	Scrapers	0	0.00	367	0.48
Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Develop Access Road and Staging Areas	Graders	1	8.00	187	0.41
Develop Access Road and Staging Areas	Off-Highway Trucks	1	8.00	402	0.38
Develop Access Road and Staging Areas	Rubber Tired Dozers	1	8.00	247	0.40
Develop Access Road and Staging Areas	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition of wood liner and portals	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition of wood liner and portals	Off-Highway Trucks	1	8.00	402	0.38
Demolition of wood liner and portals	Rubber Tired Dozers	1	8.00	247	0.40
Demolition of wood liner and portals	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Substrate Cleaning	Air Compressors	1	8.00	78	0.48
Substrate Cleaning	Off-Highway Trucks	1	8.00	402	0.38
Substrate Cleaning	Pumps	1	8.00	84	0.74
Place Self-Consolidating Concrete (SCC) Invert	Cement and Mortar Mixers	1	8.00	9	0.56
Place Self-Consolidating Concrete (SCC) Invert	Pavers	1	8.00	130	0.42
Place Self-Consolidating Concrete (SCC) Invert	Paving Equipment	1	8.00	132	0.36
Place Self-Consolidating Concrete (SCC) Invert	Rollers	2	8.00	80	0.38
Place Self-Consolidating Concrete (SCC) Invert	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Welded Wire Fabric (WWF)	Forklifts	2	8.00	89	0.20
Place Welded Wire Fabric (WWF)	Generator Sets	1	8.00	84	0.74
Place Welded Wire Fabric (WWF)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Welded Wire Fabric (WWF)	Welders	3	8.00	46	0.45
Place Shotcrete and Portals	Forklifts	2	8.00	89	0.20

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Summer

Place Shotcrete and Portals	Generator Sets	1	8.00	84	0.74
Place Shotcrete and Portals	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Shotcrete and Portals	Welders	3	8.00	46	0.45
Demobilization	Graders	0	0.00	187	0.41

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
Install Site	4	10.00	8.00	242.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Environmental Mobilization	0	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Develop Access Road and Staging Areas	5	14.00	2.00	353.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition of wood liner and portals	6	16.00	2.00	187.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Substrate Cleaning	3	8.00	2.00	159.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Self-Consolidating	6	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Welded Wire Fabric (WWE)	7	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Shotcrete and Portals	7	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	0	8.00	4.00	159.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Install Site Environmental Measures - 2020**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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	2.3414	26.5055	15.3629	0.0381		1.0241	1.0241		0.9421	0.9421		3,689.124 3	3,689.124 3	1.1931		3,718.952 7
Total	2.3414	26.5055	15.3629	0.0381	1.5908	1.0241	2.6148	0.1718	0.9421	1.1139		3,689.124 3	3,689.124 3	1.1931		3,718.952 7

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	0.1046	4.0056	1.1511	9.9400e-003	7.3284	0.0163	7.3447	0.7670	0.0156	0.7825		1,039.484 3	1,039.484 3	0.0129		1,039.807 4
Vendor	0.0315	0.9413	0.3039	1.9900e-003	1.6021	5.2500e-003	1.6073	0.1689	5.0200e-003	0.1739		207.7150	207.7150	4.2700e-003		207.8217
Worker	0.0741	0.0399	0.5261	1.3000e-003	5.0704	9.3000e-004	5.0713	0.5268	8.6000e-004	0.5276		129.6611	129.6611	3.9600e-003		129.7601
Total	0.2103	4.9867	1.9811	0.0132	14.0008	0.0225	14.0233	1.4626	0.0215	1.4841		1,376.860 5	1,376.860 5	0.0212		1,377.389 1

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					0.6204	0.0000	0.6204	0.0670	0.0000	0.0670			0.0000			0.0000
Off-Road	2.3414	26.5055	15.3629	0.0381		1.0241	1.0241		0.9421	0.9421	0.0000	3,689.1243	3,689.1243	1.1931		3,718.9527
Total	2.3414	26.5055	15.3629	0.0381	0.6204	1.0241	1.6445	0.0670	0.9421	1.0091	0.0000	3,689.1243	3,689.1243	1.1931		3,718.9527

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	0.1046	4.0056	1.1511	9.9400e-003	4.5665	0.0163	4.5828	0.4908	0.0156	0.5064		1,039.4843	1,039.4843	0.0129		1,039.8074
Vendor	0.0315	0.9413	0.3039	1.9900e-003	0.9995	5.2500e-003	1.0047	0.1086	5.0200e-003	0.1137		207.7150	207.7150	4.2700e-003		207.8217
Worker	0.0741	0.0399	0.5261	1.3000e-003	3.1530	9.3000e-004	3.1539	0.3350	8.6000e-004	0.3359		129.6611	129.6611	3.9600e-003		129.7601
Total	0.2103	4.9867	1.9811	0.0132	8.7189	0.0225	8.7414	0.9344	0.0215	0.9559		1,376.8605	1,376.8605	0.0212		1,377.3891

3.3 Mobilization - 2020**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	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

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	0.0593	0.0319	0.4209	1.0400e-003	4.0563	7.4000e-004	4.0570	0.4214	6.8000e-004	0.4221		103.7289	103.7289	3.1700e-003		103.8081
Total	0.0593	0.0319	0.4209	1.0400e-003	4.0563	7.4000e-004	4.0570	0.4214	6.8000e-004	0.4221		103.7289	103.7289	3.1700e-003		103.8081

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

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	0.0593	0.0319	0.4209	1.0400e-003	2.5224	7.4000e-004	2.5231	0.2680	6.8000e-004	0.2687		103.7289	103.7289	3.1700e-003		103.8081
Total	0.0593	0.0319	0.4209	1.0400e-003	2.5224	7.4000e-004	2.5231	0.2680	6.8000e-004	0.2687		103.7289	103.7289	3.1700e-003		103.8081

3.4 Develop Access Road and Staging Areas - 2020**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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.6374	28.1908	14.3156	0.0346		1.2538	1.2538		1.1535	1.1535		3,350.220 2	3,350.220 2	1.0835		3,377.308 4
Total	2.6374	28.1908	14.3156	0.0346	6.5523	1.2538	7.8061	3.3675	1.1535	4.5210		3,350.220 2	3,350.220 2	1.0835		3,377.308 4

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	0.0763	2.9215	0.8395	7.2500e-003	5.3449	0.0119	5.3568	0.5594	0.0114	0.5707		758.1363	758.1363	9.4200e-003		758.3719
Vendor	7.8800e-003	0.2353	0.0760	5.0000e-004	0.4005	1.3100e-003	0.4018	0.0422	1.2500e-003	0.0435		51.9288	51.9288	1.0700e-003		51.9554
Worker	0.1038	0.0558	0.7366	1.8200e-003	7.0985	1.3000e-003	7.0998	0.7375	1.2000e-003	0.7387		181.5256	181.5256	5.5400e-003		181.6641
Total	0.1880	3.2126	1.6521	9.5700e-003	12.8439	0.0145	12.8584	1.3391	0.0138	1.3529		991.5906	991.5906	0.0160		991.9915

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					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.6374	28.1908	14.3156	0.0346		1.2538	1.2538		1.1535	1.1535	0.0000	3,350.220 2	3,350.220 2	1.0835		3,377.308 4
Total	2.6374	28.1908	14.3156	0.0346	2.5554	1.2538	3.8092	1.3133	1.1535	2.4668	0.0000	3,350.220 2	3,350.220 2	1.0835		3,377.308 4

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	0.0763	2.9215	0.8395	7.2500e-003	3.3305	0.0119	3.3424	0.3579	0.0114	0.3693		758.1363	758.1363	9.4200e-003		758.3719
Vendor	7.8800e-003	0.2353	0.0760	5.0000e-004	0.2499	1.3100e-003	0.2512	0.0272	1.2500e-003	0.0284		51.9288	51.9288	1.0700e-003		51.9554
Worker	0.1038	0.0558	0.7366	1.8200e-003	4.4142	1.3000e-003	4.4155	0.4690	1.2000e-003	0.4702		181.5256	181.5256	5.5400e-003		181.6641
Total	0.1880	3.2126	1.6521	9.5700e-003	7.9946	0.0145	8.0090	0.8541	0.0138	0.8680		991.5906	991.5906	0.0160		991.9915

3.5 Demolition of wood liner and portals - 2020**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	2.7893	27.2690	18.4674	0.0373		1.3828	1.3828		1.2881	1.2881		3,600.9347	3,600.9347	1.0105		3,626.1966
Total	2.7893	27.2690	18.4674	0.0373		1.3828	1.3828		1.2881	1.2881		3,600.9347	3,600.9347	1.0105		3,626.1966

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	0.1617	6.1905	1.7790	0.0154	11.3257	0.0252	11.3509	1.1853	0.0241	1.2094		1,606.4758	1,606.4758	0.0200		1,606.9750
Vendor	7.8800e-003	0.2353	0.0760	5.0000e-004	0.4005	1.3100e-003	0.4018	0.0422	1.2500e-003	0.0435		51.9288	51.9288	1.0700e-003		51.9554
Worker	0.1186	0.0638	0.8418	2.0800e-003	8.1126	1.4900e-003	8.1140	0.8428	1.3700e-003	0.8442		207.4578	207.4578	6.3400e-003		207.6162
Total	0.2882	6.4896	2.6968	0.0180	19.8388	0.0280	19.8668	2.0704	0.0267	2.0971		1,865.8623	1,865.8623	0.0274		1,866.5466

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	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	2.7893	27.2690	18.4674	0.0373		1.3828	1.3828		1.2881	1.2881	0.0000	3,600.9347	3,600.9347	1.0105		3,626.1966
Total	2.7893	27.2690	18.4674	0.0373		1.3828	1.3828		1.2881	1.2881	0.0000	3,600.9347	3,600.9347	1.0105		3,626.1966

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	0.1617	6.1905	1.7790	0.0154	7.0573	0.0252	7.0825	0.7585	0.0241	0.7825		1,606.4758	1,606.4758	0.0200		1,606.9750
Vendor	7.8800e-003	0.2353	0.0760	5.0000e-004	0.2499	1.3100e-003	0.2512	0.0272	1.2500e-003	0.0284		51.9288	51.9288	1.0700e-003		51.9554
Worker	0.1186	0.0638	0.8418	2.0800e-003	5.0448	1.4900e-003	5.0463	0.5360	1.3700e-003	0.5374		207.4578	207.4578	6.3400e-003		207.6162
Total	0.2882	6.4896	2.6968	0.0180	12.3519	0.0280	12.3799	1.3217	0.0267	1.3484		1,865.8623	1,865.8623	0.0274		1,866.5466

3.6 Substrate Cleaning - 2020

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.4092	12.0969	10.0146	0.0238		0.5855	0.5855		0.5671	0.5671		2,276.9206	2,276.9206	0.4799		2,288.9172
Total	1.4092	12.0969	10.0146	0.0238	0.0000	0.5855	0.5855	0.0000	0.5671	0.5671		2,276.9206	2,276.9206	0.4799		2,288.9172

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	0.2749	10.5272	3.0252	0.0261	19.2598	0.0428	19.3026	2.0156	0.0410	2.0566		2,731.8679	2,731.8679	0.0340		2,732.7169
Vendor	7.8800e-003	0.2353	0.0760	5.0000e-004	0.4005	1.3100e-003	0.4018	0.0422	1.2500e-003	0.0435		51.9288	51.9288	1.0700e-003		51.9554
Worker	0.0593	0.0319	0.4209	1.0400e-003	4.0563	7.4000e-004	4.0570	0.4214	6.8000e-004	0.4221		103.7289	103.7289	3.1700e-003		103.8081
Total	0.3421	10.7944	3.5221	0.0277	23.7166	0.0449	23.7614	2.4793	0.0429	2.5222		2,887.5256	2,887.5256	0.0382		2,888.4804

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.4092	12.0969	10.0146	0.0238		0.5855	0.5855		0.5671	0.5671	0.0000	2,276.9206	2,276.9206	0.4799		2,288.9172
Total	1.4092	12.0969	10.0146	0.0238	0.0000	0.5855	0.5855	0.0000	0.5671	0.5671	0.0000	2,276.9206	2,276.9206	0.4799		2,288.9172

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	0.2749	10.5272	3.0252	0.0261	12.0012	0.0428	12.0440	1.2898	0.0410	1.3307		2,731.8679	2,731.8679	0.0340		2,732.7169
Vendor	7.8800e-003	0.2353	0.0760	5.0000e-004	0.2499	1.3100e-003	0.2512	0.0272	1.2500e-003	0.0284		51.9288	51.9288	1.0700e-003		51.9554
Worker	0.0593	0.0319	0.4209	1.0400e-003	2.5224	7.4000e-004	2.5231	0.2680	6.8000e-004	0.2687		103.7289	103.7289	3.1700e-003		103.8081
Total	0.3421	10.7944	3.5221	0.0277	14.7734	0.0449	14.8183	1.5850	0.0429	1.6279		2,887.5256	2,887.5256	0.0382		2,888.4804

3.7 Place Self-Consolidating Concrete (SCC) Invert - 2020**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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605

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	0.0315	0.9413	0.3039	1.9900e-003	1.6021	5.2500e-003	1.6073	0.1689	5.0200e-003	0.1739		207.7150	207.7150	4.2700e-003		207.8217
Worker	0.1186	0.0638	0.8418	2.0800e-003	8.1126	1.4900e-003	8.1140	0.8428	1.3700e-003	0.8442		207.4578	207.4578	6.3400e-003		207.6162
Total	0.1502	1.0050	1.1457	4.0700e-003	9.7146	6.7400e-003	9.7214	1.0117	6.3900e-003	1.0181		415.1728	415.1728	0.0106		415.4378

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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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605

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	0.0315	0.9413	0.3039	1.9900e-003	0.9995	5.2500e-003	1.0047	0.1086	5.0200e-003	0.1137		207.7150	207.7150	4.2700e-003		207.8217
Worker	0.1186	0.0638	0.8418	2.0800e-003	5.0448	1.4900e-003	5.0463	0.5360	1.3700e-003	0.5374		207.4578	207.4578	6.3400e-003		207.6162
Total	0.1502	1.0050	1.1457	4.0700e-003	6.0442	6.7400e-003	6.0510	0.6447	6.3900e-003	0.6511		415.1728	415.1728	0.0106		415.4378

3.8 Place Welded Wire Fabric (WWF) - 2020**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	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572		1,842.2979	1,842.2979	0.3201		1,850.3007
Total	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572		1,842.2979	1,842.2979	0.3201		1,850.3007

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	0.0315	0.9413	0.3039	1.9900e-003	1.6021	5.2500e-003	1.6073	0.1689	5.0200e-003	0.1739		207.7150	207.7150	4.2700e-003		207.8217
Worker	0.1186	0.0638	0.8418	2.0800e-003	8.1126	1.4900e-003	8.1140	0.8428	1.3700e-003	0.8442		207.4578	207.4578	6.3400e-003		207.6162
Total	0.1502	1.0050	1.1457	4.0700e-003	9.7146	6.7400e-003	9.7214	1.0117	6.3900e-003	1.0181		415.1728	415.1728	0.0106		415.4378

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	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572	0.0000	1,842.2979	1,842.2979	0.3201		1,850.3007
Total	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572	0.0000	1,842.2979	1,842.2979	0.3201		1,850.3007

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	0.0315	0.9413	0.3039	1.9900e-003	0.9995	5.2500e-003	1.0047	0.1086	5.0200e-003	0.1137		207.7150	207.7150	4.2700e-003		207.8217
Worker	0.1186	0.0638	0.8418	2.0800e-003	5.0448	1.4900e-003	5.0463	0.5360	1.3700e-003	0.5374		207.4578	207.4578	6.3400e-003		207.6162
Total	0.1502	1.0050	1.1457	4.0700e-003	6.0442	6.7400e-003	6.0510	0.6447	6.3900e-003	0.6511		415.1728	415.1728	0.0106		415.4378

3.9 Place Shotcrete and Portals - 2020**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	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572		1,842.2979	1,842.2979	0.3201		1,850.3007
Total	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572		1,842.2979	1,842.2979	0.3201		1,850.3007

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	0.0315	0.9413	0.3039	1.9900e-003	1.6021	5.2500e-003	1.6073	0.1689	5.0200e-003	0.1739		207.7150	207.7150	4.2700e-003		207.8217
Worker	0.1186	0.0638	0.8418	2.0800e-003	8.1126	1.4900e-003	8.1140	0.8428	1.3700e-003	0.8442		207.4578	207.4578	6.3400e-003		207.6162
Total	0.1502	1.0050	1.1457	4.0700e-003	9.7146	6.7400e-003	9.7214	1.0117	6.3900e-003	1.0181		415.1728	415.1728	0.0106		415.4378

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Summer

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	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572	0.0000	1,842.2979	1,842.2979	0.3201		1,850.3007
Total	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572	0.0000	1,842.2979	1,842.2979	0.3201		1,850.3007

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	0.0315	0.9413	0.3039	1.9900e-003	0.9995	5.2500e-003	1.0047	0.1086	5.0200e-003	0.1137		207.7150	207.7150	4.2700e-003		207.8217
Worker	0.1186	0.0638	0.8418	2.0800e-003	5.0448	1.4900e-003	5.0463	0.5360	1.3700e-003	0.5374		207.4578	207.4578	6.3400e-003		207.6162
Total	0.1502	1.0050	1.1457	4.0700e-003	6.0442	6.7400e-003	6.0510	0.6447	6.3900e-003	0.6511		415.1728	415.1728	0.0106		415.4378

3.10 Demobilization - 2020**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	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

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	0.2749	10.5272	3.0252	0.0261	19.2598	0.0428	19.3026	2.0156	0.0410	2.0566		2,731.8679	2,731.8679	0.0340		2,732.7169
Vendor	0.0158	0.4706	0.1520	9.9000e-004	0.8010	2.6200e-003	0.8037	0.0845	2.5100e-003	0.0870		103.8575	103.8575	2.1300e-003		103.9108
Worker	0.0593	0.0319	0.4209	1.0400e-003	4.0563	7.4000e-004	4.0570	0.4214	6.8000e-004	0.4221		103.7289	103.7289	3.1700e-003		103.8081
Total	0.3500	11.0297	3.5981	0.0282	24.1171	0.0462	24.1633	2.5215	0.0441	2.5656		2,939.4543	2,939.4543	0.0393		2,940.4358

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

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	0.2749	10.5272	3.0252	0.0261	12.0012	0.0428	12.0440	1.2898	0.0410	1.3307		2,731.8679	2,731.8679	0.0340		2,732.7169
Vendor	0.0158	0.4706	0.1520	9.9000e-004	0.4997	2.6200e-003	0.5024	0.0543	2.5100e-003	0.0568		103.8575	103.8575	2.1300e-003		103.9108
Worker	0.0593	0.0319	0.4209	1.0400e-003	2.5224	7.4000e-004	2.5231	0.2680	6.8000e-004	0.2687		103.7289	103.7289	3.1700e-003		103.8081
Total	0.3500	11.0297	3.5981	0.0282	15.0233	0.0462	15.0695	1.6121	0.0441	1.6563		2,939.4543	2,939.4543	0.0393		2,940.4358

CalEEMod Version: CalEEMod.2016.3.2

Date: 2/19/2020 9:46 AM

Pacific Tunnel Rehabilitation Project
El Dorado-Mountain County County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.75	32,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	70
Climate Zone	1			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Pacific Tunnel Rehabilitation Project. El Dorado County.

Land Use - Project area approx 0.75 acres.

Construction Phase - Construction would occur from June 2020 through December 2020.

Off-road Equipment - No equipment assumed.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Off-road Equipment - No equipment assumed.

Off-road Equipment - Default equipment assumed.

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Winter

Off-road Equipment - Default equipment excluding crane.

Off-road Equipment - Default equipment excluding crane.

Off-road Equipment - Default equipment assumed. Added off-highway truck for onsite use.

Trips and VMT - 1,100 haul truck trips distributed throughout construction duration based.

On-road Fugitive Dust - Assumed 98% paved.

Demolition - Number of haul trucks provided in Trips And VMT tab.

Grading - Number of haul trucks provided in Trips And VMT tab.

Construction Off-road Equipment Mitigation - Application of fugitive dust BMPs - water three times daily and 15 mph on all unpaved roads.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_Nonresidential_Exterior	16100	0
tblAreaCoating	Area_Nonresidential_Interior	48300	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	1.00	20.00
tblConstructionPhase	NumDays	1.00	40.00
tblConstructionPhase	NumDays	2.00	40.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	NumDays	100.00	15.00
tblConstructionPhase	NumDays	1.00	5.00
tblFleetMix	HHD	9.4210e-003	0.00
tblFleetMix	LDA	0.52	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.23	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.6630e-003	0.00
tblFleetMix	MCY	5.4760e-003	0.00
tblFleetMix	MDV	0.14	0.00

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tblFleetMix	MH	1.6340e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.5930e-003	0.00
tblFleetMix	SBUS	8.1300e-004	0.00
tblFleetMix	UBUS	1.1710e-003	0.00
tblLandUse	LandUseSquareFeet	0.00	32,200.00
tblLandUse	LotAcreage	0.00	0.75
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
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tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Winter

tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
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tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	242.00
tblTripsAndVMT	HaulingTripNumber	0.00	353.00
tblTripsAndVMT	HaulingTripNumber	0.00	187.00
tblTripsAndVMT	HaulingTripNumber	0.00	159.00
tblTripsAndVMT	HaulingTripNumber	0.00	159.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00

Pacific Tunnel Rehabilitation Project - El Dorado-Mountain County County, Winter

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	5.00	8.00
tblTripsAndVMT	VendorTripNumber	5.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00
tblTripsAndVMT	WorkerTripNumber	13.00	14.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	14.00	16.00
tblTripsAndVMT	WorkerTripNumber	14.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00

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					
2020	5.8214	74.6275	37.4193	0.1237	63.1612	2.3162	65.5244	9.2838	2.1322	11.4610	0.0000	12,343.72 31	12,343.72 31	2.3585	0.0000	12,402.68 48
Maximum	5.8214	74.6275	37.4193	0.1237	63.1612	2.3162	65.5244	9.2838	2.1322	11.4610	0.0000	12,343.72 31	12,343.72 31	2.3585	0.0000	12,402.68 48

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					
2020	5.8214	74.6275	37.4193	0.1237	37.4350	2.3162	39.7982	5.0490	2.1322	7.2262	0.0000	12,343.72 31	12,343.72 31	2.3585	0.0000	12,402.68 47
Maximum	5.8214	74.6275	37.4193	0.1237	37.4350	2.3162	39.7982	5.0490	2.1322	7.2262	0.0000	12,343.72 31	12,343.72 31	2.3585	0.0000	12,402.68 47

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	40.73	0.00	39.26	45.62	0.00	36.95	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	Install Site Environmental Measures	Site Preparation	6/9/2020	7/6/2020	5	20	
2	Mobilization	Site Preparation	6/10/2020	8/4/2020	5	40	
3	Develop Access Road and Station Areas	Grading	7/6/2020	8/28/2020	5	40	
4	Demolition of wood liner and portals	Demolition	10/1/2020	10/14/2020	5	10	
5	Substrate Cleaning	Site Preparation	10/15/2020	10/21/2020	5	5	
6	Place Self-Consolidating Concrete (SCC) Invert	Paving	10/19/2020	10/30/2020	5	10	
7	Place Welded Wire Fabric (WWE)	Building Construction	11/2/2020	11/13/2020	5	10	
8	Place Shotcrete and Portals	Building Construction	11/16/2020	12/4/2020	5	15	
9	Demobilization	Site Preparation	12/7/2020	12/11/2020	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Install Site Environmental Measures	Graders	1	8.00	187	0.41
Install Site Environmental Measures	Off-Highway Trucks	1	8.00	402	0.38
Install Site Environmental Measures	Scrapers	1	8.00	367	0.48
Install Site Environmental Measures	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Mobilization	Graders	0	0.00	187	0.41
Mobilization	Scrapers	0	0.00	367	0.48
Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Develop Access Road and Staging Areas	Graders	1	8.00	187	0.41
Develop Access Road and Staging Areas	Off-Highway Trucks	1	8.00	402	0.38
Develop Access Road and Staging Areas	Rubber Tired Dozers	1	8.00	247	0.40
Develop Access Road and Staging Areas	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition of wood liner and portals	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition of wood liner and portals	Off-Highway Trucks	1	8.00	402	0.38
Demolition of wood liner and portals	Rubber Tired Dozers	1	8.00	247	0.40
Demolition of wood liner and portals	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Substrate Cleaning	Air Compressors	1	8.00	78	0.48
Substrate Cleaning	Off-Highway Trucks	1	8.00	402	0.38
Substrate Cleaning	Pumps	1	8.00	84	0.74
Place Self-Consolidating Concrete (SCC) Invert	Cement and Mortar Mixers	1	8.00	9	0.56
Place Self-Consolidating Concrete (SCC) Invert	Pavers	1	8.00	130	0.42
Place Self-Consolidating Concrete (SCC) Invert	Paving Equipment	1	8.00	132	0.36
Place Self-Consolidating Concrete (SCC) Invert	Rollers	2	8.00	80	0.38
Place Self-Consolidating Concrete (SCC) Invert	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Welded Wire Fabric (WWF)	Forklifts	2	8.00	89	0.20
Place Welded Wire Fabric (WWF)	Generator Sets	1	8.00	84	0.74
Place Welded Wire Fabric (WWF)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Welded Wire Fabric (WWF)	Welders	3	8.00	46	0.45
Place Shotcrete and Portals	Forklifts	2	8.00	89	0.20

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Place Shotcrete and Portals	Generator Sets	1	8.00	84	0.74
Place Shotcrete and Portals	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Place Shotcrete and Portals	Welders	3	8.00	46	0.45
Demobilization	Graders	0	0.00	187	0.41

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
Install Site	4	10.00	8.00	242.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Environmental Mobilization	0	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Develop Access Road and Staging Areas	5	14.00	2.00	353.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition of wood liner and portals	6	16.00	2.00	187.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Substrate Cleaning	3	8.00	2.00	159.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Self-Consolidating	6	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Welded Wire Fabric (WWE)	7	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Place Shotcrete and Portals	7	16.00	8.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	0	8.00	4.00	159.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Install Site Environmental Measures - 2020

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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	2.3414	26.5055	15.3629	0.0381		1.0241	1.0241		0.9421	0.9421		3,689.124 3	3,689.124 3	1.1931		3,718.952 7
Total	2.3414	26.5055	15.3629	0.0381	1.5908	1.0241	2.6148	0.1718	0.9421	1.1139		3,689.124 3	3,689.124 3	1.1931		3,718.952 7

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	0.1072	4.1431	1.2022	9.8300e-003	7.3284	0.0166	7.3450	0.7670	0.0159	0.7828		1,028.009 8	1,028.009 8	0.0136		1,028.349 7
Vendor	0.0332	0.9604	0.3458	1.9500e-003	1.6021	5.3600e-003	1.6074	0.1689	5.1300e-003	0.1740		203.7102	203.7102	4.6500e-003		203.8264
Worker	0.0794	0.0493	0.4743	1.1800e-003	5.0704	9.3000e-004	5.0713	0.5268	8.6000e-004	0.5276		117.0992	117.0992	3.6000e-003		117.1893
Total	0.2198	5.1528	2.0223	0.0130	14.0008	0.0229	14.0237	1.4626	0.0219	1.4845		1,348.819 2	1,348.819 2	0.0219		1,349.365 4

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					0.6204	0.0000	0.6204	0.0670	0.0000	0.0670			0.0000			0.0000
Off-Road	2.3414	26.5055	15.3629	0.0381		1.0241	1.0241		0.9421	0.9421	0.0000	3,689.1243	3,689.1243	1.1931		3,718.9527
Total	2.3414	26.5055	15.3629	0.0381	0.6204	1.0241	1.6445	0.0670	0.9421	1.0091	0.0000	3,689.1243	3,689.1243	1.1931		3,718.9527

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	0.1072	4.1431	1.2022	9.8300e-003	4.5665	0.0166	4.5831	0.4908	0.0159	0.5066		1,028.0098	1,028.0098	0.0136		1,028.3497
Vendor	0.0332	0.9604	0.3458	1.9500e-003	0.9995	5.3600e-003	1.0048	0.1086	5.1300e-003	0.1138		203.7102	203.7102	4.6500e-003		203.8264
Worker	0.0794	0.0493	0.4743	1.1800e-003	3.1530	9.3000e-004	3.1539	0.3350	8.6000e-004	0.3359		117.0992	117.0992	3.6000e-003		117.1893
Total	0.2198	5.1528	2.0223	0.0130	8.7189	0.0229	8.7418	0.9344	0.0219	0.9563		1,348.8192	1,348.8192	0.0219		1,349.3654

3.3 Mobilization - 2020

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	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

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	0.0635	0.0394	0.3795	9.4000e-004	4.0563	7.4000e-004	4.0570	0.4214	6.8000e-004	0.4221		93.6794	93.6794	2.8800e-003		93.7514
Total	0.0635	0.0394	0.3795	9.4000e-004	4.0563	7.4000e-004	4.0570	0.4214	6.8000e-004	0.4221		93.6794	93.6794	2.8800e-003		93.7514

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

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	0.0635	0.0394	0.3795	9.4000e-004	2.5224	7.4000e-004	2.5231	0.2680	6.8000e-004	0.2687		93.6794	93.6794	2.8800e-003		93.7514
Total	0.0635	0.0394	0.3795	9.4000e-004	2.5224	7.4000e-004	2.5231	0.2680	6.8000e-004	0.2687		93.6794	93.6794	2.8800e-003		93.7514

3.4 Develop Access Road and Staging Areas - 2020**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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.6374	28.1908	14.3156	0.0346		1.2538	1.2538		1.1535	1.1535		3,350.220 2	3,350.220 2	1.0835		3,377.308 4
Total	2.6374	28.1908	14.3156	0.0346	6.5523	1.2538	7.8061	3.3675	1.1535	4.5210		3,350.220 2	3,350.220 2	1.0835		3,377.308 4

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	0.0782	3.0217	0.8768	7.1700e-003	5.3449	0.0121	5.3570	0.5594	0.0116	0.5709		749.7675	749.7675	9.9200e-003		750.0154
Vendor	8.3000e-003	0.2401	0.0864	4.9000e-004	0.4005	1.3400e-003	0.4019	0.0422	1.2800e-003	0.0435		50.9276	50.9276	1.1600e-003		50.9566
Worker	0.1111	0.0690	0.6641	1.6500e-003	7.0985	1.3000e-003	7.0998	0.7375	1.2000e-003	0.7387		163.9389	163.9389	5.0400e-003		164.0650
Total	0.1976	3.3308	1.6273	9.3100e-003	12.8439	0.0147	12.8586	1.3391	0.0141	1.3531		964.6339	964.6339	0.0161		965.0370

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					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.6374	28.1908	14.3156	0.0346		1.2538	1.2538		1.1535	1.1535	0.0000	3,350.220 2	3,350.220 2	1.0835		3,377.308 4
Total	2.6374	28.1908	14.3156	0.0346	2.5554	1.2538	3.8092	1.3133	1.1535	2.4668	0.0000	3,350.220 2	3,350.220 2	1.0835		3,377.308 4

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	0.0782	3.0217	0.8768	7.1700e-003	3.3305	0.0121	3.3426	0.3579	0.0116	0.3695		749.7675	749.7675	9.9200e-003		750.0154
Vendor	8.3000e-003	0.2401	0.0864	4.9000e-004	0.2499	1.3400e-003	0.2512	0.0272	1.2800e-003	0.0284		50.9276	50.9276	1.1600e-003		50.9566
Worker	0.1111	0.0690	0.6641	1.6500e-003	4.4142	1.3000e-003	4.4155	0.4690	1.2000e-003	0.4702		163.9389	163.9389	5.0400e-003		164.0650
Total	0.1976	3.3308	1.6273	9.3100e-003	7.9946	0.0147	8.0093	0.8541	0.0141	0.8682		964.6339	964.6339	0.0161		965.0370

3.5 Demolition of wood liner and portals - 2020**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	2.7893	27.2690	18.4674	0.0373		1.3828	1.3828		1.2881	1.2881		3,600.9347	3,600.9347	1.0105		3,626.1966
Total	2.7893	27.2690	18.4674	0.0373		1.3828	1.3828		1.2881	1.2881		3,600.9347	3,600.9347	1.0105		3,626.1966

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	0.1656	6.4030	1.8580	0.0152	11.3257	0.0256	11.3514	1.1853	0.0245	1.2098		1,588.7424	1,588.7424	0.0210		1,589.2678
Vendor	8.3000e-003	0.2401	0.0864	4.9000e-004	0.4005	1.3400e-003	0.4019	0.0422	1.2800e-003	0.0435		50.9276	50.9276	1.1600e-003		50.9566
Worker	0.1270	0.0788	0.7589	1.8800e-003	8.1126	1.4900e-003	8.1140	0.8428	1.3700e-003	0.8442		187.3588	187.3588	5.7700e-003		187.5029
Total	0.3009	6.7219	2.7033	0.0176	19.8388	0.0285	19.8673	2.0704	0.0272	2.0975		1,827.0287	1,827.0287	0.0280		1,827.7272

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	2.7893	27.2690	18.4674	0.0373		1.3828	1.3828		1.2881	1.2881	0.0000	3,600.9347	3,600.9347	1.0105		3,626.1966
Total	2.7893	27.2690	18.4674	0.0373		1.3828	1.3828		1.2881	1.2881	0.0000	3,600.9347	3,600.9347	1.0105		3,626.1966

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	0.1656	6.4030	1.8580	0.0152	7.0573	0.0256	7.0829	0.7585	0.0245	0.7830		1,588.7424	1,588.7424	0.0210		1,589.2678
Vendor	8.3000e-003	0.2401	0.0864	4.9000e-004	0.2499	1.3400e-003	0.2512	0.0272	1.2800e-003	0.0284		50.9276	50.9276	1.1600e-003		50.9566
Worker	0.1270	0.0788	0.7589	1.8800e-003	5.0448	1.4900e-003	5.0463	0.5360	1.3700e-003	0.5374		187.3588	187.3588	5.7700e-003		187.5029
Total	0.3009	6.7219	2.7033	0.0176	12.3519	0.0285	12.3804	1.3217	0.0272	1.3488		1,827.0287	1,827.0287	0.0280		1,827.7272

3.6 Substrate Cleaning - 2020
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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.4092	12.0969	10.0146	0.0238		0.5855	0.5855		0.5671	0.5671		2,276.9206	2,276.9206	0.4799		2,288.9172
Total	1.4092	12.0969	10.0146	0.0238	0.0000	0.5855	0.5855	0.0000	0.5671	0.5671		2,276.9206	2,276.9206	0.4799		2,288.9172

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	0.2816	10.8885	3.1595	0.0259	19.2598	0.0436	19.3034	2.0156	0.0417	2.0573		2,701.7116	2,701.7116	0.0357		2,702.6051
Vendor	8.3000e-003	0.2401	0.0864	4.9000e-004	0.4005	1.3400e-003	0.4019	0.0422	1.2800e-003	0.0435		50.9276	50.9276	1.1600e-003		50.9566
Worker	0.0635	0.0394	0.3795	9.4000e-004	4.0563	7.4000e-004	4.0570	0.4214	6.8000e-004	0.4221		93.6794	93.6794	2.8800e-003		93.7514
Total	0.3534	11.1681	3.6254	0.0273	23.7166	0.0457	23.7622	2.4793	0.0437	2.5229		2,846.3185	2,846.3185	0.0398		2,847.3131

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.4092	12.0969	10.0146	0.0238		0.5855	0.5855		0.5671	0.5671	0.0000	2,276.9206	2,276.9206	0.4799		2,288.9172
Total	1.4092	12.0969	10.0146	0.0238	0.0000	0.5855	0.5855	0.0000	0.5671	0.5671	0.0000	2,276.9206	2,276.9206	0.4799		2,288.9172

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	0.2816	10.8885	3.1595	0.0259	12.0012	0.0436	12.0448	1.2898	0.0417	1.3315		2,701.7116	2,701.7116	0.0357		2,702.6051
Vendor	8.3000e-003	0.2401	0.0864	4.9000e-004	0.2499	1.3400e-003	0.2512	0.0272	1.2800e-003	0.0284		50.9276	50.9276	1.1600e-003		50.9566
Worker	0.0635	0.0394	0.3795	9.4000e-004	2.5224	7.4000e-004	2.5231	0.2680	6.8000e-004	0.2687		93.6794	93.6794	2.8800e-003		93.7514
Total	0.3534	11.1681	3.6254	0.0273	14.7734	0.0457	14.8191	1.5850	0.0437	1.6286		2,846.3185	2,846.3185	0.0398		2,847.3131

3.7 Place Self-Consolidating Concrete (SCC) Invert - 2020**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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605

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	0.0332	0.9604	0.3458	1.9500e-003	1.6021	5.3600e-003	1.6074	0.1689	5.1300e-003	0.1740		203.7102	203.7102	4.6500e-003		203.8264
Worker	0.1270	0.0788	0.7589	1.8800e-003	8.1126	1.4900e-003	8.1140	0.8428	1.3700e-003	0.8442		187.3588	187.3588	5.7700e-003		187.5029
Total	0.1602	1.0392	1.1047	3.8300e-003	9.7146	6.8500e-003	9.7215	1.0117	6.5000e-003	1.0182		391.0690	391.0690	0.0104		391.3293

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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605

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	0.0332	0.9604	0.3458	1.9500e-003	0.9995	5.3600e-003	1.0048	0.1086	5.1300e-003	0.1138		203.7102	203.7102	4.6500e-003		203.8264
Worker	0.1270	0.0788	0.7589	1.8800e-003	5.0448	1.4900e-003	5.0463	0.5360	1.3700e-003	0.5374		187.3588	187.3588	5.7700e-003		187.5029
Total	0.1602	1.0392	1.1047	3.8300e-003	6.0442	6.8500e-003	6.0511	0.6447	6.5000e-003	0.6512		391.0690	391.0690	0.0104		391.3293

3.8 Place Welded Wire Fabric (WWF) - 2020**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	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572		1,842.2979	1,842.2979	0.3201		1,850.3007
Total	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572		1,842.2979	1,842.2979	0.3201		1,850.3007

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	0.0332	0.9604	0.3458	1.9500e-003	1.6021	5.3600e-003	1.6074	0.1689	5.1300e-003	0.1740		203.7102	203.7102	4.6500e-003		203.8264
Worker	0.1270	0.0788	0.7589	1.8800e-003	8.1126	1.4900e-003	8.1140	0.8428	1.3700e-003	0.8442		187.3588	187.3588	5.7700e-003		187.5029
Total	0.1602	1.0392	1.1047	3.8300e-003	9.7146	6.8500e-003	9.7215	1.0117	6.5000e-003	1.0182		391.0690	391.0690	0.0104		391.3293

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	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572	0.0000	1,842.2979	1,842.2979	0.3201		1,850.3007
Total	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572	0.0000	1,842.2979	1,842.2979	0.3201		1,850.3007

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	0.0332	0.9604	0.3458	1.9500e-003	0.9995	5.3600e-003	1.0048	0.1086	5.1300e-003	0.1138		203.7102	203.7102	4.6500e-003		203.8264
Worker	0.1270	0.0788	0.7589	1.8800e-003	5.0448	1.4900e-003	5.0463	0.5360	1.3700e-003	0.5374		187.3588	187.3588	5.7700e-003		187.5029
Total	0.1602	1.0392	1.1047	3.8300e-003	6.0442	6.8500e-003	6.0511	0.6447	6.5000e-003	0.6512		391.0690	391.0690	0.0104		391.3293

3.9 Place Shotcrete and Portals - 2020

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	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572		1,842.2979	1,842.2979	0.3201		1,850.3007
Total	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572		1,842.2979	1,842.2979	0.3201		1,850.3007

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	0.0332	0.9604	0.3458	1.9500e-003	1.6021	5.3600e-003	1.6074	0.1689	5.1300e-003	0.1740		203.7102	203.7102	4.6500e-003		203.8264
Worker	0.1270	0.0788	0.7589	1.8800e-003	8.1126	1.4900e-003	8.1140	0.8428	1.3700e-003	0.8442		187.3588	187.3588	5.7700e-003		187.5029
Total	0.1602	1.0392	1.1047	3.8300e-003	9.7146	6.8500e-003	9.7215	1.0117	6.5000e-003	1.0182		391.0690	391.0690	0.0104		391.3293

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	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572	0.0000	1,842.2979	1,842.2979	0.3201		1,850.3007
Total	1.9228	12.8927	13.6468	0.0204		0.7834	0.7834		0.7572	0.7572	0.0000	1,842.2979	1,842.2979	0.3201		1,850.3007

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	0.0332	0.9604	0.3458	1.9500e-003	0.9995	5.3600e-003	1.0048	0.1086	5.1300e-003	0.1138		203.7102	203.7102	4.6500e-003		203.8264
Worker	0.1270	0.0788	0.7589	1.8800e-003	5.0448	1.4900e-003	5.0463	0.5360	1.3700e-003	0.5374		187.3588	187.3588	5.7700e-003		187.5029
Total	0.1602	1.0392	1.1047	3.8300e-003	6.0442	6.8500e-003	6.0511	0.6447	6.5000e-003	0.6512		391.0690	391.0690	0.0104		391.3293

3.10 Demobilization - 2020

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	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

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	0.2816	10.8885	3.1595	0.0259	19.2598	0.0436	19.3034	2.0156	0.0417	2.0573		2,701.7116	2,701.7116	0.0357		2,702.6051
Vendor	0.0166	0.4802	0.1729	9.8000e-004	0.8010	2.6800e-003	0.8037	0.0845	2.5600e-003	0.0870		101.8551	101.8551	2.3200e-003		101.9132
Worker	0.0635	0.0394	0.3795	9.4000e-004	4.0563	7.4000e-004	4.0570	0.4214	6.8000e-004	0.4221		93.6794	93.6794	2.8800e-003		93.7514
Total	0.3618	11.4081	3.7119	0.0278	24.1171	0.0470	24.1641	2.5215	0.0449	2.5664		2,897.2461	2,897.2461	0.0409		2,898.2697

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

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	0.2816	10.8885	3.1595	0.0259	12.0012	0.0436	12.0448	1.2898	0.0417	1.3315		2,701.7116	2,701.7116	0.0357		2,702.6051
Vendor	0.0166	0.4802	0.1729	9.8000e-004	0.4997	2.6800e-003	0.5024	0.0543	2.5600e-003	0.0569		101.8551	101.8551	2.3200e-003		101.9132
Worker	0.0635	0.0394	0.3795	9.4000e-004	2.5224	7.4000e-004	2.5231	0.2680	6.8000e-004	0.2687		93.6794	93.6794	2.8800e-003		93.7514
Total	0.3618	11.4081	3.7119	0.0278	15.0233	0.0470	15.0703	1.6121	0.0449	1.6571		2,897.2461	2,897.2461	0.0409		2,898.2697

Appendix D

Biological Resources Assessment

March 25, 2020

8858.0013

Michael Baron
El Dorado Irrigation District
2890 Mosquito Road
Placerville, California 95667

Subject: *Biological Resources Assessment for the Pacific Tunnel Rehabilitation Project in El Dorado County, California*

Dear Mr. Baron:

Dudek has prepared this Biological Resources Assessment in association with El Dorado Irrigation District's proposed Pacific Tunnel Rehabilitation Project (project) in El Dorado County, California (Figure 1, Project Location). The purpose of this Biological Resources Assessment is to identify and characterize existing on-site biological resources, with particular focus on the potential of the site to support special-status plant and wildlife species and other sensitive resources, such as wetlands and other aquatic features, and wildlife movement corridors. This Biological Resources Assessment also evaluates and provides a summary of potential impacts on these resources as a result of eventual implementation of the proposed project.

1 Site Location

The approximately 14-acre project site is located in the Eldorado National Forest, south of State Route 50 and approximately 3 miles east-southeast of Pollock Pines. The site is mostly located in Sections 32, 33, and 34, Township 11 North, and Range 13 East of the "Pollock Pines, CA" U.S. Geological Survey 7.5-minute quadrangle. A sliver of the project site, near the southeastern extent of the project boundary, is located in Sections 2 and 3, Township 10 North, and Range 13 east of the "Sly Park, CA" quadrangle. The approximate center of the project site corresponds to 38°44'59.82" north latitude and 120°31'52.14" west longitude.

The project site is located within the northern High Sierra Nevada geographic subdivision of the California Floristic Province (Jepson Flora Project 2019). The site is surrounded by dense forest with interstitial patches of logged forest. Elevations on the project site range from 3,855 to 4,275 feet above mean sea level. A majority of the project site, beginning from the west, is centered around a dirt/gravel road that is situated along an east/west ridge with mild topography, and the northeastern extent of the project site is located on a north-facing, densely forested hillside. The region surrounding the project site receives approximately 52 inches of precipitation and 61 inches of snowfall annually. Average temperatures range from approximate 28°F to 92°F (WRCC 2019).

2 Proposed Project

The proposed Pacific Tunnel Rehabilitation Project is part of El Dorado Irrigation District's El Dorado Federal Energy Regulatory Commission Project (No. 184-CA) consisting of a series of dams, canals, flumes, siphons, tunnels penstocks, and powerhouses to deliver water from the south fork of the American River to downstream users for drinking water and power generation.

The Pacific Tunnel is approximately 187 feet in length with a design flow of 165 cubic feet per second and an approximate water velocity of 7 feet per second. Most of the tunnel is unlined and approximately 7 feet in width by 7 feet in height with a modified horseshoe section and timber sets. The existing tunnel has a timber plank invert, timber sets, and a timber sidewall. The tunnel sidewalls and invert, and the upstream and downstream portals were re-timbered in 2002 with untreated timber. The untreated timber had a design period of approximately 7 years. The untreated timber is 14 years old and degraded, resulting in a potential lack of support at the portals.

The proposed project would consist of a complete replacement of the upstream and downstream portals, and replacement of the existing timber invert and timber sidewalls within the tunnel using air-placed concrete as a replacement to the timber components. Construction relative to the tunnel would include removal of the timber liner, clearing of the invert, and installation of self-consolidating concrete to within 6 inches of the final invert to fill voids and uneven surfaces in the floor of the tunnel. Dowels would be installed in the invert and tunnel side walls to anchor the new liner, and a welded wire-mesh would be tied to the dowels and placed for crack control in the new invert and lining. Air entrained shotcrete could then be used to build up the liner. The existing timber tunnel support sets would remain in place.

Minor road improvements would be necessary along Park Creek Road within the existing footprint. Tunnel Access Road would provide access to the tunnel site and laydown area. The road is approximately 1,200 feet in length with a steep grade, and would not provide adequate construction access in its current condition. To allow for construction access, the road would require minor re-alignment and grading to an even slope with a 12-foot-wide cross-section and a compacted subgrade. There may also be a need for intermediate re-grading during construction if excessive rutting or potholing occurs.

3 Regulatory Setting

3.1 Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) prohibits the taking, possession, sale, or transport of endangered species. Pursuant to the requirements of FESA, a federal agency reviewing a project within its jurisdiction must determine whether any federally listed threatened or endangered species could be present on the project site, and determine the extent to which the project would potentially have an effect on such species. In addition, federal agencies are required to determine whether a project is likely to jeopardize the continued existence of any species proposed to be listed under FESA, or if it would result in the destruction or adverse modification of critical habitat designated for such species (16 USC 1536[3]–[4]). Projects that would result in “take” of any federally listed threatened or endangered species are required to obtain authorization from the National Marine Fisheries Service

(for marine fish species) and/or U.S. Fish and Wildlife Service (USFWS) (for all other species) through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of the FESA, depending on whether the federal government is involved in permitting or funding the project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50, Section 10.13 of the Code of Federal Regulations. The Migratory Bird Treaty Act is an international treaty for the conservation and management of bird species that migrate through more than one country, and is enforced in the United States by USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50, Section 20 of the Code of Federal Regulations. The Migratory Bird Treaty Act was amended in 1972 to include protection for migratory birds of prey (raptors). In late December 2017, the Department of Interior issued an opinion that interprets the above prohibitions as only applying to direct and purposeful actions the intent of which is to kill, take, or harm migratory birds; their eggs; or their active nests. Incidental take of birds, eggs, or nests that are not the purpose of such an action, even if there are direct and foreseeable results, are not prohibited.

Clean Water Act – Section 404

The objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Under Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) has the authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. USACE implements the federal policy embodied in Executive Order 11990, which is intended to result in no net loss of wetland values or function.

Clean Water Act – Section 401

The State Water Resources Control Board has authority over wetlands through Section 401 of the CWA, as well as the Porter-Cologne Act, California Code of Regulations Section 3831(k), and California Wetlands Conservation Policy. The CWA requires that an applicant for a Section 404 permit (to discharge dredge or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the State Water Resources Control Board to the nine regional boards. The Central Valley Regional Water Quality Control Board (RWQCB) has authority for Section 401 compliance in the project area. A request for certification is submitted to the RWQCB at the same time that an application is filed with USACE.

3.2 State

California Endangered Species Act

Under the California Endangered Species Act (CESA), the California Fish and Game Commission has the responsibility of maintaining a list of threatened and endangered species. CESA prohibits the take of state-listed threatened or endangered animals and plants unless otherwise permitted pursuant to CESA. Species determined by the State of California to be candidates for listing as threatened or endangered are treated as if listed as threatened or endangered and are, therefore, protected from take. Pursuant to CESA, a state agency reviewing a

project within its jurisdiction must determine whether any state-listed endangered or threatened species, or candidate species, could be potentially impacted by that project.

California Department of Fish and Wildlife Special Plants

For the purposes of this analysis, special plant species are defined as plants that are legally protected or that are otherwise considered sensitive by federal, state, or local resource conservation agencies. These species fall into one or more of the following categories:

- Listed by the federal government under the Federal Endangered Species Act of 1973 or the State of California under the California Endangered Species Act of 1970 as endangered, threatened, or rare.
- A candidate for federal or state listing as endangered or threatened.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation.
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California.
- Taxa closely associated with a habitat that is declining in California at a significant rate (e.g., wetlands, riparian, vernal pools, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats).
- Taxa considered to be "rare, threatened, or endangered in California" as defined by the California Department of Fish and Wildlife (CDFW) and assigned a California Rare Plant Rank (CRPR). The CDFW system includes six rarity and endangerment ranks for categorizing plant species of concern, as follows:
 - CRPR 1A – Plants presumed to be extinct in California
 - CRPR 1B – Plants that are rare, threatened, or endangered in California and elsewhere
 - CRPR 2A – Plants presumed to be extinct in California, but more common elsewhere
 - CRPR 2B – Plants that are rare, threatened, or endangered in California, but more common elsewhere
 - CRPR 3 – Plants about which more information is needed (a review list)
 - CRPR 4 – Plants of limited distribution (a watch list)

Plants ranked as CRPR 1A, 1B, 2A, or 2B may qualify as endangered, rare, or threatened species within the definition of California Environmental Quality Act (CEQA) Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA review documents. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to State CEQA Guidelines Section 15380, but these species may be evaluated on a case-by-case basis.

In addition, the project site is located on land owned and managed by the U.S. Forest Service (USFS), so plant species identified on the USFS Region 5 Sensitive Plant Species List are also included (USFS 2013).

California Department of Fish and Wildlife Species of Special Concern

CDFW maintains a list of vertebrate animal species considered of "special concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. A Species of Special Concern is a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- Is extirpated from the state or, in the case of birds, is in its primary seasonal or breeding role

- Is listed as threatened or endangered federally, but not by the state
- Meets the state definition of threatened or endangered, but has not formally been listed
- Is experiencing, or formerly experienced, serious noncyclical population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for threatened or endangered status by the state
- Has naturally small populations exhibiting high susceptibility to risk from any factor(s) that, if realized, could lead to declines that would qualify it for threatened or endangered status by the state

Species of Special Concern are typically addressed within the context of an Environmental Impact Report or other document prepared pursuant to CEQA.

California Department of Fish and Wildlife Wetlands Protection Regulations

CDFW derives its authority to oversee activities that affect wetlands from state legislation. This authority includes Sections 1600–1616 of the California Fish and Game Code (Lake and Streambed Alteration Agreements), CESA (protection of state-listed species and their habitats, which could include wetlands), and the Keene–Nejedly California Wetlands Preservation Act of 1976 (states a need for an affirmative and sustained public policy program directed at wetlands preservation, restoration, and enhancement). In general, CDFW asserts authority over wetlands within the state through any of the following: review and comment on USACE Section 404 permits, review and comment on CEQA documents, preservation of state-listed species, or through Lake and Streambed Alteration Agreements.

California Department of Fish and Wildlife Sensitive Natural Communities

Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats. For purposes of this assessment, sensitive natural communities include vegetation communities listed in CDFW's California Natural Diversity Database (CNDDB) and communities listed in the Natural Communities List with a rarity rank of S1, S2, or S3 (S1: critically imperiled; S2: imperiled; S3: vulnerable). Additionally, all vegetation associations within the alliances with ranks of S1–S3 are considered sensitive habitats. CEQA requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible.

California Fish and Game Code Section 1600 – Lake and Streambed Alteration Agreement

Under Sections 1600–1616 of the California Fish and Game Code, CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFW's jurisdiction are defined as 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” (Section 1601). In practice, CDFW usually marks its jurisdictional limit at the top of the stream or bank, or at the outer edge of the riparian vegetation, whichever is wider.

California Fish and Game Code – Sections 3503, 3511, 3513

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act.

California Fish and Game Code – Section 4150

California Fish and Game Code Section 4150 states that a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a non-game mammal. A non-game mammal may not be taken or possessed under Section 4150. All bat species occurring naturally in California are considered non-game mammals and are therefore prohibited from take, as stated in California Fish and Game Code Section 4150.

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act established the State Water Resources Control Board and the RWQCBs as the principal state agencies responsible for the protection of water quality in California. The Porter–Cologne Water Quality Control Act provides that “all discharges of waste into the waters of the State are privileges, not rights.” Waters of the state are defined in Section 13050(e) of the Porter–Cologne Water Quality Control Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” All dischargers are subject to regulation under the Porter–Cologne Water Quality Control Act, including both point and nonpoint source dischargers. The Central Valley RWQCB (Region 5) has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction, including the project site.

California Environmental Quality Act

CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain criteria. These criteria have been generally modeled after the definition in FESA and Chapter 1.5 of the California Fish and Game Code that addresses rare or endangered plants and animals. Appendix G of the CEQA Guidelines requires a lead agency to determine whether or not a 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 the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.” CEQA Guidelines Section 15065 requires that a lead agency find an impact to be significant if a project would “substantially reduce the number or restrict the range of an endangered, rare, or threatened species.”

4 Methods

Information regarding biological and potentially jurisdictional resources present within the project site was obtained through a review of pertinent literature, publically available natural resource databases, and other information, as well as a biological field survey; all are described in detail below.

4.1 Literature and Database Review

Special-status biological resources present or potentially present on the project site were identified through a literature search using the following sources: USFWS IPaC Trust Resource Report, CDFW’s CNDDb, and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants. Dudek also reviewed current and historical aerial photography to identify any potentially jurisdictional wetlands or other waters based on aerial signatures, and reviewed the Natural Resources Conservation Service (USDA 2019a) Web Soil Survey to identify soil types mapped on the project site.

4.2 Biological Field Surveys

Dudek wildlife biologist Allie Sennett performed a field survey of the approximately 14-acre project site on November 25, 2019 (Figure 1). The field survey included identifying, characterizing, and documenting on-site vegetation communities and land cover types; a preliminary evaluation of potentially jurisdictional wetlands or other waters; and an assessment, based on field conditions, of the potential for special-status plant and animal species to occur within the project site boundaries. The survey was conducted on foot to visually cover the entire project site. Field notes, an aerial photograph (Google Earth 2019) with an overlay of the property boundary, and a Trimble Geo 7X GPS unit were used to map vegetation communities and record any sensitive biological resources while in the field. Representative site photographs are included in Attachment A, Photo Log.

All plant species encountered during the field surveys were identified to the lowest taxonomic group possible and recorded directly into a field notebook. Common and scientific names for plant species with a CRPR (formerly CNPS List) follow the CNPS online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2019). Nomenclature for all other plant species observed on the site follow The Jepson Manual, Vascular Plants of California, Second Edition (Jepson Flora Project 2019). Wildlife species detected during the field surveys by sight, calls, tracks, scat, or other signs were recorded directly into a field notebook. The site was scanned with and without binoculars to aid in the identification of wildlife. In addition to species detected during the surveys, expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area. Because the field survey was conducted outside the blooming period for special-status plant species potentially occurring on the site, and outside of the breeding season for special-status wildlife species potentially occurring on the site, focused protocol-level surveys for special-status species were not conducted.

Dudek also evaluated the potential for aquatic features potentially under state and/or federal jurisdiction to occur on the project site. Potentially jurisdictional waters include the following:

- Waters of the United States, including wetlands, under the jurisdiction of USACE pursuant to Section 404 of the federal CWA
- Waters of the State, including wetlands, under the jurisdiction of the RWQCB pursuant to Section 401 of the CWA and the Porter-Cologne Act
- Waters of the State under the jurisdiction of CDFW, pursuant to Section 1602 of the California Fish and Game Code

Pursuant to the federal CWA, USACE, and RWQCB, jurisdictional areas include those supporting all three wetlands criteria described in the USACE Manual: hydric soils, hydrology, and hydrophytic vegetation. Areas regulated by the RWQCB are generally coincident with the USACE areas, but may also include isolated features that have evidence of surface water inundation pursuant to the state Porter-Cologne Act. These areas generally support at least one of the three USACE wetlands indicators but are considered isolated through the lack of surface water hydrology/connectivity downstream. The extent of CDFW regulated areas typically includes areas supporting a predominance of hydrophytic vegetation (i.e., 50% cover or greater) where associated with a stream channel. During the field survey conducted by Dudek on November 25, 2019, searches were conducted for any water features that potentially meet the criteria described above and for which a formal jurisdictional delineation would need to be conducted to confirm whether or not the features were under agency jurisdiction.

4.2.1 Previous Raptor and Nest Surveys

Pursuant to documented USFS protocols, Dudek wildlife biologists conducted nocturnal call station surveys for California spotted owl (*Strix occidentalis* ssp. *occidentalis*) on the project site on August 7, 14, and 22, 2018, and daytime follow-up surveys on August 16 and 23, 2019. In addition, Dudek wildlife biologists conducted a survey for nesting raptors, including northern goshawk (*Accipiter gentilis*) and California spotted owl, on August 22, 2019, in areas identified by the El Dorado Irrigation District where tree removal will likely occur in association with road widening/improvement activities. The results of these surveys are incorporated into this report. Any additional details regarding the results and/or survey methodology can be found in the survey letter report included as Attachment B.

5 Results

5.1 Site Description

Soils

According to the Natural Resources Conservation Service (USDA 2019a), four soil types are mapped on the project site: Iron Mountain very rocky sandy loam, 3% to 50% slopes; McCarthy cobbly loam, 9% to 50% slopes; Cohasset cobbly loam, 15% to 50% slopes; and Diamond Springs gravelly sandy loam, grayish subsoil variant, 30% to 50% slopes (Figures 2A–2C, Project Soils). The Iron Mountain series consists of shallow, well to somewhat excessively drained soils formed in material weathered from andesitic tuff breccia; the McCarthy series consists of moderately deep, well-drained soils formed in material weathered from andesitic mudflows; the Cohasset series consists of deep and very deep, well-drained soils that formed in material weathered from volcanic rock; and the Diamond Springs series consist of well-drained soils formed in material weathered from acid igneous rock. None of the four soil types mapped on site are included on the U.S. Department of Agriculture’s list of hydric soils (USDA 2019b), which are commonly associated with wetlands or other waters.

Hydrology

A majority of the project site is located along the boundary between the Upper South Fork American River watershed and the Camp Creek watershed, which collectively drain approximately 79 square miles of land in El Dorado County (Figure 3, Hydrologic Setting). The National Wetlands Inventory identifies two potential waters of the U.S. or state on the project site, which are discussed in Section 5.5, Wetlands and Other Waters (USFWS 2019). No wetlands or other waters were observed on site during the field survey. Surface runoff on the project site is generally directed to roadside ditches along Park Creek Road or Tunnel Access Road, or as sheet flow down hillsides and ravines occurring adjacent to the project site.

Vegetation Communities and Land Cover Types

One natural vegetation community and two terrestrial land cover types exist on the project site: incense cedar–Ponderosa pine forest, disturbed/ruderal, and developed (Figures 4A–4C, Vegetation Communities and Land Cover Types). There are no aquatic land cover types, such as wetlands or other waters, on the project site. Vegetation

communities and land cover types present on the project site are summarized in Table 1 and described further in the following text.

Table 1. Vegetation Communities and Land Cover Types on the Project Site

Vegetation Community/Land Cover Type	Acreage
Incense Cedar – Ponderosa Pine Forest	5.15
Disturbed/Ruderal	2.09
Developed	6.70
Total	13.94

Incense Cedar-Ponderosa Pine Forest (5.15 acres). This vegetation community dominates the generally undisturbed areas beyond Park Creek Road and the gravel road that bisect the project site. The overstory is moderately dense and dominated by incense cedar (*Calocedrus decurrens*) and Ponderosa pine (*Pinus ponderosa*), with lesser abundance of black oak (*Quercus kelloggii*) and bigleaf maple (*Acer macrophyllum*). The shrub layer is sparse to absent, with the exception of scattered incense cedar saplings, and the herbaceous layer is mostly dominated by a thick layer of duff. Where present, vegetation includes Sierran mountain misery (*Chamaebatia foliolosa*) and pink honeysuckle (*Lonicera hispidula*). Invasive Himalayan blackberry (*Rubus armeniacus*) is present in this community in the northeast portion of the project site, on the west side of the gravel road, approximately 700 feet south of the tunnel (see Figures 4A–4C).

Disturbed/Ruderal (2.09 acres). This land cover type typically dominates the treeless areas immediately adjacent to the dirt/gravel road. Much of this cover type is either barren of vegetation or dominated by non-native plant species indicative of disturbed sites, such as field hedgeparsley (*Torilis arvensis*), hedgehog dogtail grass (*Cynosurus echinatus*), and Jersey cudweed (*Pseudognaphalium luteoalbum*). Some native species, such as buckbrush (*Ceanothus cuneatus* var. *cuneatus*) and manzanita (*Arctostaphylos* spp.), are present intermittently along the south side of the access road near the middle portion of the project site. Roadside ditches, where present along the road, are typically sparse of vegetation or contain a similar plant assemblage as observed elsewhere in this cover type. Previously graded staging areas along the south side of Park Creek Road are also included in this cover type.

Developed (6.70 acres). Developed areas are those that have been completely altered by human activities. Within the project site, this land cover type includes Park Creek Road, Tunnel Access Road, and Pacific Tunnel. Vegetation is largely absent from these areas.

Common Plant and Wildlife Species Observed

Dudek's biologist recorded 26 vascular plant species on the project site during the November 2019 field survey. The field assessment was conducted late in the growing season, at a time when many plants are not evident and identifiable. As such, floristic surveys conducted at the appropriate time of the growing season would likely yield a greater number of identifiable species.

The Dudek biologist directly observed, or documented via scat, sign, or call, 11 wildlife species on the project site during the field survey. Observed wildlife primarily included resident and migratory bird species such as American crow (*Corvus brachyrhynchos*), Steller's jay (*Cyanocitta stelleri*), and American robin (*Turdus migratorius*), as well as western fence lizard (*Sceloporus occidentalis*). Wildlife species detected via scat included mule deer (*Odocoileus hemionus*) and black bear (*Ursus americanus*). Many wildlife species common to the region are mobile, cryptic, and/or active during limited periods of day, and could therefore be easily missed during a single daytime survey. A list of plant and wildlife species detected during the field survey is included as Attachment C, List of Species Observed On Site.

5.2 Special-Status Plants

Results of USFWS, CNDDDB, CNPS, and USFS Region 5 searches revealed 34 special-status plant species that have potential to occur or that are known to occur in the project site region (see Attachment D, Special-Status Plants Potential to Occur). Of these, 28 special-status plant species were removed from consideration due to lack of suitable habitat within or adjacent to the project site, or due to the site being outside of the species' known geographic or elevation range. The remaining six special-status plant species have some potential to occur on the project site and are discussed in more detail below.

Three-bracted onion (*Allium tribracteatum*) is a USFS sensitive species and CRPR 1B.2 species with a low potential to occur on site. Three-bracted onion is a perennial bulbiferous herb found in rocky or volcanic soils in chaparral, lower montane coniferous forest, and upper montane coniferous forest from approximately 3,600 to 9,845 feet above mean sea level. It blooms March through August (CNPS 2019). The Jepson Flora Project (2019) describes habitat as, "Volcanic slopes." The project site is largely restricted to a disturbed roadway and provides limited habitat. The project site lacks rocky soils preferred by this species, but limited habitat is present where volcanic soils occur in natural communities on site. The nearest documented occurrence is based on 1975 and 1985 collections made from a dry, rocky ridgetop, approximately 16.5 miles southeast of the project site (CDFW 2019a).

Pleasant Valley mariposa lily (*Calochortus clavatus* var. *avius*) is a USFS sensitive species and CRPR 1B.2 species with a low potential to occur on site. Pleasant Valley mariposa lily is a perennial bulbiferous herb found on exposed Josephine silt loam and volcanic soils in lower montane coniferous forest from approximately 1,000 to 5,905 feet above mean sea level. It blooms May through July (CNPS 2019). The project site is largely restricted to a disturbed roadway, and therefore provides limited undisturbed habitat. In addition, a majority of the forest onsite contains a high level of canopy cover and layer of organic material (i.e., decomposing leaves and pine needles) at the ground surface, which further reduces habitat suitability for this species. The nearest documented occurrence is for 12 to 50 plants observed growing on a south-facing slope in Eldorado National Forest, approximately 1.4 miles east of the project site (CDFW 2019a). No plants of the genus *Calochortus* were observed during the field survey, which was conducted at a time when leaves and past seedheads of this genus would be present and identifiable.

Red Hills soaproot (*Chlorogalum grandiflorum*) is a CRPR 1B.2 species with a low potential to occur on site. Red Hills soaproot is a perennial bulbiferous herb found on exposed serpentine, gabbroic, or other soils in chaparral, cismontane woodland, and lower montane coniferous forest from approximately 800 to 5,545 feet above mean sea level. It blooms May through June (CNPS 2019). The project site is largely restricted to a disturbed roadway and provides limited habitat. In addition, a majority of the forest onsite contains a high level of canopy cover and layer of organic material (i.e., decomposing leaves and pine needles) at the ground surface, which further reduces habitat suitability for this species. The nearest documented occurrence, from 2013, 2015, and 2018, is for approximately

975 to 16,800 plants observed growing along roadways and openings in an area affected by the Kings Fire in 2014, approximately 3.7 miles northwest of the project site (CDFW 2019a). No plants of the genus *Chlorogalum* were observed during the field survey, which was conducted at a time when leaves of this genus would be present and identifiable.

Yellow bur navarretia (*Navarretia prolifera* ssp. *lutea*) is a USFS sensitive species and CRPR 4.3 species with a high potential to occur on site. Yellow bur navarretia is an annual herb found in chaparral and cismontane woodland from approximately 2,795 to 4,600 feet above mean sea level. It blooms May through July (CNPS 2019). The Jepson Flora Project (2019) describes its habitat as “dry, rocky flats near drainage channels.” Although potential habitat on site is poor and limited, there are six documented occurrences from June 1943 (four records), June 1982 (one record), and July 2011 (one record) along Park Creek Road within or in the vicinity of the project site. The 2011 occurrence is for plants growing on an open, grassy slope approximately 0.28 miles east of the project site (CCH 2019). Open areas along Park Creek Road may provide potential habitat for yellow bur navarretia.

Stebbins’ phacelia (*Phacelia stebbinsi*) is a USFS sensitive species and CRPR 1B.2 species with a low potential to occur on site. Stebbins’ phacelia is an annual herb found in cismontane woodland, lower montane coniferous forest, and meadows and seeps from approximately 2,000 to 6,595 feet above mean sea level. It blooms May through July (CNPS 2019). The project site is largely restricted to a disturbed roadway and provides limited undisturbed habitat. The nearest documented occurrence is for approximately 30 plants observed growing in a steep rocky outcrop in Eldorado National Forest, approximately 3.7 miles northwest of the project site (CDFW 2019a).

Sierra blue grass (*Poa sierrae*) is a CRPR 1B.3 species with a low potential to occur on site. Sierra blue grass is a perennial rhizomatous herb found in openings of lower montane coniferous forest from approximately 1,195 to 4,920 feet above mean sea level. It blooms April through July (CNPS 2019). Forested areas of the project site are generally well-shaded and contain a thick layer of pine duff on the ground, and therefore, provide poor quality habitat. The nearest documented occurrence is for plants observed growing on a duff-covered hillslope in canyon oak (*Quercus chrysolepis*) woodland in 2012 and 2015, approximately 10.7 miles north of the project site (CDFW 2019a).

5.3 Special-Status Wildlife

Results of the USFWS, CNDDDB, USFS Region 5, and literature searches revealed 25 special-status wildlife species as present or potentially present in the project region (see Attachment E, Special-Status Wildlife Potential to Occur). Of these, 18 species were removed from consideration due to lack of suitable habitat on or adjacent to the project site, or due to the site being outside of the species’ known geographic or elevation range. The remaining seven special-status wildlife species have some potential to occur on the project site and are discussed further below.

Northern goshawk (*Accipiter gentilis*) is a USFS sensitive species and a CDFW species of special concern with a high potential to occur on site. Northern goshawk prefers to nest in remote forests with meadows and riparian habitat, away from paved roads. The project site is largely restricted to a disturbed roadway that supports recreational travel and miscellaneous activities conducted by the El Dorado Irrigation District, USFS, and timber-harvest companies, such as Sierra Pacific Industries. However, USFS has previously mapped a goshawk nest territory that intersects the project site (identified by USFS as ‘R05F03D56T22_13’). Dudek biologists conducted a focused survey for goshawk nests in August 2019, but none were detected. Northern goshawk is unlikely to nest on the project site due to limited undisturbed, nesting habitat, but could nest in the vicinity of the site.

California spotted owl (*Strix occidentalis* ssp. *occidentalis*) is a USFS sensitive species and a CDFW species of special concern that was detected on site during three focused nighttime surveys conducted by Dudek biologists in August 2019, including at least one adult and two juvenile owls (see Attachment B). California spotted owl usually nests in dense, old-growth conifer forests with multiple canopy layers and within 1,000 feet of permanent water (Shuford and Gardali 2008). Although no nests were observed during the August 2019 surveys, California spotted owl could nest on or adjacent to the project site.

Native and migratory birds are present on site. Native birds of prey are protected by California Fish and Game Code Section 3503.5, and migratory bird species are protected by the federal Migratory Bird Treaty Act and Section 3503 of the California Fish and Game Code. Trees, shrubs, and human-made structures in or adjacent to the project site provide potential nesting habitat for several local and migratory bird species. Multiple common and migratory birds were detected during the November 2019 field survey, but no active nests were observed. A focused survey for nesting birds and birds of prey was not conducted during the field survey. The field survey was conducted outside of the generally recognized nesting season (February 1 through August 31), when nest sites are generally unused by birds in this region.

Native bats (including Townsend's big-eared bat, pallid bat, and fringed myotis) have a low to moderate potential to occur on site. Native bats are protected by California Fish and Game Code Section 4150; pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*) are USFS sensitive species and CDFW species of special concern, and fringed myotis (*Myotis thysanodes*) is a USFS sensitive species. Potential roosting habitat on the project site is generally limited or of poor quality for pallid bat and Townsend's big-eared bat due to human disturbance in the area, as well as a lack of microhabitat features, such as rocky outcrops and riparian corridors. The existing tunnel on the project site could support roosting bats, although it may be too small or cold to support a maternity colony during the breeding season (March 15 through September 1), when flows in the canal provide very limited freeboard and limit access in and out of the tunnel. Trees with exfoliating bark, crevices, and/or sufficient foliage in or adjacent to the project site provide potential roosting habitat for native bats, including fringed myotis. No roosting bats or their sign were identified during the field survey. However, neither a focused survey for roosting bats nor a formal habitat assessment was conducted during the survey for bat species.

Pacific marten (*Martes caurina*) is a USFS sensitive species with a low potential to occur on site. Pacific marten generally inhabits dense, old-growth forests in remote areas with abundant features for nesting and denning (e.g., large diameter tree cavities, snags, caves, and crevices in rocky areas) (CDFW 2019b). A majority of the project site is limited to a disturbed roadway adjacent to semi-open areas that provide sparse cover and, therefore, poor movement opportunities for this species. In addition, forested areas of the project site contain moderately-spaced trees characteristic of younger-growth stands with very limited denning opportunities. The nearest documented occurrences for Pacific marten are located in the Cascade Range, more than 175 miles northwest of the project site (CDFW 2019a). Pacific marten could use forested areas in the northeastern portion of the project site; however, the likelihood is low given the level of human activity in the project area, as well as the structure and characteristics of the forest onsite.

Ringtail (*Bassariscus astutus*) is a CDFW Fully Protected species with a low to moderate potential to occur on site. Ringtail normally occur in riparian, forest, and shrub-type habitats from approximately 0 to 4,595 feet above mean sea level and no more than 0.6 mile from permanent water. Tree hollows, rock recesses, boulder piles, logs, snags, and abandoned burrows are often used for denning, and foraging normally takes place near water where food resources are more abundant. Ringtail predators are presumed to include bobcats, raccoons, foxes, and especially

large owls (CDFW 2019a; ADW 2020). Ringtail could migrate through the project site at night or dusk, but are not expected to den in or adjacent to the project site as the area lacks riparian habitat, and permanent, year-round water is absent within 0.6 mile of the project site.

5.4 Sensitive Natural Vegetation Communities

There are no sensitive natural vegetation communities on the project site, which is generally limited to a disturbed dirt or gravel roadway.

5.5 Wetlands and Other Waters

According to the USFWS National Wetland Inventory (USFWS 2019), two potential waters of the U.S. or state occur on the project site (see Figure 3, Hydrologic Setting). However, one of these features is a constructed canal and the other is the headwater of an intermittent channel. The latter feature was not observed in the field where it is mapped on the National Wetlands Inventory. No evidence of a drainage, including indicators of an ordinary high water mark, was observed at this location.

A formal jurisdiction delineation of the project site was not conducted during the field survey. However, no areas containing a dominance of wetland plants or linear features with an ordinary high water mark were observed in or adjacent to the project site. There are multiple upland ditches along the gravel and dirt access road on the project site, but these are human-made stormwater control features constructed in uplands to treat and convey stormwater, and therefore do not qualify as wetlands or other waters of the U.S. or state. In addition, the ditches do not drain into any potential wetlands or other waters, based on conditions observed in the field. The existing canal on the project site is a constructed feature built in an area that historically lacked a drainage; as such, the canal is considered part of the built environment and not a waters of the U.S. or state.

5.6 Wildlife Movement Corridors and Habitat Linkages

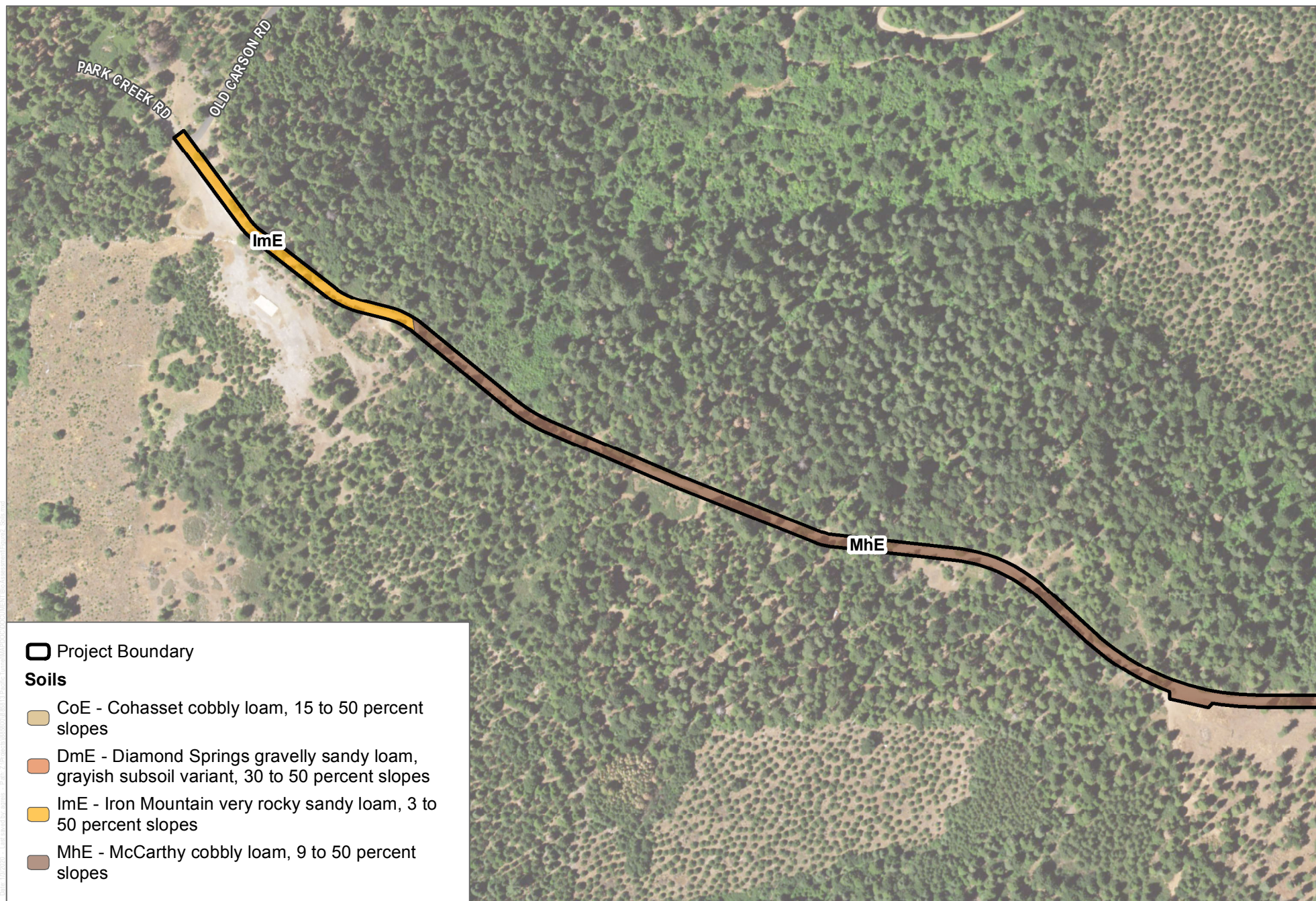
Wildlife corridors are landscape features, usually linear in shape, that facilitate the movement of animals (or plants) over time between two or more patches of otherwise disjunct habitat. Corridors can be small and even human made (e.g., highway underpasses, culverts, bridges), narrow linear habitat areas (e.g., riparian strips, hedgerows), or wider landscape-level extensions of habitat that ultimately connect larger core habitat areas. Depending on the size and extent, wildlife corridors can be used during animal migration, foraging events, and juvenile dispersal. They ultimately serve to facilitate genetic exchange between core populations, provide avenues for plant seed dispersal, enable increased biodiversity and maintenance of ecosystem integrity within habitat patches, and help offset the negative impacts of habitat fragmentation (Hilty et al. 2006). Natural areas throughout the project site may provide value as potential wildlife corridors or habitat linkages between the surrounding rural, natural areas.

The California Essential Habitat Connectivity Project, developed by CDFW and the California Department of Transportation (Caltrans), intends to describe and depict a functional network of connected wildlands that is essential to the continued support of California's diverse natural communities in the face of human development and climate change (Caltrans et al. 2010). The Essential Habitat Connectivity Project identifies large, relatively natural habitat blocks (Natural Landscape Blocks) in California that support native biodiversity and depict the relative permeability of areas to provide some level of ecological connectivity (Essential Connectivity Areas) between

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these habitat blocks. The Essential Connectivity Map indicates that the project site is located within an area that provides connectivity between similar habitat patches (CDFW 2019b).



SOURCE: USDA 2016/2018

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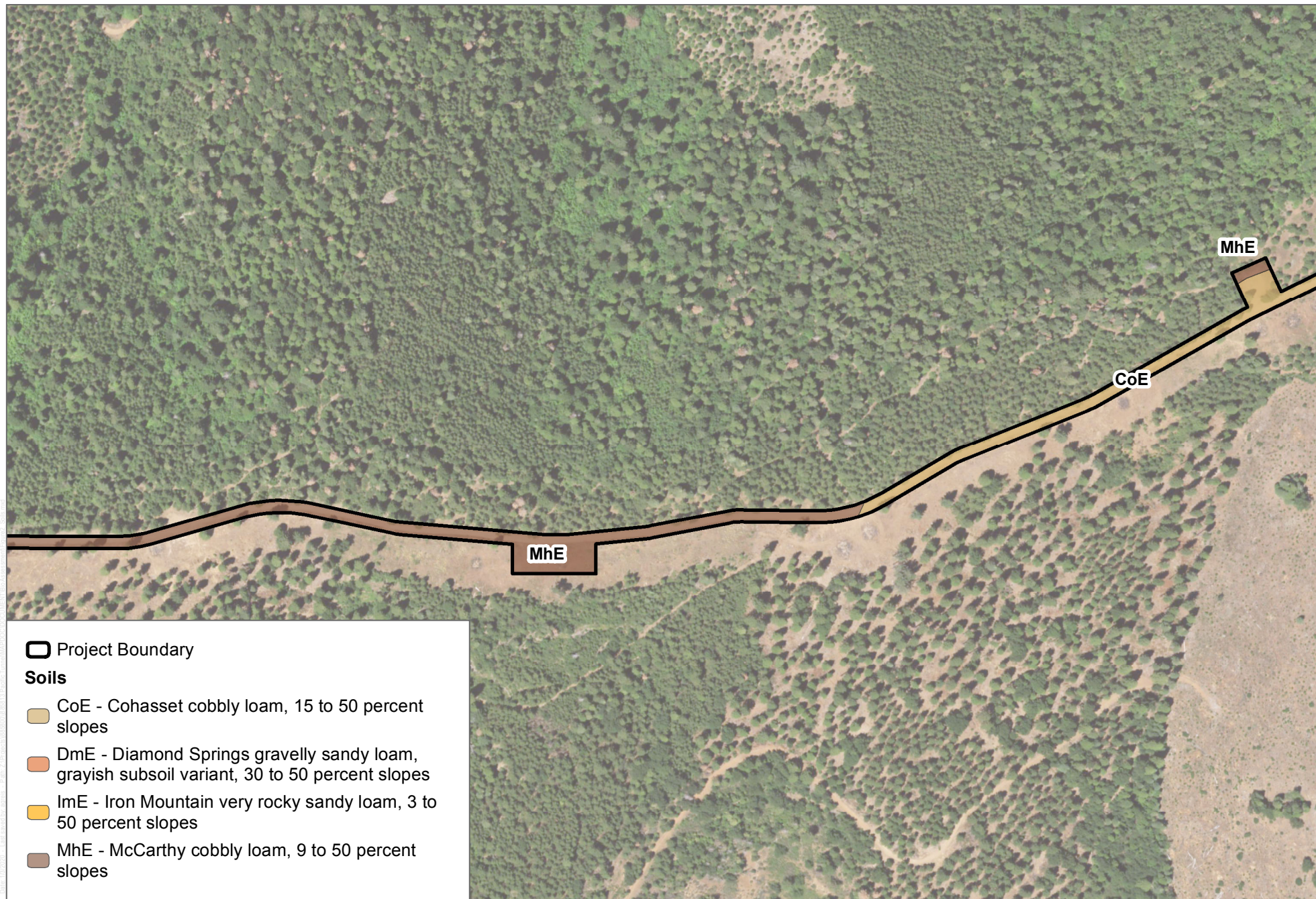


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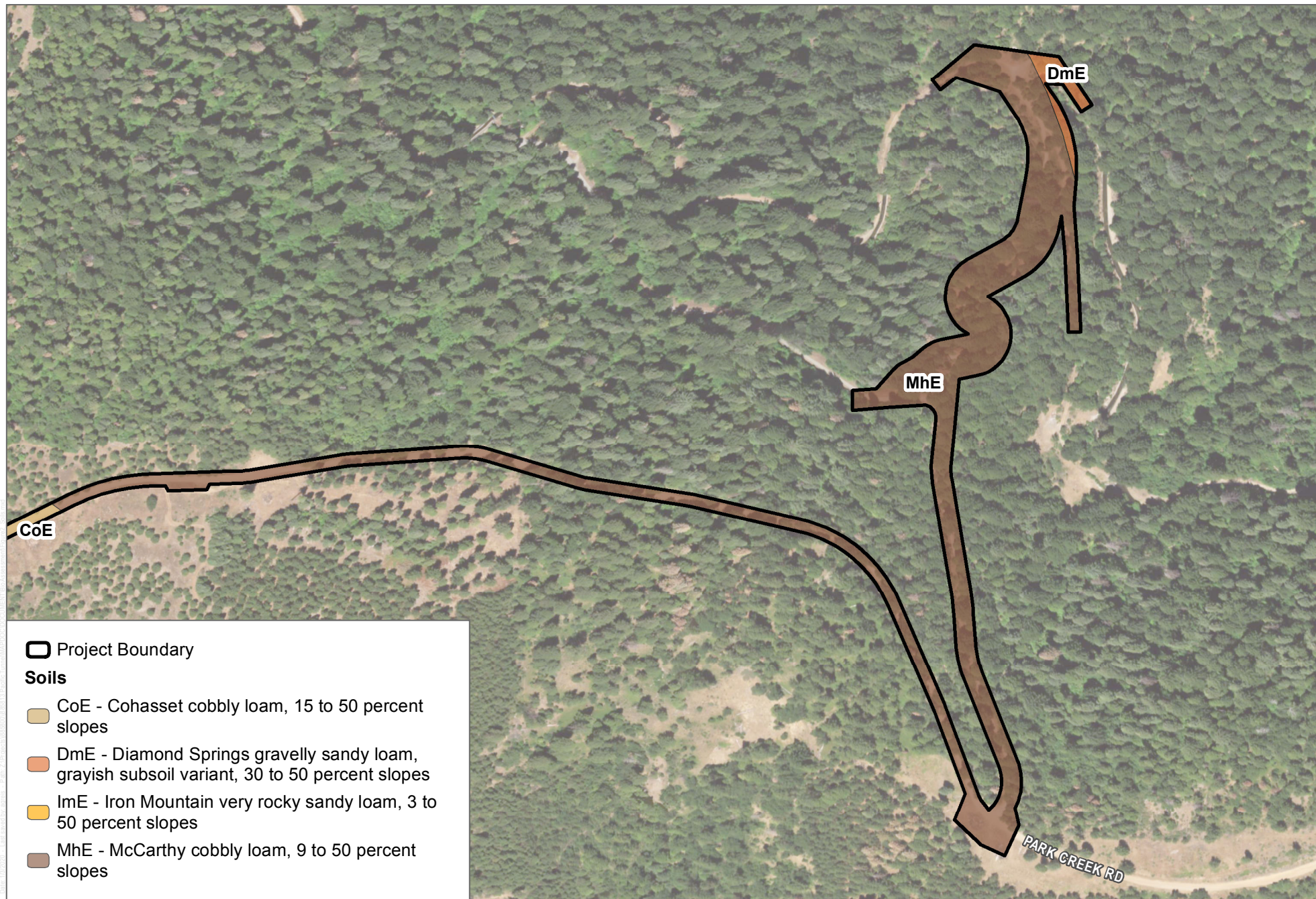
FIGURE 2A

Project Soils

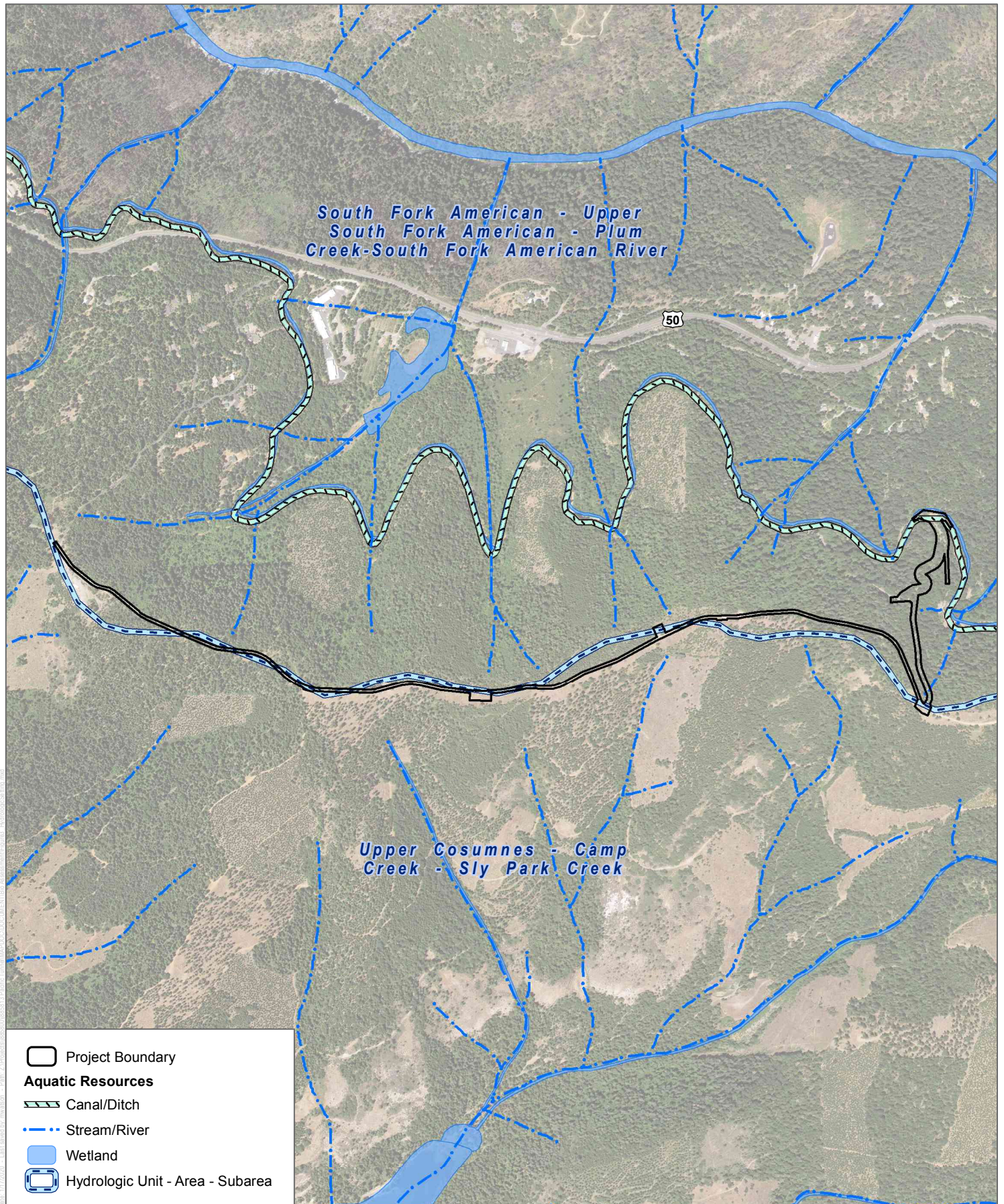
Pacific Tunnel Rehabilitation Project



SOURCE: USDA 2016/2018



SOURCE: USDA 2016/2018

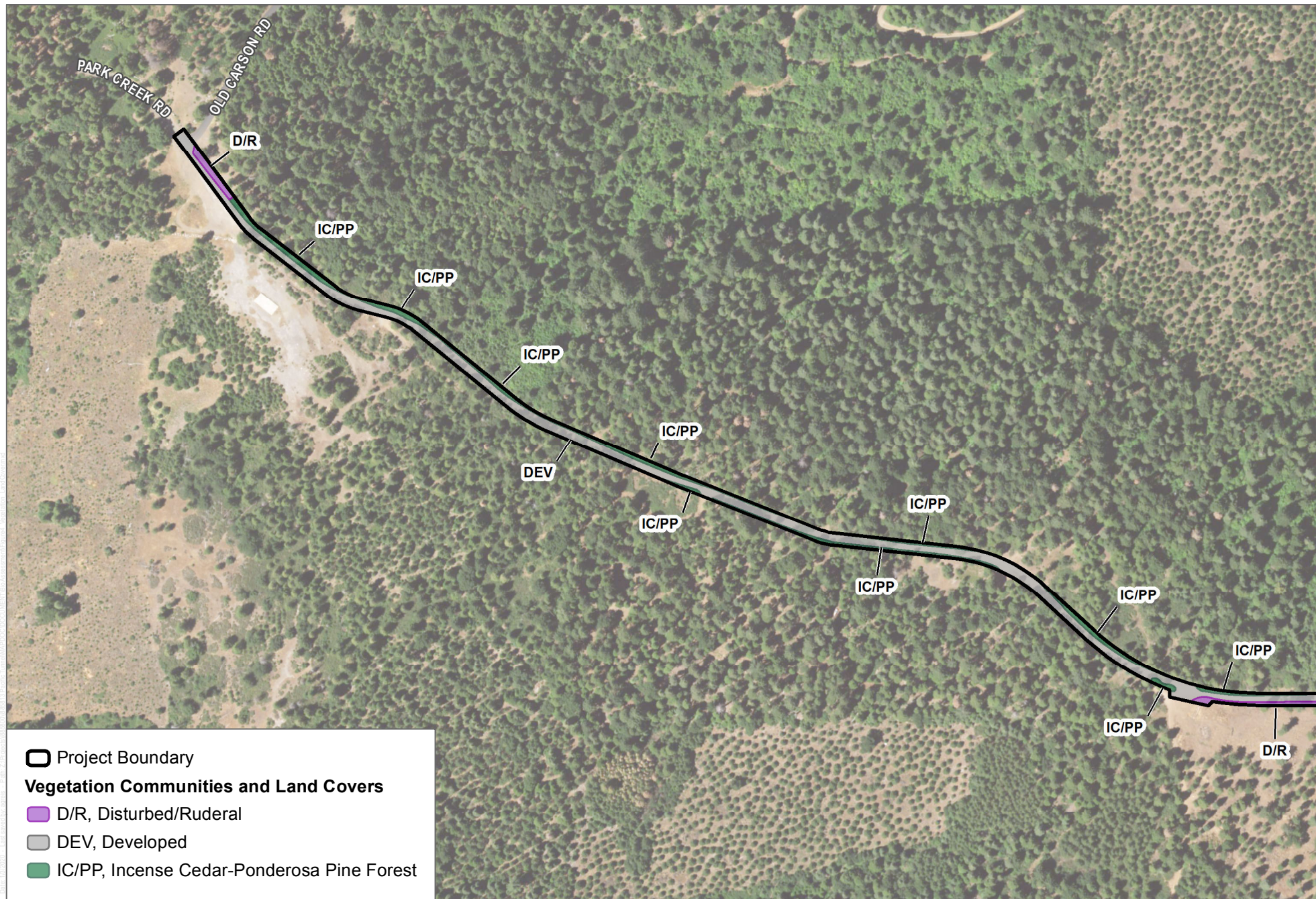


SOURCE: USGS 2018, USFWS 2018, USDA 2016

FIGURE 3

Hydrologic Setting

Pacific Tunnel Rehabilitation Project



SOURCE: USDA 2016/2018

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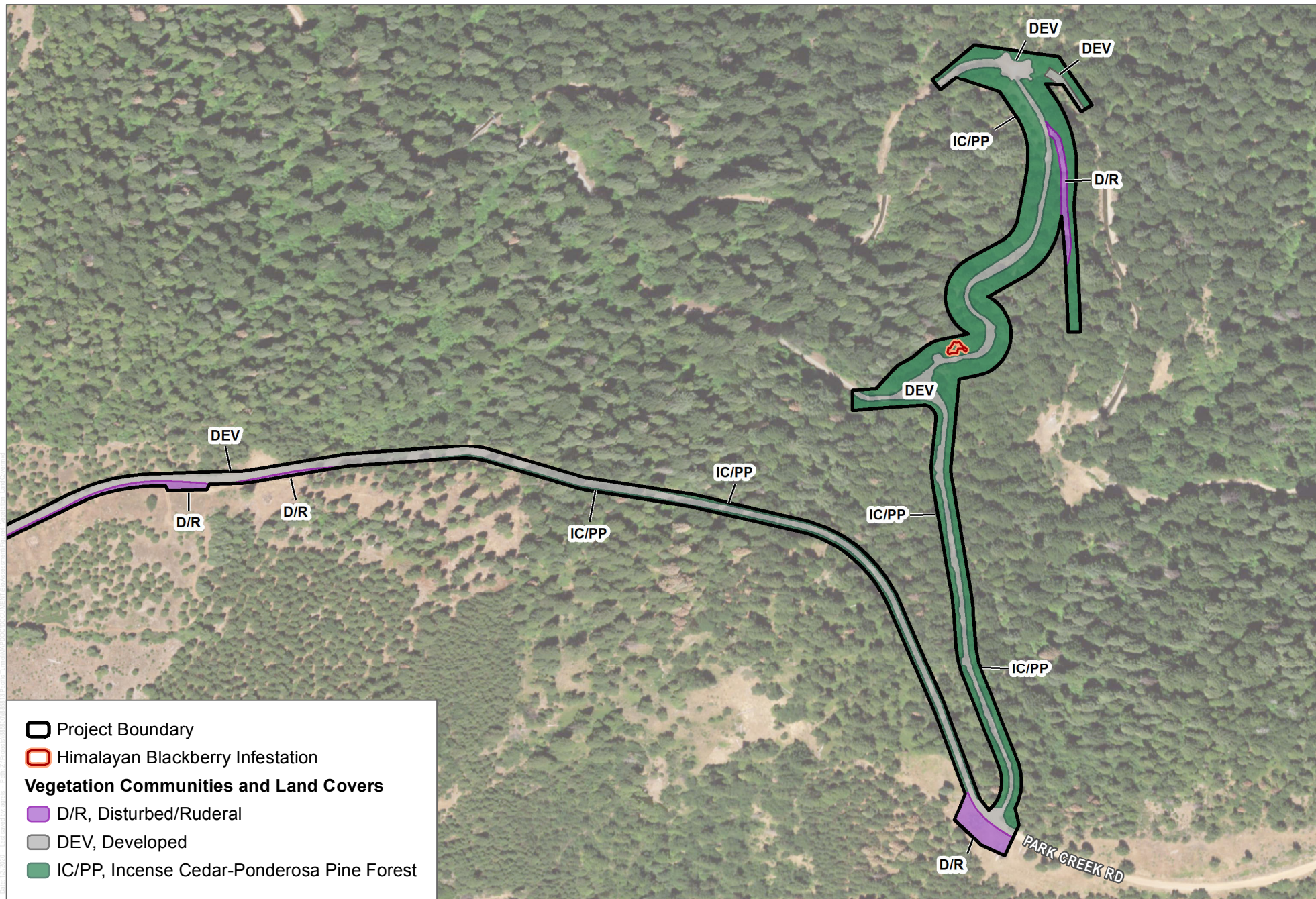


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FIGURE 4A
Vegetation Communities and Land Cover Types
Pacific Tunnel Rehabilitation Project



SOURCE: USDA 2016/2018



SOURCE: USDA 2016/2018

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FIGURE 4C
Vegetation Communities and Land Cover Types
Pacific Tunnel Rehabilitation Project

6 Potential Impacts/Mitigation Recommendations

6.1 Definition of Impacts

This section identifies the types of potential impacts that may occur as a result of implementation of the proposed project, including direct permanent impacts, direct temporary impacts, and indirect impacts.

Direct permanent impacts refer to the absolute and permanent physical loss of a biological resource due to clearing and grading associated with implementation of a project. Direct permanent impacts are analyzed in four ways: (1) permanent loss of vegetation communities and land covers that serve as habitat for special-status species occurring or potentially occurring on a site, (2) direct harm or mortality to individuals of special-status plant and wildlife species, (3) permanent loss of sensitive resources such as jurisdictional wetlands/waters, or (4) permanent loss of wildlife movement and habitat connectivity in an area.

Direct temporary impacts refer to a temporal loss of vegetation communities and land covers resulting from vegetation and land cover clearing and grading associated with implementation of a project. The main criterion for direct temporary impacts is that impacts would occur for a short period but would be reversible over time.

Indirect impacts are reasonably foreseeable effects caused by project implementation on remaining or adjacent biological resources outside the direct disturbance zone that may occur during grading or maintenance activities (i.e., short-term construction-related indirect impacts) or later in time as a result of the project (i.e., long-term, or operational, indirect impacts). Short-term indirect impacts can include dust, human activity, pollutants (including potential erosion), and noise that extend beyond the identified construction area. Long-term indirect impacts can include changes to hydrology, introduction of invasive species, dust, and noise that are operations-related and occur over the long term.

Potential impacts from project implementation on various special-status biological resource occurring or potentially occurring on the project site are discussed below; recommended measures to avoid/minimize these impacts are also provided.

6.2 Impacts to Special-Status Plants

The potential for special-status plants to occur on the project site is generally low, since the project site is generally limited to existing disturbed roadways. Of the six special-status plant species with a potential to occur, five have a low potential to occur (three-bracted onion, Pleasant Valley mariposa lily, Red Hills soaproot, Stebbins' phacelia, and Sierra blue grass), and one species, yellow bur navarretia, was recorded within or adjacent to the project site in 2011. No plant species with federal or state listing status pursuant to FESA or CESA have a potential to occur on or adjacent to the project site.

Implementation of the proposed project could result in impacts to special-status plant species if they occur on the project site. Impacts could include the destruction of individual plants or populations of plants that may become established in the construction footprint prior to ground disturbance. With implementation of the following measures, potential impacts to special-status plants would be avoided or minimized:

- Prior to ground-disturbance, a qualified botanist familiar with common and rare plant species of the Sierra Nevada region shall conduct surveys of all areas of potential project disturbance during the appropriate blooming period for potentially occurring special-status plant species. The purpose of the survey shall be to

delineate and flag populations of special-status plant species for avoidance. If no special-status plants are identified, no further mitigation is necessary. Special-status plant populations identified during the pre-construction survey shall be mapped using a hand-held GPS unit and avoided where possible. Plant individuals or populations plus a 10-foot buffer shall be temporarily fenced during construction activities with high-visibility fencing or prominently flagged. If complete avoidance of populations is infeasible, further measures, as described below, shall be necessary.

- If avoidance of special-status plant species is not feasible, a qualified botanist shall prepare a Rare Plant Salvage and Translocation Plan prior to project implementation. The Rare Plant Salvage and Translocation Plan shall be reviewed and approved by CDFW or the USFS, as applicable, and shall include the following, at a minimum: identification of occupied habitat to be preserved and occupied habitat to be removed; identification of on-site or off-site preservation, restoration, or enhancement locations; methods for preservation, restoration, enhancement, and/or translocation; goals and objectives for preservation, restoration, enhancement, and/or translocation; replacement ratio and success standard of 1:1 for impacted-to-established acreage; a monitoring program to ensure mitigation success; adaptive management and remedial measures in the event that the performance standards are not achieved; and financial assurances for conservation of mitigation lands; and a mechanism for conservation of any mitigation lands required in perpetuity.

6.3 Impacts to Special-Status Wildlife

Native and Migratory Birds (including Northern Goshawk and California Spotted Owl). The proposed project would involve tree and vegetation removal, which has the potential to impact native and migratory birds, including special-status species with a moderate to high potential to occur on site, such as northern goshawk and California spotted owl. It is unlikely that special-status birds with a low potential to occur on site would be impacted by the project. However, implementation of the following measures would ensure that any potential impacts to nesting birds would be avoided:

- To ensure that no impacts to California spotted owl will occur as a result of tree removal and/or road improvement activities, the El Dorado Irrigation District shall schedule these activities to begin August 16 or later to avoid the “limited operating period” (i.e., breeding season) (March 1 through August 15) for California spotted owl stipulated by USFS.
- El Dorado Irrigation District shall schedule vegetation removal activities during the non-breeding season for birds in the region (August 16 through February 28). If vegetation removal is not feasible during this time, a qualified biologist shall conduct a nesting bird survey within 1 week prior to said activities to determine if any birds are nesting on or near the project site (including a 500-foot buffer for raptors). If any active nests are observed during surveys, a suitable avoidance buffer from the nests shall be determined and flagged by a qualified biologist based on species, location, and planned construction activities. Consultation with CDFW may be required to determine appropriate buffer distances. These nests shall be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.

Native Bats (including Fringed Myotis). Construction of the proposed project may result in temporary and permanent impacts to native bats. If native bats are roosting on the project site or vicinity, direct impacts may result from the permanent removal of roosting sites, such as trees and snags. Temporary impacts to native bats may result from

project-related noise disturbance to an occupied roosting site in the vicinity of construction. With implementation of the following measures, potential impacts to native bats would be avoided:

- A qualified biologist experienced with Sierra Nevada bat species shall conduct a survey to search for evidence of bat roosts in trees and structures subject to removal. Removal of potential roost habitat identified during the assessment shall be avoided during the bat maternity season (May 1 through August 15). If removal of potential roost habitat occurs outside of the maternity season, no further mitigation shall be required.
- If removal of potential roost habitat must be conducted during the maternity season, pre-construction inspections for bats must be conducted using appropriate methods (e.g., camera inspection, exit survey with night optics, acoustic survey) within 2 weeks prior to said activities. If bats are found during inspections, removal of that roost feature must be delayed until the end of the maternity season or until a qualified bat biologist has determined that the young are capable of flight.

Other Special-Status Mammals. There is a low potential for other special-status mammals, specifically Pacific marten, to occur in or adjacent to the project site. Pacific marten prefers remote wilderness undisturbed by human activity. The nearest documented occurrence for Pacific marten is more than 175 miles northwest of the project site. As such, no impact to Pacific marten is anticipated as a result of the proposed project.

Ringtail is unlikely to den in or near the project site due to the lack of riparian habitat nearby and permanent water within 0.6 mile of the project site. Ringtail could migrate through the project site at night or dusk but are not anticipated to remain for prolonged periods due to limited foraging habitat in and adjacent to the project site. CDFW does not track occurrence records for ringtail, so the nearest record was determined through a review of citizen science records. The nearest citizen science record of ringtail for roadkill observed near Pilot Hill northwest of Placerville, approximately 25 miles west-northwest of the project site (iNaturalist 2020). No impact to ringtail is anticipated as a result of the proposed project.

6.4 Impacts to Sensitive Vegetation Communities

Construction of the proposed project would result in direct impacts to the incense cedar–ponderosa pine forest community present on the project site. Temporary direct impacts to vegetation may be necessary to facilitate equipment access during construction. Permanent direct impacts to vegetation would result from realigning Tunnel Access Road. Construction of the proposed project is not expected to result in direct impacts to special-status vegetation communities, since none are present on site.

6.5 Impacts to Wetlands and Other Waters

As discussed in Section 5.5, Wetlands and Other Waters, there are no wetlands or other waters in or adjacent to the project site. Therefore, no substantial impacts to wetlands or other waters are expected to occur as a result of project implementation.

6.6 Impacts to Wildlife Movement Corridors and Habitat Linkages

As discussed in Section 5.6, Wildlife Movement Corridors and Habitat Linkages, no substantial direct impacts to local or regional wildlife movements are expected to occur as a result of project implementation.

Mr. Baron

Subject: Biological Resources Assessment for the Pacific Tunnel Rehabilitation Project, El Dorado County, California

If you have any questions or concerns regarding the content of this report, please contact me at 760.936.7969 or asennett@dudek.com.

Sincerely,


Allie Sennett, MS
Biologist

Atts.: Attachment A, Photo Log
Attachment B, Survey Results for the Pacific Tunnel Portal Rehabilitation Project
Attachment C, List of Species Observed On Site
Attachment D, Special-Status Plants Potential to Occur
Attachment E, Special-Status Wildlife Potential to Occur

cc: Markus Lang, Dudek

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Attachment A

Photo Log



Photo 1: View facing west at Park Creek Road in the western half of the project site. November 25, 2019.



Photo 2: View facing east at Park Creek Road where it is surrounded by incense cedar–Ponderosa pine forest on both sides. November 25, 2019.

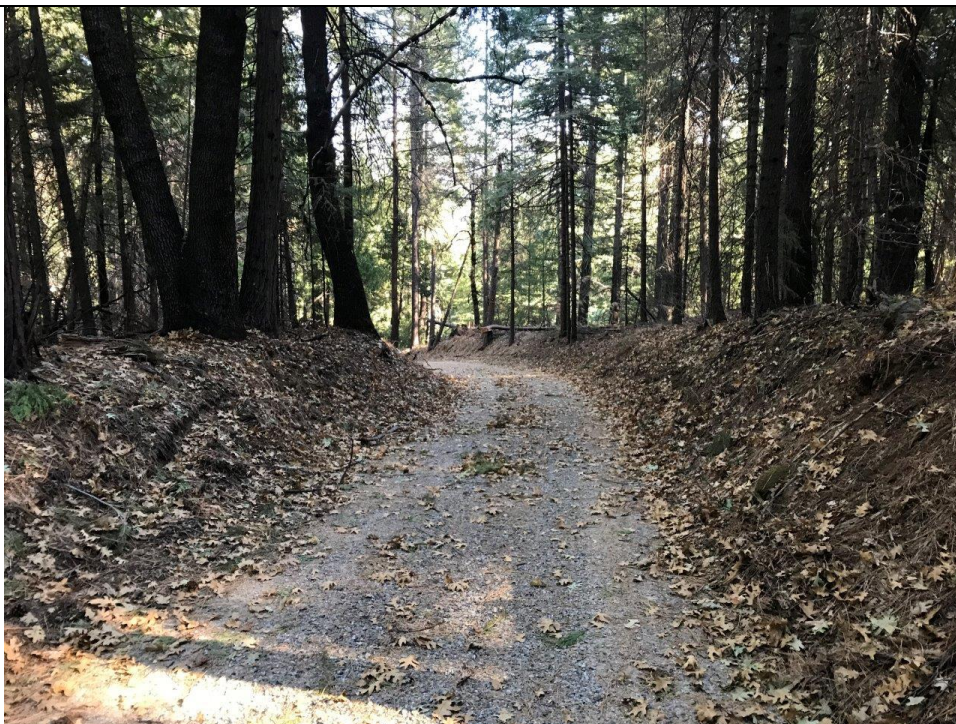


Photo 3: View facing northeast at Tunnel Access Road where a segment of road alignment improvements are proposed. November 25, 2019.



Photo 4: View facing north at Tunnel Access Road prior to its terminus at the canal. There is an abandoned dirt road visible to the right. November 25, 2019.



Photo 5: View facing west at the existing canal tunnel (“Pacific Tunnel”) on the project site.
November 25, 2019.



Photo 6: View facing northeast at the upstream segment of the existing canal where it enters Pacific Tunnel.
November 25, 2019.

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Attachment B

Survey Results for the Pacific
Tunnel Portal Rehabilitation Project

MEMORANDUM

To: Brian Deason, El Dorado Irrigation District
From: Allie Sennett, Keith Babcock; Dudek
Subject: Survey Results for the Pacific Tunnel Portal Rehabilitation Project
Date: September 17, 2019
Attachments: Figures 1–2
A – Representative Site Photographs
B – List of Bird Species Observed Onsite
C – Nighttime Call Station Datasheets

Introduction

This memorandum summarizes the methods and results of surveys conducted for nesting raptors, specifically California spotted owl (*Strix occidentalis occidentalis*), in August 2019 for the El Dorado Irrigation District (EID) Pacific Tunnel Portal Rehabilitation Project (project) in El Dorado County, California. The project site is located in the Eldorado National Forest, south of State Route (SR) 50 and approximately 3 miles east-southeast of Pollock Pines (see Figure 1, Project Location).

Dudek biologists conducted a total of six surveys: three nighttime call station surveys and two daytime follow-up surveys for California spotted owl, and one daytime survey focused on nesting raptors, including northern goshawk (*Accipiter gentilis*). California spotted owl and northern goshawk are California Species of Special Concern and a U.S. Forest Service (USFS) Sensitive Species. The owl surveys were performed within USFS-designated Protected Activity Center (PAC) ELD0009 and followed methodologies contained in the USFS *Protocol for Surveying for Spotted Owls in Proposed Management Activity Areas and Habitat Conservation Areas* (revised February 1993). Dudek biologists also conducted a daytime survey for nesting raptors to identify any potential nest sites that could be affected by tree removal activities associated with the project that are anticipated to occur in 2020. Because California spotted owls, including young, were detected during the nocturnal surveys, no daytime surveys utilizing audible call broadcasting were conducted for northern goshawk. Survey methodology and results are discussed in further detail below.

Methods

California Spotted Owl Surveys

Nocturnal Call Station Surveys

Prior to conducting the surveys, Dudek biologists identified and mapped owl call stations pursuant to the USFS 1993 protocols (see Figure 2). Dudek biologists then performed three nocturnal call station surveys for California spotted owl: Keith Babcock and Allie Sennett performed the first survey on August 7, 2019; Allie Sennett and Paul Keating performed the second survey on August 14, 2019; and Allie Sennett and Laura Burris performed the third survey on August 22, 2019. Per the USFS Protocol, each survey began after sunset and consisted of visiting each of the six call stations (0009-1, 0009-2, 0009-3, 0009-4, 0009-5, and 0009-6) for a minimum of 10 minutes, during which recorded spotted owl vocalizations were broadcasted on a portable JBL Charge 3 speaker. Weather during each survey was fairly consistent, with clear skies and calm winds, and temperatures ranging from 62 to 74° Fahrenheit. Visibility was best during the second survey, which was conducted during a full moon.

Daytime Follow-up Surveys

Per the 1993 USFS protocol, if owls are detected during a nocturnal survey, a follow-up visit should be conducted within 48 hours of the detection to “visually confirm or infer the existence of a pair of spotted owls.” Because owls were detected by audible response on August 14 and again on August 22, a Dudek biologist performed two follow-up daytime surveys: Mr. Keating performed the first follow-up survey on August 16, 2019, and Ms. Sennett performed the second follow-up survey on August 23, 2019. The surveys involved revisiting the estimated location of the owls that responded to broadcast calls, and the general area around that location, in an attempt to visually observe/confirm a pair of owls and, if possible, identify and map any potential nest trees and owl sign (e.g., feathers, scat, and pellets). Spotted owl vocalizations were also broadcasted during these surveys, but less frequently than those during the nocturnal call station surveys (described above). Weather during each follow-up survey was fairly consistent, with clear skies and calm winds, and temperatures ranging from 62 to 74° Fahrenheit.

Survey of Tree Removal Areas for Nesting Raptors

Dudek biologists Ms. Sennett and Ms. Burris conducted a survey for nesting raptors, including northern goshawk and California spotted owl, on August 22, 2019 in areas identified by EID in which tree removal will likely occur in association with road widening/improvement activities. The survey area consisted of two distinct tree removal sites and an approximately 0.25-mile buffer around each site (refer to Figure 2, Survey Results). Dudek biologists used binoculars to survey trees and other suitable nesting habitat in the survey area; inaccessible areas or areas located on private property were surveyed from publically accessible areas such as project access roads. Potential nest sites were mapped using a Garmin GPS unit (GPS map 62stc) and monitored for signs of nesting activity such as territorial behavior, pairing, copulation, nest building, incubation, and feeding chicks. All bird species observed or aurally-detected in the field were recorded in a notebook. Weather during the survey was clear and calm, with temperatures ranging from

approximately 73 to 84° Fahrenheit. Representative site photographs are presented in Attachment A, and Attachment B contains a list of bird species detected onsite during the survey.

Results

California Spotted Owl Surveys

Call Station Survey – Visit #1

Dudek biologists conducted nighttime surveys at call stations 0009-1 through 0009-6 during the first survey on August 7, 2019. One adult and two juvenile spotted owls were aurally detected near call station 0009-2 from approximately 8:40pm to 9:30pm. Between 9:50pm and 10:25pm, one adult and two juvenile spotted owls were aurally detected near call station 0009-4. Because of the relative proximity of this station to call station 0009-2 and the direction in which the owls were recorded (both from station 0009-2 and 0009-4), the three owls detected at call station 0009-4 are presumed to be the same individuals detected at call station 0009-2. Of the two juveniles, one was visually observed approximately 50 feet northeast of call station 0009-2. Both juveniles were aurally detected within 50 feet of call stations 0009-2 and 0009-4, while the adult owl maintained an estimated distance of at least 200 feet from these call stations. Adult agitation calls were detected an estimated 250 feet north of call station 0009-4. No spotted owls were detected at the remaining call stations (0009-1, 0009-3, 0009-5, and 0009-6) during this visit. Existing disturbances in the survey area included audible traffic along SR 50 and airplane travel above the survey area. A completed survey datasheet is included in Attachment C.

Call Station Survey – Visit #2

Dudek biologists conducted nighttime surveys at call stations 0009-1 through 0009-6 during the second survey on August 14, 2019, with particular focus on those stations at which no owls were detected during visit #1. Although subsequent surveys are not required by USFS protocol to be conducted at call stations at which owls were identified during previous visits, because of the relative proximity of stations 2, 3, and 4 (despite being adequately spaced per USFS protocol), and because all owls detected during visit #1 appeared to be located in the “triangle” formed by these three stations (see Figure 2), repeat calls were made at stations 2 and 4 during this visit to attempt to better identify the activity center of the owls detected. Two spotted owls (one adult and one juvenile) were aurally detected near call station 0009-4 from approximately 11:00pm and 11:30pm. When travelling from call station 0009-4 to 0009-3, one spotted owl of unknown age and sex was flushed from a tree and briefly observed flying east. The sighting occurred approximately 250 feet south of call station 0009-4. Between 11:35 and 11:50pm, two spotted owls (one adult and one juvenile) were aurally detected from call station 0009-3, although they appeared to remain near call station 0009-4. The two owls detected at call station 0009-3 are presumed to be the same individuals detected at call station 0009-4 during this visit and during visit #1. No spotted owls were detected at the remaining call stations (0009-1, 0009-2, 0009-5, and 0009-6). No disturbances in addition to those detected during the first survey area were noted. A completed survey datasheet is included in Attachment C.

Memorandum

Subject: Survey Results for the Pacific Tunnel Portal Rehabilitation Project

Call Station Survey – Visit #3

Dudek biologists conducted nighttime surveys at call stations 0009-1, 0009-5, and 0009-6 during the third survey on August 23, 2019. One adult spotted owl was aurally detected near call station 0009-5 from approximately 8:45pm to 9:00pm. This owl is presumed to be the same individual detected on August 7 and 14, 2019, as it appeared to fly in from the north where most owl detections were recorded during the prior two surveys. Furthermore, because the surveys were conducted late in the nesting season for this species and both adult and juvenile owl movements are likely expanding further from their natal nest trees, and because all responses and visual observations appeared to originate from the same general areas encapsulated by stations 2-5, it is assumed that all owls heard aurally and the two observed visually in association with the three surveys are likely a part of the same owl family. No other spotted owls, including juveniles, were detected at call station 0009-5, nor were owls detected at call stations 0009-1 or 0009-6. No surveys were conducted at call stations 0009-2, 0009-3, or 0009-4. No disturbances in addition to those detected during the first survey area were noted. A completed survey datasheet is included in Attachment C.

Daytime Follow-up Surveys

No potential owl nests or owls were detected in the areas surveyed during the daytime follow-up visits on August 16 and 23, 2019. However, this is not unusual due to the lateness of the breeding season during which the surveys were conducted and because, as noted above, owl families are likely expanding their daily movements further from the natal nest tree by this time in the season.

Survey of Tree Removal Areas for Nesting Raptors

Seven bird species were detected during the survey on August 22, 2019 (see Attachment B). No active nests were identified during the general nest survey. Four inactive nests (species undetermined), presumably from previous nesting seasons based on the lack of sign (scat, feathers, etc.) near the nest tree and the general condition of the stick nests, were identified in the survey area. The survey was conducted toward the end of the bird nesting season when use of nest sites has generally ceased by avian species in this region.

Summary and Conclusions

Several California spotted owls, including adults and young, were detected audibly and visibly during the nocturnal site visits. Based on the relative close proximity of each of the detections to each other, it is assumed that the owls were part of a single owl family. No spotted owls, sign, or evidence of nesting was observed during the daytime follow-up visits or during surveys conducted within the proposed tree removal areas.

Per EID, tree removal, road widening, and other project-related construction activities are anticipated to commence in 2020. However, to ensure that no impacts to California spotted owl will occur as a result of tree removal and/or road improvement activities, EID will schedule these activities to begin August 16 or

Memorandum

Subject: Survey Results for the Pacific Tunnel Portal Rehabilitation Project

later to avoid the Limited Operating Period (March 1 – August 15) for California spotted owls stipulated by the USFS for such activities within the PAC.

If you have any questions or concerns regarding the content of this memo, please contact Allie Sennett at 760.936.7969 or asennett@dudek.com or Keith Babcock at 530.305.4064 or kbabcock@dudek.com.

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Subject: Survey Results for the Pacific Tunnel Portal Rehabilitation Project

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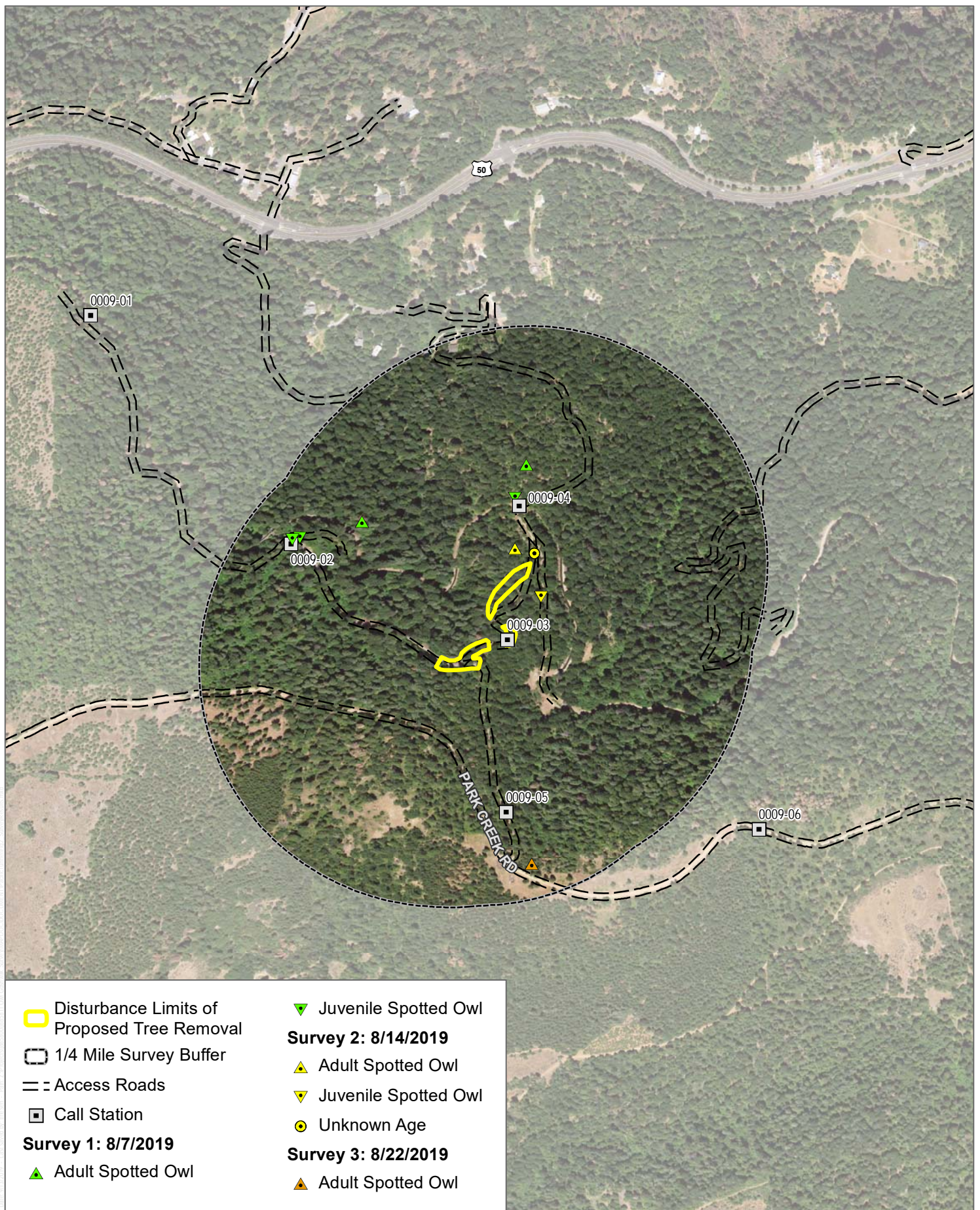


FIGURE 2

Survey Results

Pacific Tunnel Portal Rehabilitation Project

Memorandum

Subject: Survey Results for the Pacific Tunnel Portal Rehabilitation Project

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Attachment A

Representative Site Photographs

Memorandum

Subject: Survey Results for the Pacific Tunnel Portal Rehabilitation Project

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Photo 1. View facing east at Call Station 0009-02, where one adult spotted owl and two juvenile owls were aurally and/or visually detected during the August 7, 2019 night survey.



Photo 2. View of the existing El Dorado Ditch in the survey area. One inactive stick nest is visible in a Douglas fir just west of the ditch (location indicated by arrow).

ATTACHMENT A
REPRESENTATIVE SITE PHOTOGRAPHS
PACIFIC TUNNEL PORTAL REHABILITATION PROJECT



Photo 3. View facing southeast at Call Station 0009-04, where one adult spotted owl and two juvenile owls were aurally and/or visually detected during the August 7 and 14, 2019 night surveys.



Photo 4. View facing south at access road south of Call Station 0009-04 where a spotted owl of unknown age and sex was visually detected flying through the survey area on August 14, 2019.



Attachment B

List of Bird Species Observed Onsite

Memorandum

Subject: Survey Results for the Pacific Tunnel Portal Rehabilitation Project

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Wildlife Species – Vertebrates

Birds

CREEPERS

CERTHIIDAE—CREEPERS

Certhia americana—brown creeper

JAYS, MAGPIES & CROWS

CORVIDAE—CROWS & JAYS

Cyanocitta stelleri—Steller's jay

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Oreortyx pictus—mountain quail

NEW WORLD VULTURES

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

NUTHATCHES

SITTIDAE—NUTHATCHES

Sitta canadensis—red-breasted nuthatch

OWLS

STRIGIDAE—TYPICAL OWLS

Strix occidentalis—spotted owl

THRUSHES

TURDIDAE—THRUSHES

Turdus migratorius—American robin

WOODPECKERS

PICIDAE—WOODPECKERS & ALLIES

Dryocopus pileatus—pileated woodpecker

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Attachment C

Nighttime Call Station Datasheets

Memorandum

Subject: Survey Results for the Pacific Tunnel Portal Rehabilitation Project

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Spotted Owl - Field Data Collection Form

PROJECT: Pacific Tunnel STATE/CO: El Dorado Co. / CA

LANDOWNER: USFS/EID/PRVT PHYSIOGRAPHIC PROVINCE: Sierra Nevada

SITE ID/#: ELD0009 (PAC) HISTORICAL SITE CENTER (IF APPLICABLE): _____

DATE: 8/7/19 VISIT #: 1 SURVEYOR(S): K. Babcock + A. Sennett

SURVEY TYPE: ACS SC CC FO RV AV OPP

ACS= ACTIVITY CENTER SEARCH

SC= STATION CALLING

CC= CONTINUOUS CALLING

AV= ADDITIONAL VISIT

OPP= OPPORTUNISTIC SIGHTING

SURVEY PROTOCOL: USFS 1993 (revised/adapted per USFS)

WEATHER (START): 74°F, clear + calm WEATHER (END): 66°F, clear + calm

OWLS DETECTED (Y/N): Y SECTION/TOWNSHIP/RANGE: 34, 11N, 13E (Pollock pines quad)

STATION ID	START TIME	END TIME	SPP	OB TYPE ¹	SEX ²	AGE ³	#	STATION- LAT/LONG
1	2010	2024	/	/	/	/	Ø	38.758175, -120.522974
2	2040	2130	SPow	A+V	UNK	A+J	3	38.754633, -120.519133
3	2137	2147	/	/	/	/	Ø	38.753113, -120.514942
4	2151	2222	SPow	A	UNK	A+J	3	38.755154, -120.514674
5	2230	2240	/	/	/	/	Ø	38.750482, -120.515025
6	2245	2255	/	/	/	/	Ø	38.750156, -120.510096

¹ OBSERVATION TYPE: V = VISUAL A=AURAL S=SIGN

² SEX: UNK = UNKNOWN F = FEMALE M = MALE

³ AGE: A = ADULT J = JUVENILE C = CHICK

Equipment Used:

Binoculars: Yes - multiple Flashlight: Yes - multiple

Audio Device: JBL3 portable speaker Types of Calls: Male + female calls/song

Notes (e.g., nest tree description, owl activity, nearby disturbances, other owl species detected, etc):

Hwy 50, off-road bikes + airplanes = disturbances

Station 2 - 2 juveniles (call) + 1 adult (song)

1 of 2 juvenile observed.

Adult not observed.

Station 4 - 2 juveniles (call + attempts @ ^{song/}hoot) 3

1 adult (call + song, agitated)

potentially/likely same owls from
station 2.

Spotted Owl - Field Data Collection Form

PROJECT: Pacific Tunnel STATE/CO: CA / El Dorado

LANDOWNER: USFS/ElD/PRVT PHYSIOGRAPHIC PROVINCE: Sierra Nevada

SITE ID/#: EUD00009 HISTORICAL SITE CENTER (IF APPLICABLE): _____

DATE: 8/14/19 VISIT #: 2 SURVEYOR(S): AS + PK

SURVEY TYPE: ACS ☒ SC ☒ CC ☒ FO RV AV OPP

ACS= ACTIVITY CENTER SEARCH

SC= STATION CALLING

CC= CONTINUOUS CALLING

AV= ADDITIONAL VISIT

OPP= OPPORTUNISTIC SIGHTING

SURVEY PROTOCOL: USFS; adapted from 1993 guidelines

WEATHER (START): 70°F, clear & calm WEATHER (END): 62°F, clear & calm

OWLS DETECTED (Y/N): Y QUAD/SECTION/TOWNSHIP/RANGE: See report

STATION ID	START TIME	END TIME	SPP	OB TYPE ¹	SEX ²	AGE ³	#	STATION - LAT/LONG
1	2356	2411	/	/	/	/	/	38.758175, -120.522974
2	2350	2352	/	/	/	/	/	38.754633, -120.519133
3	2333	2346	SPON	A	UNK	A + J	2	38.753113, -120.514942
4	2303	2328	SPON	A + V	UNK	A + J	2	38.755154, -120.514674
5	2248	2258	/	/	/	/	/	38.750482, -120.515025
6	2232	2244	/	/	/	/	/	38.750156, -120.510096

¹ OBSERVATION TYPE: V = VISUAL A = AURAL S = SIGN

² SEX: UNK = UNKNOWN F = FEMALE M = MALE

³ AGE: UNKN = UNKNOWN A = ADULT J = JUVENILE C = CHICK

Equipment Used:

Binoculars: Yes - multiple Flashlight: Yes + spotlight
Audio Device: JBL3 portable speaker Types of Calls: Male + Female calls/songs
(Merlin bird app)

Notes (e.g., nest tree description, owl activity, nearby disturbances, other owl species detected, etc.):

Hwy 50 + airplanes = disturbances during survey.

observed an owl (unk age/sex) fly from tree
 along access road just south of station 4.

Spotted Owl – Field Data Collection Form

PROJECT: Pacific Tunnel STATE/CO: CA/ El Dorado

LANDOWNER: USFS/EID/PRVT PHYSIOGRAPHIC PROVINCE: Sierra Nevada

SITE ID/#: ELD0009 HISTORICAL SITE CENTER (IF APPLICABLE): _____

DATE: 8/22/19 VISIT #: 3 SURVEYOR(S): AS + LB

SURVEY TYPE: ACS SC CC FO RV AV OPP

ACS= ACTIVITY CENTER SEARCH

SC= STATION CALLING

CC= CONTINUOUS CALLING

AV= ADDITIONAL VISIT

OPP= OPPORTUNISTIC SIGHTING

SURVEY PROTOCOL: USFS; adapted from 1993 guidelines

WEATHER (START): 73°F WEATHER (END): 64°

OWLS DETECTED (Y/N): Y QUAD/SECTION/TOWNSHIP/RANGE: 34, 11N, 13E (Pollock pines)

STATION ID	START TIME	END TIME	SPP	OB TYPE ¹	SEX ²	AGE ³	#	STATION LAT/LONG
1	21:29	21:41	/	/	/	/	/	38.758175, -120.522974
2	/	/	/	/	/	/	/	38.754633, -120.519133
3	/	/	/	/	/	/	/	38.753113, -120.514942
4	/	/	/	/	/	/	/	38.755154, -120.514674
5	20:44	20:59	SPow	A	UNK	A	1	38.750482, -120.515025
6	21:05	21:18	/	/	/	/	/	38.750156, -120.510096

¹ OBSERVATION TYPE: V = VISUAL A=AURAL S=SIGN

² SEX: UNK = UNKNOWN F = FEMALE M = MALE

³ AGE: UNKN = UNKNOWN A = ADULT J = JUVENILE C = CHICK

Equipment Used:

Binoculars: yes - multiple Flashlight: yes - spotlight
Audio Device: JBL 3 portable speaker Types of Calls: Male + Female calls/songs

Notes (e.g., nest tree description, owl activity, nearby disturbances, other owl species detected, etc.):

May 50

Faint owl call @ start of calling @ station 6
(calls closer to station 5) - only one call heard.



Attachment C

List of Species Observed On Site

Plant Species

EUDICOTS

VASCULAR SPECIES

APIACEAE—CARROT FAMILY

- * *Torilis arvensis*—spreading hedgeparsley

ASTERACEAE—SUNFLOWER FAMILY

- * *Pseudognaphalium luteoalbum*—Jersey cudweed

BRASSICACEAE—MUSTARD FAMILY

- * *Brassica nigra*—black mustard

CAPRIFOLIACEAE—HONEYSUCKLE FAMILY

- Lonicera hispidula*—pink honeysuckle

CORNACEAE—DOGWOOD FAMILY

- Cornus nuttallii*—Pacific dogwood

ERICACEAE—HEATH FAMILY

- Arctostaphylos viscida*—whiteleaf manzanita

EUPHORBIACEAE—SPURGE FAMILY

- Croton setiger*—dove weed

FAGACEAE—OAK FAMILY

- Quercus kelloggii*—California black oak
- Quercus wislizeni*—interior live oak

HYPERICACEAE—ST. JOHN'S WORT FAMILY

- * *Hypericum perforatum*—common St. Johnswort

ONAGRACEAE—EVENING PRIMROSE FAMILY

- Epilobium* sp.—willowherb

PLANTAGINACEAE—PLANTAIN FAMILY

- * *Plantago lanceolata*—narrowleaf plantain

POLYGONACEAE—BUCKWHEAT FAMILY

- * *Rumex crispus*—curly dock

RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus cuneatus var. *cuneatus*—buckbrush

ROSACEAE—ROSE FAMILY

Chamaebatia foliolosa—mountain misery

SALICACEAE—WILLOW FAMILY

Salix laevigata—red willow

SAPINDACEAE—SOAPBERRY FAMILY

Acer macrophyllum—bigleaf maple

FERNS AND FERN ALLIES

VASCULAR SPECIES

PTERIDACEAE—BRAKE FAMILY

Pentagramma triangularis—goldback fern

GYMNOSPERMS AND GNETOPHYTES

VASCULAR SPECIES

CUPRESSACEAE—CYPRESS FAMILY

Calocedrus decurrens—incense cedar

PINACEAE—PINE FAMILY

Pinus ponderosa—Ponderosa pine

Pseudotsuga menziesii—Douglas fir

MONOCOTS

VASCULAR SPECIES

ALLIACEAE—ONION FAMILY

Allium sp.—onion

CYPERACEAE—SEDGE FAMILY

Carex sp.—sedge

POACEAE—GRASS FAMILY

* *Bromus* sp.—brome

* *Cynosurus echinatus*—annual dogtails

* *Festuca perennis*—perennial rye grass

Wildlife Species – Vertebrates

CREEPERS

CERTHIIDAE—CREEPERS

Certhia americana—brown creeper

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Cyanocitta stelleri—Steller's jay

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Oreortyx pictus—mountain quail

NEW WORLD VULTURES

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

NUTHATCHES

SITTIDAE—NUTHATCHES

Sitta canadensis—red-breasted nuthatch

OWLS

STRIGIDAE—TYPICAL OWLS

Strix occidentalis—spotted owl

THRUSHES

TURDIDAE—THRUSHES

Turdus migratorius—American robin

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Dryocopus pileatus—pileated woodpecker

* signifies introduced (non-native) species

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Attachment D

Special-Status Plants Potential to Occur

ATTACHMENT D
SPECIAL-STATUS PLANTS POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations, Life Form, Blooming Period, and Elevation Range	Potential to Occur
<i>Allium tribracteatum</i>	three-bracted onion	USFS/None/1B.2	Perennial bulbiferous herb found in rocky, volcanic chaparral, lower montane coniferous forest, and upper montane coniferous forest from approximately 3,600 to 9,845 feet above mean sea level. Blooms March through August (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “volcanic slopes.”	Low potential to occur. The project site lacks rocky soils preferred by this species. The nearest documented occurrence is approximately 16.5 miles southeast of the project site (CDFW 2019).
<i>Arctostaphylos nissenana</i>	Nissenan manzanita	USFS/None/1B.2	Perennial evergreen shrub found on open, rocky shale ridges in closed-cone coniferous forest or chaparral habitats from approximately 1,475 to 3,610 feet above mean sea level. Blooms February through March and sometimes in June (CNPS 2019; Jepson Flora Project 2019).	Not expected to occur. The project site lacks habitat and is above the elevation range for this species. The nearest documented occurrence is approximately 5.1 miles northwest of the project site (CDFW 2019).
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	USFS/None/1B.2	Perennial herb found in chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentine soils, from approximately 295 to 5,105 feet above mean sea level. Blooms March through July (CNPS 2019).	Not expected to occur. The project site lacks habitat. The nearest documented occurrence is approximately 29 miles west of the project site (CDFW 2019).
<i>Botrychium ascendens</i>	upswept moonwort	USFS/None/2B.3	Perennial rhizomatous herb found in mesic areas of lower montane coniferous forest, meadow, and seep habitat from approximately 3,655 to 9,990 feet above mean sea level. Identifiable July through August, and sometimes as early as June (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “moist meadows, open woodland near streams or seeps.”	Not expected to occur. The project site is above the elevation range for this species. The nearest documented occurrence is approximately 10.6 miles northeast of the project site (CDFW 2019).
<i>Botrychium crenulatum</i>	scalloped moonwort	USFS/None/2B.2	Perennial rhizomatous herb found in bogs and fens, lower and upper montane coniferous forest, meadows and seeps, and freshwater marshes and swamps from approximately 4,160 to 10,760 feet above mean sea level. Identifiable June through September (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “saturated hard water seeps and stream margins.”	Not expected to occur. The project site lacks habitat. The nearest documented occurrence is approximately 10.3 miles southeast of the project site (CDFW 2019).
<i>Botrychium lunaria</i>	common moonwort	USFS/None/2B.3	Perennial rhizomatous herb found in meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest from approximately 6,495 to 11,155 feet above mean sea level. Identifiable in August (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “moist meadows.”	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 5.7 miles northeast of the project site (CCH 2019).

ATTACHMENT D
SPECIAL-STATUS PLANTS POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations, Life Form, Blooming Period, and Elevation Range	Potential to Occur
<i>Botrychium minganense</i>	Mingan moonwort	USFS/None/2B.2	Perennial rhizomatous herb found in mesic areas of upper and lower montane coniferous forest, bogs and fens, and edges of meadows and seeps from approximately 4,770 to 7,135 feet above mean sea level. Identifiable from July through September (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “moist meadows, open woodland near streams or seeps.”	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 9.4 miles southeast of the project site (CDFW 2019).
<i>Botrychium montanum</i>	western goblin	USFS/None/2B.1	Perennial rhizomatous herb found in mesic areas of upper and lower montane coniferous forest, and meadows and seeps from approximately 4,800 to 7,150 feet above mean sea level. Grows in shady areas along streams, especially under incense cedar. Identifiable July through September (CNPS 2019; Jepson Flora Project 2019).	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 9.5 miles northeast of the project site (CDFW 2019).
<i>Botrychium paradoxum</i>	paradox moonwort	USFS/None/2B.1	Perennial rhizomatous herb found in mesic areas of upper montane coniferous forest or limestone and marble alpine boulder and rock fields from approximately 5,705 to 13,780 feet above mean sea level. Identifiable in August (CNPS 2019).	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 16.7 miles northeast of the project site (CCH 2019).
<i>Botrychium pedunculosum</i>	stalked moonwort	USFS/None/2B.1	Perennial rhizomatous herb found in granitic, volcanic, or andesitic soils of meadows and seeps, or upper montane coniferous forest. Identifiable in August (CNPS 2019).	Not expected to occur. The project site lacks habitat. In addition, this species is only known from Tuolumne County (CNPS 2019).
<i>Bruchia bolanderi</i>	Bolander's bruchia	USFS/None/4.2	Moss found in damp soils of lower and upper montane coniferous forest, and meadows and seeps from approximately 5,575 to 9,190 feet above mean sea level (CNPS 2019).	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 22 miles northeast of the project site (CCH 2019).

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SPECIAL-STATUS PLANTS POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations, Life Form, Blooming Period, and Elevation Range	Potential to Occur
<i>Calochortus clavatus</i> var. <i>avius</i>	Pleasant Valley mariposa lily	USFS/None/1B.2	Perennial bulbiferous herb found on Josephine silt loam and volcanic soils in lower montane coniferous forest from approximately 1,000 to 5,905 feet above mean sea level. Blooms May through July (CNPS 2019).	Low potential to occur. The project site is largely restricted to a disturbed roadway and provides limited undisturbed habitat. The nearest documented occurrence is for 12 to 50 plants observed growing on a south-facing slope in Eldorado National Forest, approximately 1.4 miles east of the project site (CDFW 2019).
<i>Carex cyrtostachya</i>	Sierra arching sedge	None/None/1B.2	Perennial herb found on mesic areas of lower montane coniferous forest, meadows and seeps, marshes and swamps, and riparian forest margins from approximately 2,000 to 4,460 feet above mean sea level. Blooms March through August (CNPS 2019).	Not expected to occur. The project site lacks mesic microhabitats. The nearest documented occurrence is approximately 4.7 miles north of the project site (CCH 2019).
<i>Chlorogalum grandiflorum</i>	Red Hills soaproot	None/None/1B.2	Perennial bulbiferous herb found on serpentine, gabbroic, or other soils in chaparral, cismontane woodland, and lower montane coniferous forest from approximately 800 to 5,545 feet above mean sea level. Blooms May through June (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “serpentine outcrops, open shrubby or wooded hills.”	Low potential to occur. The project site is largely restricted to a disturbed roadway and lacks rocky outcrops or shrubby/wooded hillsides. The nearest documented occurrence, from 2013, 2015, and 2018, is for ±975 to 16,800 plants observed growing along roadways and openings in an area affected by the Kings Fire in 2014, approximately 3.7 miles northwest of the project site (CDFW 2019).
<i>Cypripedium montanum</i>	mountain lady's-slipper	USFS/None/4.2	Perennial rhizomatous herb found in broadleaved upland forest, cismontane woodland, and lower montane and North Coast coniferous forest from approximately 600 to 7,300 feet above mean sea level. Booms March through August (CNPS 2019).	Not expected to occur. This species is not known to occur in El Dorado County (CNPS 2019). The nearest documented occurrence is approximately 28 miles northeast of the project site (CCH 2019).

ATTACHMENT D
SPECIAL-STATUS PLANTS POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations, Life Form, Blooming Period, and Elevation Range	Potential to Occur
<i>Draba asterophora</i> var. <i>asterophora</i>	Tahoe draba	USFS/None/1B.2	Perennial herb found in alpine boulder and rock field or subalpine coniferous forest from approximately 8,200 to 11,500 feet above mean sea level. Blooms July through August and sometimes September (CNPS 2019).	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 23 miles northeast of the project site (CCH 2019).
<i>Draba asterophora</i> var. <i>macrocarpa</i>	Cup Lake draba	USFS/None/1B.1	Perennial herb found in rocky subalpine coniferous forest from approximately 8,200 to 9,230 feet above mean sea level. Known only near Cup Lake and Saucer Lake near Ralston Peak in El Dorado County. Blooms July through September (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “rock crevices, alpine barrens, and talus,” but does not recognize the subspecies.	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 23 miles northeast of the project site (CCH 2019).
<i>Eriogonum luteolum</i> var. <i>saltuarium</i>	Jack’s wild buckwheat	USFS/None/1B.2	Annual herb found in sandy, granitic soils of Great Basin scrub or upper montane coniferous forest from approximately 5,575 to 7,875 feet above mean sea level (CNPS 2019). Blooms July through September (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “granitic sand.”	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 31 miles east-northeast of the project site (CCH 2019).
<i>Eriogonum tripodum</i>	tripod buckwheat	USFS/None/4.2	Perennial deciduous shrub often found in serpentine soils of chaparral or cismontane woodland from approximately 650 to 5,250 feet above mean sea level. Blooms May through July (CNPS 2019). The Jepson Flora Project (2019) describes habitat as “serpentine.”	Not expected to occur. The project site lacks habitat. The nearest documented occurrence is approximately 15 miles northwest of the project site (CCH 2019).
<i>Helodium blandowii</i>	Blandow’s bog moss	USFS/None/2B.3	Moss found in damp soils of subalpine coniferous forest and meadows and seeps from approximately 6,105 to 8,860 feet above mean sea level (CNPS 2019).	Not expected to occur. The project site lacks habitat. The nearest documented occurrence is approximately 31 miles east of the project site (CCH 2019).

ATTACHMENT D
SPECIAL-STATUS PLANTS POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations, Life Form, Blooming Period, and Elevation Range	Potential to Occur
<i>Horkelia parryi</i>	Parry's horkelia	USFS/None/1B.2	Perennial herb found on lone formations or other soils in chaparral and cismontane woodland from approximately 260 to 3,510 feet above mean sea level. Blooms April through September (CNPS 2019).	Not expected to occur. No woodland or chaparral habitat present. The nearest documented occurrence is for plants observed growing in dense chaparral habitat in 2014 and 2015, approximately 6.9 miles west-northwest of the project site (CDFW 2019).
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i>	Hutchison's lewisia	USFS/None/3.2	Perennial herb found in openings and on ridgetops in upper montane coniferous forest, often on slate and sometimes rhyolite tuff substrates from as low as 2,500 feet, but normally from 5,900 to 7,760 feet above mean sea level. Blooms May through August and sometimes April (CNPS 2019; Jepson Flora Project 2019). The Jepson Flora Project (2019) describes habitat as "decomposed granite, slate, volcanic rubble, conifer forest."	Not expected to occur. No upper montane coniferous forest present. The nearest documented occurrence is approximately 12 miles southeast of the project site (CCH 2019).
<i>Lewisia kelloggii</i> ssp. <i>kelloggii</i>	Kellogg's lewisia	USFS/None/3.2	Perennial herb found in openings and on ridgetops in upper montane coniferous forest, often on slate and sometimes rhyolite tuff substrates from 4,805 to 7,760 feet above mean sea level. Blooms May through August and sometimes April (CNPS 2019). The Jepson Flora Project (2019) describes habitat as "decomposed granite, volcanic ash, rubble, conifer forest."	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 7 miles southeast of the project site (CCH 2019).
<i>Lewisia longipetala</i>	long-petaled lewisia	USFS/None/1B.3	Perennial herb found on granitic substrates in alpine boulder and rock fields, and on mesic and rocky substrates in subalpine coniferous forest from approximately 8,200 to 9,600 feet above mean sea level. Known from the northern and central high Sierra Nevada. Blooms July through August and sometimes September (CNPS 2019). The Jepson Flora Project (2019) describes the habitat as "boulder, rock fields, crevices, scree fed by snow-melt, subalpine forest."	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 16 miles northeast of the project site (CCH 2019).

ATTACHMENT D
SPECIAL-STATUS PLANTS POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations, Life Form, Blooming Period, and Elevation Range	Potential to Occur
<i>Lewisia serrata</i>	saw-toothed lewisia	USFS/None/1B.1	Perennial herb found in mesic areas of rocky slopes of broadleafed upland forest, lower montane coniferous forest, and riparian forest from approximately 2,525 to 4,710 feet above mean sea level. Blooms May through June (CNPS 2019).	Not expected to occur. No mesic rocky slopes present. There is an occurrence for plants growing on a ledge below a waterfall in 2015 that intersects the project site; however, the occurrence location is classified and therefore mapped as the entire "Pollock Pines, CA" topographic quad (CDFW 2019).
<i>Meesia uliginosa</i>	broad-nerved hump moss	USFS/None/2B.2	Moss found in damp soil, bogs and fens, meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest from approximately 3,970 to 9,200 feet above mean sea level. Identifiable in July and October (CNPS 2019).	Not expected to occur. The project site lacks mesic microhabitats. The nearest documented occurrence is approximately 25 miles east-northeast of the project site (CCH 2019).
<i>Monardella linoides</i> ssp. <i>oblonga</i>	Tehachapi monardella	USFS/None/1B.3	Perennial rhizomatous herb found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest from approximately 2,950 to 8,105 feet above mean sea level. Blooms May through August (CNPS 2019). The Jepson Flora Project (2019) describes habitat as "chaparral, conifer woodland to forest, gravelly, dry slopes, flats."	Not expected to occur. This species is not known from El Dorado County (CNPS 2019). There are no documented occurrences within 200 miles of the project site (CCH 2019).
<i>Navarretia prolifera</i> ssp. <i>lutea</i>	yellow bur navarretia	USFS/None/4.3	Annual herb found in chaparral and cismontane woodland from approximately 2,795 to 4,600 feet above mean sea level. Blooms May through July (CNPS 2019). The Jepson Flora Project (2019) describes habitat as "dry, rocky flats near drainage channels."	High potential to occur. Although potential habitat on site is marginal and limited, there are six documented occurrences along Park Creek Road within or in the vicinity of the project site (CCH 2019).
<i>Ophioglossum pusillum</i>	northern adder's tongue	USFS/None/2B.2	Perennial rhizomatous herb found in meadows and seeps and along the margins of marshes and swamps from approximately 3,280 to 6,565 feet above mean sea level. Identifiable in July (CNPS 2019).	Not expected to occur. No meadows, seeps, marshes, or swamps present. The nearest documented occurrence is approximately 17 miles northeast of the project site (CCH 2019).

ATTACHMENT D
SPECIAL-STATUS PLANTS POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations, Life Form, Blooming Period, and Elevation Range	Potential to Occur
<i>Peltigera gowardii</i>	veined water lichen	USFS/None/4.2	Aquatic foliose lichen found in riparian forests on rocks in cold water creeks with little or no sediment or disturbance from approximately 3,490 to 8,600 feet above mean sea level (CNPS 2019).	Not expected to occur. No riparian habitat present. The nearest documented occurrence is approximately 17 miles southeast of the project site (CCH 2019).
<i>Phacelia stebbinsii</i>	Stebbins' phacelia	USFS/None/1B.2	Annual herb found in cismontane woodland, lower montane coniferous forest, and meadows and seeps from approximately 2,000 to 6,595 feet above mean sea level. Blooms May through July (CNPS 2019).	Low potential to occur. The project site is largely restricted to a disturbed roadway and provides limited undisturbed habitat. The nearest documented occurrence is for 30 plants observed growing in a steep rocky outcrop in Eldorado National Forest, approximately 3.7 miles northwest of the project site (CDFW 2019).
<i>Pinus albicaulis</i>	whitebark pine	USFS/None/CBR	Evergreen conifer found in upper red-fir forest to timberline, especially subalpine forest, from approximately 6,560 to 12,140 feet above mean sea level (Jepson Flora Project 2019).	Not expected to occur. The project site lacks habitat and is below the elevation range for this species. The nearest documented occurrence is approximately 19 miles northeast of the project site (CCH 2019).
<i>Poa sierrae</i>	Sierra blue grass	USFS/None/1B.3	Perennial rhizomatous herb found in openings of lower montane coniferous forest from approximately 1,195 to 4,920 feet above mean sea level. Blooms April through July (CNPS 2019).	Low potential to occur. Forested areas of the project site are generally well-shaded and contain a thick layer of pine duff on the ground. The nearest documented occurrence is approximately 10.7 miles north of the project site (CCH 2019; CDFW 2019).
<i>Rhynchospora capitellata</i>	brownish beaked-rush	None/None/2B.2	Perennial herb found in mesic areas of lower and upper montane coniferous forest, meadows and seeps, and marshes and swamps from approximately 145 to 6,560 feet above mean sea level. Blooms July through August (CNPS 2019).	Not expected to occur. The project site lacks mesic microhabitats. The nearest documented occurrence is approximately 4 miles north of the project site (CCH 2019).

Sources:

CCH (Consortium of California Herbaria). 2019. Database. Last Updated August 2019. Assessed December 2019. <http://ucjeps.berkeley.edu/consortium/>.

ATTACHMENT D
SPECIAL-STATUS PLANTS POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

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CNPS (California Native Plant Society). 2019. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). California Native Plant Society. Sacramento, CA. Accessed December 2019.
Jepson Flora Project. 2019. Jepson eFlora. Berkeley, California: University of California. Accessed December 2019. <http://ucjeps.berkeley.edu/IJM.html>.

CRPR = California Rare Plant Rank; USFS = United States Forest Service

Status Legend:

- USFS: U.S. Forest Service Sensitive Species
- CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2B: Plants rare, threatened, or endangered in California but more common elsewhere
- CRPR 3: Review List: Plants about which more information is needed
- CRPR 4: Watch List: Plants of limited distribution
- CBR: Considered but rejected (no CRPR)
- .1 Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- .2 Moderately threatened in California (20–80% occurrences threatened/moderate degree and immediacy of threat)
- .3 Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)



Attachment E

Special-Status Wildlife Potential to Occur

ATTACHMENT E
SPECIAL-STATUS WILDLIFE POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Invertebrates				
<i>Bombus occidentalis</i>	western bumble bee	USFS/PSE	Meadows and grasslands with abundant floral resources. Historically known throughout the mountains and northern coast of California. Currently found in high-elevation sites and a few records on the Northern California coast. Requires suitable nesting sites for colonies, nectar, and pollen resources available through spring, summer, and fall, and suitable overwintering sites. Typically nests in underground cavities in open west/southwest-facing slopes bordered by trees. Occasionally found in above-ground locations such as logs. Common host plant genera include <i>Cirsium</i> , <i>Erigonum</i> , <i>Solidago</i> , <i>Aster</i> , and <i>Ceanothus</i> (Xerces 2018).	Not expected to occur. The project site lacks open areas with abundant floral resources. No potential nest sites, such as burrows, were observed during the November 2019 fieldwork. The nearest documented occurrence is based on two collections near Georgetown in 1983 and 1985, approximately 9.4 miles northwest of the project site (CDFW 2019a).
Fishes				
<i>Entosphenus tridentatus</i>	Pacific lamprey	USFS,FT/SSC	Anadromous, sometimes freshwater, predator. Usually move upstream to spawn in gravelly areas March through June. Spawns where current is fairly swift and water depth is approximately 12 to 60 inches. Ammocoetes burrow into sand or mud downstream (Moyle 2002).	Not expected to occur. The project site is outside of the species' known geographic range and lacks potential aquatic habitat.
<i>Hypomesus transpacificus</i>	Delta smelt	FT/SE	Euryhaline species (tolerant of a wide salinity range) that is confined to the San Francisco Estuary, principally in the Delta and Suisun Bay. Occurs in the Delta primarily below Isleton on the Sacramento River side and below Mossdale on the San Joaquin River side. Found seasonally throughout Suisun Bay and in small numbers in larger sloughs of Suisun marsh. Moves into sloughs and channels of the western Delta (e.g., Lindsey Slough) when spawning (usually March through April). Can be washed into San Pablo Bay during	Not expected to occur. The project site is outside of the species' known geographic range and lacks potential aquatic habitat.

ATTACHMENT E
SPECIAL-STATUS WILDLIFE POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			high-outflow periods, but do not establish permanent populations there (Moyle 2002).	
<i>Mylopharodon conocephalus</i>	Hardhead	USFS/SSC	Typically found in undisturbed areas of larger low-to mid-elevation streams, although they are also found in the mainstem Sacramento River at low elevations and in its tributaries to approximately 4,920 feet above mean sea level. Prefers clear, deep (>32 inches) pools and runs with sand-gravel-boulder substrates and slow velocities. Always found in association with Sacramento pikeminnow (squawfish) and usually with Sacramento sucker. Tends to be absent from streams where introduced species, especially centrarchids (sunfish), predominate, and from streams that have been severely altered by human activity (Moyle 2002).	Not expected to occur. The project site is outside of the species' known geographic range and lacks potential aquatic habitat.
Amphibians				
<i>Ambystoma macrodactylum sigillatum</i>	southern long-toed salamander	None/SSC	Occurs in the Sierra Nevada from the vicinity of the Stanislaus River north through the mountains of California. Found primarily in yellow pine, mixed conifer, and red fir forests associated with mountain meadows from near sea level to approximately 9,180 feet. Adults are mostly subterranean except during breeding migrations. Mostly nocturnal on the surface. Breeds primarily in temporary ponds formed by winter and spring rains and snowmelt. Higher-elevation populations may require permanent ponds due to slow larvae development (CDFW 2019b).	Not expected to occur. The project site is outside of the species' known geographic range and there is no potential aquatic habitat present. The nearest documented occurrence is approximately 12.1 miles southeast of the project site (CDFW 2019a).
<i>Anaxyrus canorus</i>	Yosemite toad	USFS, FT/SSC	Restricted to the vicinities of wet meadows in the central high Sierra from approximately 6,400 to 11,320 feet above mean sea level. Primarily occurs in montane wet meadows, but also uses seasonal ponds associated with lodgepole pine	Not expected to occur. The project site is outside of the species' known geographic range and there is no potential aquatic habitat present. The nearest documented occurrence is approximately 32

ATTACHMENT E
SPECIAL-STATUS WILDLIFE POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			and sub-alpine conifer forests from El Dorado County to Fresno County (CDFW 2019b).	miles east-southeast of the project site (CDFW 2019a).
<i>Rana boylei</i>	foothill yellow-legged frog	USFS/SSC, PST	Found in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, Ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows from near sea level to approximately 6,370 feet in the Sierra Nevada. Egg clusters are attached to gravel or rocks in moving water near stream margins. Species is rarely encountered far from permanent water (CDFW 2019b).	Not expected to occur. No potential aquatic habitat present in or adjacent to the project site. The nearest documented occurrence is for a single detection in a tributary to Sly Park Creek in June 2004, approximately 1.2 miles southeast of the project site (CDFW 2019a).
<i>Rana draytonii</i>	California red-legged frog	FT/SSC	Inhabits ponds, quiet pools of streams, marshes, and riparian areas with dense, shrubby, or emergent vegetation from near sea level to approximately 5,200 feet above mean sea level, although most sightings occur below 3,500 feet. Requires permanent or nearly permanent pools for larval development (CDFW 2019b). May use ephemeral water bodies for breeding if permanent water is nearby (Thomson et al. 2016). Probably extirpated from the floor of the Central Valley before 1960 (USFWS 2002).	Not expected to occur. No potential aquatic habitat present in or adjacent to the project site. There is one occurrence for a population documented in 2019 that intersects the project site; however, location and ecological details are classified and the occurrence is mapped to encompass as the entire "Pollock Pines, CA" topographic quad. Further investigations into another overlapping record suggest that the occurrence is located in two ponds along North Fork Weber Creek, approximately 2.5 miles west-southwest of the project site (CDFW 2019a).
<i>Rana sierrae</i>	Sierra Nevada yellow-legged frog	USFS, FE/ST, WL	Occurs above 4,500 feet elevation in the Sierra Nevada from Plumas County south to the ridge dividing the middle and south forks of Kings River in Fresno County. Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, sub-alpine conifer, and wet meadow habitat types.	Not expected to occur. The project site lacks potential aquatic habitat and is below the elevation range for this species in the Sierra Nevada region. The nearest documented occurrence is approximately 6 miles

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SPECIAL-STATUS WILDLIFE POTENTIAL TO OCCUR
PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			Always encountered within a few feet of water (CDFW 2019b).	northeast of the project site (CDFW 2019a).
Reptiles				
<i>Emys marmorata</i>	western pond turtle	USFS/SSC	Highly aquatic species found in a broad range of aquatic habitats, including rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes, and other inundated wetlands. May use brackish, semi-permanent, or ephemeral features when inundated. Requires basking sites and loose soil in surrounding uplands suitable for nest excavation. Occurs throughout non-desert California from near sea level to approximately 6,700 feet. Isolated populations are known from the Mojave River, Susan River, Truckee River, Carson River, and Klamath Basin (Thomson et al. 2016).	Not expected to occur. The project site lacks potential aquatic habitat and upland nesting or overwintering habitat. There is one documented occurrence that intersects the project site; however, location details are classified and the occurrence is mapped to encompass as the entire "Pollock Pines, CA" topographic quad. The occurrence is for an undocumented number of turtles observed in two ponds along North Fork Weber Creek in July 2019 (CDFW 2019a).
Birds				
<i>Accipiter gentilis</i>	northern goshawk	USFS/SSC	Prefers nesting in middle- and higher-elevation immature, dense conifer forests. Habitat requirements include meadows and riparian habitat. Usually nests near water on north slopes in the densest parts of vegetation stands, staying close to openings (CDFW 2019b). Nest stands consistently have larger trees, greater canopy cover, and relatively more open understories than stands lacking nests (Shuford and Gardali 2008). Generally does not nest near areas of human habitation or paved roads (USFWS 2001).	Moderate potential to occur. Forested areas in and adjacent to the project site provide potential nesting habitat, although suitability is reduced with increased proximity to the roadway, which supports occasional vehicle activity. The nearest documented occurrence is for an active nest documented near Baltic Ridge in 1984, approximately 7.3 miles southeast of the project site (CDFW 2019a).
<i>Empidonax traillii</i>	willow flycatcher	USFS, BCC/SE	Found in wet meadow and montane riparian habitats of the Sierra Nevada and Cascade Range from approximately 2,000 to 8,000 feet above mean sea level. Prefers open river valleys and large	Not expected to occur. The project site is outside of the species' known geographic range and there is no potential habitat present. The

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SPECIAL-STATUS WILDLIFE POTENTIAL TO OCCUR
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Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			meadows with dense willow thickets close to the ground, which are required for nesting and roosting (CDFW 2019b).	nearest documented occurrence is approximately 17 miles east-northeast of the project site (CDFW 2019a).
<i>Haliaeetus leucocephalus</i>	bald eagle	USFS, FDL, BCC/FP, SE	Occurs along coasts, rivers, and large, deep lakes and reservoirs in California. More widespread as a winter migrant. Requires large bodies of water or free-flowing rivers with abundant fish and perching sites. Nests in large old growth and dominant live trees with open branchwork. Favors Ponderosa pine (CDFW 2019b).	Not expected to occur. The project site lacks nesting habitat, since there are no large rivers or reservoirs in the vicinity. There are multiple citizen science records, including a hotspot record (more than 10 observations) for a pair of bald eagles at Jenkinson Reservoir, approximately 0.9 miles south of the project site (eBird 2019).
<i>Riparia riparia</i>	bank swallow	None/ST	In California, primarily found west of deserts in riparian and other lowland habitats during the spring and fall. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine textured sandy soils, into which it digs nesting holes. Approximately 75% of the breeding population in California occurs along banks of the Sacramento and Feather Rivers in the northern Central Valley. Other colonies are known from the central coast from Monterey to San Mateo Counties, and in northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc Counties. Breeding colonies can have between 10 and 1,500, but typically between 100 and 200, nesting pairs (CDFW 2019b).	Not expected to occur. The project site lacks riparian nesting habitat. The nearest documented occurrence is located in the vicinity of Placerville, approximately 8.7 miles southwest of the project site (CDFW 2019a).
<i>Strix nebulosa</i>	great gray owl	USFS/SE	Occurs in the Sierra Nevada in the vicinity of Quincy in Plumas County south to Yosemite from approximately 4,500 to 7,500 feet above mean sea level. Occasionally reported in Northwestern California in winter and in the Warner Mountains in summer. Breeds in old-growth red fir, mixed	Not expected to occur. The project site is below the typical elevation range, and lacks nesting habitat due to a lack of meadows in the vicinity. The nearest documented occurrence is approximately 8.5

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PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			conifer, and lodgepole pine habitats in proximity to wet meadows. Uses trees in dense forest stands for roosting cover and small trees and snags in or bordering meadows for hunting perches. Nests in large, broken-topped snags with a diameter at standard height of at least 24 inches. May also use old hawk or eagle nests (CDFW 2019b).	miles south of the project site (CDFW 2019a).
<i>Strix occidentalis</i> ssp. <i>occidentalis</i>	California spotted owl	USFS/SSC	Occurs in dense, old-growth conifer forests with multiple canopy layers. May move into oak habitats in winter, or reside in oak habitats in Southern California. Roosts most often in dense canopy on north-facing slopes, usually within 1,000 feet of permanent water. Resides mostly in the southern Cascade Range of Northern California, along the west slope of the Sierra Nevada, and in the mountains of central and Southern California south to the Mexican border (Shuford and Gardali 2008).	Present. Dudek biologists aurally and visually detected at least one adult and two juvenile owls during three focused nighttime surveys conducted in August 2019 (Dudek 2019).
Mammals				
<i>Antrozous pallidus</i>	pallid bat	USFS/SSC	Occurs in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, mines, and sometimes in buildings and hollow trees that protect them from high temperatures. Night roosts may be more open, such as porches and open buildings. Sensitive to roosting site disturbance. Occurs throughout California except in the high Sierra Nevada from Shasta to Kern Counties, and the northwest corner of California from Del Norte and western Siskiyou Counties to northern Mendocino County (CDFW 2019b).	Low potential to occur. The project site is largely restricted to a disturbed access road and provides limited roosting options, apart from the occasional tree with peeling bark, cavities, or sufficient foliage. The nearest documented occurrence is approximately 15.4 miles east-southeast of the project site (CDFW 2019a).
<i>Aplodontia rufa californica</i>	Sierra Nevada mountain beaver	None/SSC	Uncommon in the Sierra Nevada. Occurs in dense riparian-deciduous and open brushy stages of most forest types. Typical habitat in the Sierra Nevada is montane riparian. Frequents open and intermediate-canopy coverage with a dense	Not expected to occur. The project site lacks brushy habitat near water. The nearest documented occurrence is located approximately

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PACIFIC TUNNEL REHABILITATION PROJECT

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			understory near water. Deep, friable soils and a cool, moist microclimate are required for burrowing. Feeds on vegetative parts of plants, mostly thimbleberry, salmonberry, blackberry, dogwood, salal, ferns, lupines, willows, and grasses. Vegetation is stored near a burrow entrance or in underground chambers. Burrows are located in deep soils in dense thickets, preferably near a stream or spring (CDFW 2019b).	8 miles north of the project site (CDFW 2019a).
<i>Bassariscus astutus</i>	Ringtail	None/FP	Mixed forests and shrublands near rocky areas or riparian habitats; forages near water and is seldom found more than 1 kilometer (0.62 mile) from a water source (CDFW 2019b).	Low to moderate potential to occur. The project site lacks permanent, year-round water, riparian habitat, rocky areas, and other microhabitat features preferred by this species (CDFW 2020). The nearest citizen science record is northwest of Placerville, approximately 25 miles from the project site (iNaturalist 2020).
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	USFS/SSC	Found throughout California in all but subalpine and alpine habitats, and may be found at any season throughout its range. Most abundant in mesic habitats. Requires caves, mines, tunnels, buildings, or other human-made structures for roosting. May use separate sites for night, day, hibernation, and maternity roosts. Hibernation sites are located in cold, but not freezing, environments. Maternity roosts are located in warm environments. Gleans from brush and trees, or feeds along habitat edges. Extremely sensitive to disturbance of roosting sites. Shows high site fidelity if undisturbed (CDFW 2019b).	Low potential to occur. The project site generally lacks roosting habitat for this species. The tunnel in the project site is likely too cold and restricted by high seasonal flows to provide potential roosting habitat. The nearest documented occurrence is for one bat detected in September 2010, approximately 16 miles northwest of the project site (CDFW 2019a).
<i>Gulo gulo</i>	California wolverine	USFS, PFT/FP, ST	Scarce resident of the north Coast Range and Sierra Nevada. In the northern Sierra Nevada, habitat consists of mixed conifer, red fir, and	Not expected to occur. The project site is outside of the species' known geographic range and lacks

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Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			lodgepole forest that is undisturbed and remote or with minimal motorized access (CDFW 2019b; Luensmann 2008). Excavates burrows under shelving rock or in logs, caves, or snags in remote places, at high elevations, away from human populations. Naturally occurs at low densities and rarely encountered (Verner and Boss 1980).	potential habitat. The nearest documented occurrence is located approximately 19.5 miles east-northeast of the project site (CDFW 2019a). No potential denning sites were observed in or adjacent to the project site during the 2019 biological fieldwork.
<i>Martes caurina</i>	Pacific marten	USFS/None	Occurs in remote, mixed evergreen forests of the North Coast regions, Sierra Nevada, Klamath, and Cascades Mountains. Optimal habitat includes old-growth forests with at least 40% canopy closure and abundant cavities for nesting and denning. Tends to travel along ridgetops, and rarely moves across large areas devoid of canopy cover (CDFW 2019b).	Low potential to occur. The project site is largely restricted to a disturbed access road and provides limited, poor habitat, since the site is located in an area of human activity. The nearest documented occurrences are in the Cascade Range, more than 175 miles northwest of the project site (CDFW 2019a).
<i>Myotis thysanodes</i>	fringed myotis	USFS/None	Widespread in California, excluding the Central Valley and deserts. Found in a variety of habitats from approximately 0 to 9,350 feet above mean sea level. Optimal habitat includes pinyon-juniper, valley foothill hardwood and hardwood-conifer from 4,000 to 7,000 feet above mean sea level. Roosts in caves, mines, buildings, snags, and crevices. Easily disturbed at roosting sites (CDFW 2019b).	Moderate potential to occur. The project site is largely restricted to a disturbed access road and provides limited roosting habitat. The nearest documented occurrence is 2.9 miles south of the project site (CDFW 2019a).
<i>Pekania pennanti</i>	fisher – West Coast Distinct Population Segment	USFS/SSC, ST	Uncommon permanent resident of Sierra Nevada, Cascades, Klamath Mountains, and the north Coast Range. Occurs above 3,200 feet in the Sierra Nevada and Cascades (Jameson and Peeters 2004). Prefers coniferous or deciduous riparian habitats with intermediate to large trees and closed canopies. Canopy closure must be greater than 50% to be suitable habitat. Dens in a variety of protected cavities, brush piles, logs, and	Not expected to occur. The species' current distribution in California is represented by two populations: northwestern California and southern Sierra Nevada. Fishers apparently no longer inhabit the area between the Pit River in the northern Sierra Nevada/Cascades to the Merced River in the southern

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Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			upturned trees. Hollow logs, trees, and snags are especially important (CDFW 2010).	Sierra Nevada, a separation of approximately 270 miles. There is little empirical evidence that fishers previously inhabited this gap in the Sierra Nevada (CDFW 2010).
<i>Vulpes vulpes necator</i>	Sierra Nevada red fox	USFS, FC/ST	Found in the Cascades in Siskiyou County, and from Lassen County south to Tulare County. Found in a variety of habitats, including alpine dwarf-shrub, wet meadow, subalpine conifer, aspen, montane chaparral, montane riparian, and mixed conifer forest (e.g. red fir, Ponderosa pine, lodgepole pine). Most sightings in the Sierra Nevada are above 7,000 feet, with a range of 3,900 to 11,900 feet above mean sea level. Den sites include rock outcrops; hollow logs and stumps; and burrows in deep, loose soil. Prefers forests interspersed with meadows or alpine fell-fields. Edge habitats are used extensively. Moves downslope in winter to Ponderosa pine and mixed conifer, and upslope in summer to lodgepole pine, subalpine conifer, alpine dwarf-shrub, and red fir habitats (CDFW 2019b).	Not expected to occur. The project site lacks habitat due to its proximity to regular human activity, and occasional disturbance on site. In addition, there are only two populations known to exist: one near Lassen Peak and the other near Sonora Pass (CDFW 2019b). The nearest documented occurrence, from 1973, is approximately 8 miles northeast of the project site (CDFW 2019a).

Status Abbreviations

FE: Federally Endangered
 FT: Federally Threatened
 FC: Federal Candidate
 FDL: Federally Delisted
 BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
 USFS: U.S. Forest Service Sensitive Species
 SSC: California Species of Special Concern
 FP: California Fully Protected Species
 WL: California Watch List Species
 SE: State Endangered
 ST: State Threatened
 PSE: Proposed State Endangered
 PST: Proposed State Threatened

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Appendix E

Cultural Resources Inventory Report
(Confidential - under separate cover)



800.450.1818 | DUDEK.COM | HELLO@DUDEK.COM

SOUTHERN CALIFORNIA

Encinitas (Main)
La Quinta
Pasadena
Riverside
San Juan Capistrano

CENTRAL COAST

Santa Barbara
Santa Cruz

NORTHERN CALIFORNIA

Auburn
Oakland
Sacramento

HAWAII

Kailua, O'ahu

OREGON

Portland

HABITAT RESTORATION SCIENCES

A Dudek Subsidiary